“SHE’LL BE FINE”: THE PREGNANCY MORTALITY GAP AND THE INFLUENCE OF BELIEFS AND EMPATHY ON PREGNANCY TREATMENT

by

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Black women are three to four times more likely to die due to pregnancy-related causes than White women, and experience greater maternal health complications, including increased infant mortality rates. While research documents the role of doctors’ racial and gender biases in the treatment of pain, cancer, and other health complications, limited research examines these biases in the context of pregnancy treatment. Further, these studies neglect the interaction between gender and race to form unique biases specific to a particular group, or individuals with “intersecting” identities. The present study examined the influence that the gendered and racialized stereotypes specific to Black women have on the medical treatment of pregnant women among White laypersons ($N = 278$) instructed to imagine that they are a physician. Further, this study examined the additional role that empathy biases play in the treatment of pregnant women. I predicted that participants randomly assigned to treat a Black pregnant target (versus a White pregnant target) would view the target in ways consistent with stereotypes about Black women, which would in turn decrease their empathy for this target, and therefore lead
participants to view the Black pregnant target’s symptoms as less severe than the White pregnant target. Results of the present experiment revealed a nonsignificant overall relationship between target patient race and symptom severity ratings via an internalized model, but a significant indirect relationship between target patient race and symptom severity ratings as mediated through externalized archetype endorsement (M1) and externalized empathy (M2) via an externalized (projective) model. I suggest that these findings demonstrate that 1) racialized and gendered stereotypes can influence levels of empathy for an individual, and 2) empathy influenced via participant biases and/or perceptions of their patient can influence treatment outcomes for their target patient. Future studies should further elucidate the racialized and gendered stereotypes that influence perceptions of Black women, and the ways that these perceptions influence the medical treatment of Black women (outside of the realm of pain) using methodology that includes in-person studies.

*Keywords:* Racial Bias, gender bias, intersectionality, health care disparities, pregnancy
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“She’ll be fine”: The Pregnancy-Mortality Gap and the Influence of Doctor Attitudes on Pregnancy Treatment

Black women are three to four times more likely to die due to pregnancy-related causes than White women and experience greater maternal health complications (National Partnership for Women and Families, 2018). This excessive burden faced by Black women has received increasing media attention over the last few years. Indeed, recent headlines of major news outlets feature recently widowed husbands and fathers, like Charles Johnson, a retired football player, pleading for the plight of their lost loved ones, asking that more attention be devoted to eliminating the racial disparity in the treatment of mothers-to-be (Curnow, 2020). Recent news headlines also feature celebrities like Beyoncé or Serena Williams who, despite their wealth and status in society, also seemed to face these serious health complications throughout their pregnancy (Howard, 2018).

Black women also experience higher rates of preterm births than White women (Smith, Bentley-Edwards, El-Amin, & Darity, 2018), with rates as high as 14 percent in 2016 for Black women and as low as nine percent in 2016 for White women (Smith et al., 2018). Notably, preterm births are a major source of infant mortality, accounting for 73 percent of Black infant deaths in 2016 (Smith et al., 2018). Pre-eclampsia, a condition wherein pregnant and postpartum sufferers experience high blood pressure, swelling, headaches, changes in vision, abdominal and or/shoulder pain, nausea or vomiting, and shortness of breath (Preeclampsia Foundation, 2019), is another potential cause of preterm birth (Goldenberg, Culhane, Iams, & Romero, 2008). Critically, being a Black woman is a risk-factor for developing pre-eclampsia (Preeclampsia Foundation, 2019),
with Black women also presenting with symptoms of pre-eclampsia earlier in their pregnancy than White women (National Partnership for Women and Families, 2018).

Another pregnancy condition, gestational diabetes, is a type of hyperglycemia that occurs when a pregnant person’s blood sugar becomes too high during their pregnancy (American College of Obstetricians and Gynecologists, 2021). While the American College of Obstetricians and Gynecologists notes that any individual can develop gestational diabetes, the groups that are most affected include women [people who can get pregnant] of African, Asian, Hispanic, Native American and Pacific Island descent (American College of Obstetricians and Gynecologists, 2021). Further, non-Hispanic Black women are 63 percent more likely than non-Hispanic White women to develop Type 2 diabetes following a diagnosis of gestational diabetes while pregnant (Bower, Butler, Bose-Brill, Kue & Wassel, 2019), with the additional outcomes of gestational diabetes including increased risk for stillbirth, as well as infant difficulties with breathing and jaundice (American College of Obstetricians and Gynecologists, 2021). The American College of Obstetricians and Gynecologists also notes that pre-eclampsia is often more common in women with gestational diabetes (2021), seemingly increasing the risk for developing one or both life-threatening conditions for Black women.

While these disparities are startling, it is perhaps even more startling that the standard protective factors, education and income, which Smith et al. (2018) argue are directly related to “access to health, quality of prenatal care available, and conditions of fetal development for mothers and their children” (Smith et al., 2018, p. 2), do not account for these reproductive and maternal health disparities (National Partnership for Women and Families, 2018). As per the Weathering Hypothesis (Geronimus, 1996),
cumulative social and economic disadvantage (e.g., racism, discrimination) contribute to accelerated aging, deteriorated health, and negative birth outcomes among Black women. Relatedly, robust racial disparities in the provision and quality of medical treatment provided by physicians, nurses, and other medical providers have been documented (Anderson et al., 2000; Calabrese et al., 2014; Chapman, Kaatz & Carnes, 2013; Green et al., 2003; Tait & Chibnall, 2014; van Ryn, 2002), suggesting that racial discrimination and biases may be pervasive in medical contexts. It is therefore important that psychologists consider and examine the role of racial bias among medical providers.

In the context of racial disparities, relatively few psychologists have examined potential gender differences in the medical treatment of Black men and Black women, or potential differences between Black women and White women. Even more concerning, many of the studies specific to racial disparities in medical treatment focus solely on pain perception and management, with a minority focusing on other forms of medical treatment like cancer treatment (Penner et al., 2016) and the preemptive treatment of HIV (i.e., Calabrese et al., 2014). This is especially concerning, given that 1) there is little acknowledgement of the unique social position of Black women in the context of medical treatment and 2) there is an even smaller focus on pregnancy treatment specifically. Thus, the aim of the present study was to examine whether the race (White versus Black) of an expectant mother presenting with symptoms consistent with gestational diabetes would influence medical providers’ perceptions of her symptom severity. I expected to find a racial bias favoring the White target, such that participants would perceive the White patient target’s symptoms to be more severe overall. Specifically, I expected participants who interacted with the Black pregnant target patient to more strongly endorse negative
stereotypes about Black women. This endorsement of negative stereotypes would then lead participants to have less empathy for the Black pregnant target patient than the White pregnant target patient. Finally, those two mediators (archetype/stereotype endorsement and empathy, respectively) would influence participants to view the White pregnant target patient’s symptoms as more severe than the Black pregnant target patient’s symptoms.

**Archetypes (Stereotypes) Specific to Black Women as a Mediator**

Intersectionality theory highlights the importance of the overlap between multiple identities and how these identities affect and influence stereotypes (Crenshaw, 1989; Rosenthal & Lobel, 2016). Further, its framework allows scholars to highlight stereotypes that are unique to the historical and present-day experiences of Black women (Alexander-Floyd, 2012; Collins, 2000; Thomas et al., 2004). Intersectionality work has been taken on by several fields, and some psychologists argue that incorporating intersectionality work into psychological literature addresses important issues more central in the work (i.e., Rosenthal, 2016). Purdie-Vaughns and Eibach (2008) argue that having two intersecting identities can have the compounding effect of rendering an individual with multiple intersecting identities—like Black women—invisible because they fail to represent the “prototype” representation of either of their identities. The authors argue that prototypicality is determined by androcentrism (defining the standard human as male), heterocentrism (defining the standard human as heterosexual), and ethnocentrism (defining the standard human as a member of the dominant ethnic group) (Purdie-Vaughns & Eibach, 2008). In the case of the present study, Black women could be rendered “invisible” because they are not the prototypical human, i.e., male and White.
Research focusing on men reveals that both medical providers and laypersons believe that Black people are less sensitive to pain than others (Hoffman et al., 2016; Wandner et al., 2012). Research has also found that these beliefs extend to the medical treatment of African American and Hispanic patients with metastatic cancer, minority patients with cancer-related pain, and ethnic minority patients seeking treatment for various types of pain (i.e., postoperative pain, experimental pain, etc.; Anderson et al., 2000; Cleeland et al., 1997; Green et al., 2003). Research on women suggests there are biases against women that influence medical treatment. Specifically, women are perceived to have a lower pain tolerance than men (Defrin, Shramm & Eli, 2009; Eli, 2009; Robinson et al., 2001), but are typically under-treated for their pain (Calderone et al., 1990; Dillon & Bridge, 1991). While both sets of research are incredibly important, where do they leave people who are both Black and female? Which set of beliefs is the doctor acting upon when they interact with Black female patients? And more specifically, what about Black pregnant patients?

Given that Black women possess at least two minority statuses (being Black and being a woman), I argue that intersectionality frameworks are important in understanding the role that these identities may play in how Black women navigate the world and how the world interacts with them, specifically in the context of doctor-patient interactions. In order to incorporate intersectionality frameworks, this study highlights the archetypes that many intersectional theorists argue are specific to Black women. Three common archetypes of Black women include the “sapphire”, “jezebel”, and “welfare queen”
The sapphire is loud, aggressive, domineering and emasculating; the jezebel is sexually immoral and promiscuous; and the welfare queen is a poor and uneducated woman who has children so that she can continue to abuse public assistance (because she doesn’t want to work; Collins, 2000; West, 2008; Woodard & Mastin, 2005). Research suggests that these archetypes still ring true in the assessments of Black women, such that individuals have endorsed these archetypes and/or aspects of these archetypes when thinking about or interacting with Black women. For instance, researchers found that Black women were perceived as “masculine” by a sample of predominantly White participants (Goff, Thomas & Jackson, 2008), which is consistent with the “sapphire” archetype. Further, researchers have found that Black women are still stereotyped in accordance with the “jezebel” and “welfare queen” stereotypes (Collins, 2000; Thomas et al., 2004).

To address intersectionality among diverse women (i.e., Black women, Latino women, Asian women, and white women), Ghavami & Peplau (2012) examined the perceptions of women from various racial groups and found that specific stereotypes emerge independently for different women depending on their racial group. By asking participants to list ten characteristics that were “a part of the current cultural stereotypes” of the target group, they found that the stereotypes that uniquely emerged for Black women were “[having a] big butt, [being] overweight, [being] confident, [being] assertive, [being] promiscuous, not [being] feminine, and [being] aggressive” (Ghavami & Peplau, 2012), aligning Black women with two of the archetypes: the jezebel archetype

1 The “mammy” is a fourth common archetype of Black women. The mammy is a non-sexual, overweight Black woman who is a caregiver over children (historically not her own). The present study did not examine the mammy.
triggering words like “big butt” and “promiscuous”, ” and the sapphire archetype triggering “assertive”, “not feminine” and “aggressive”.

Another study (Donovan, 2011) found similar results, in that Black women were perceived by participants in ways that were consistent with the “Sapphire” archetype (i.e., strong and domineering). The authors argued that such stereotyping as “strong” could lead to a “minimization of Black women’s mental and physical health problems” (Donovan, 2011, pp. 458). To extend this research to include pregnancy—especially given that many of these stereotypes seem to be related to Black women’s sexuality (and therefore reproductive habits)—Rosenthal and Lobel (2016) tested these stereotypes as they relate to Black women who are either pregnant or non-pregnant. These researchers found that Black female targets, regardless of pregnancy status, were rated more negatively by participants on items that were related to the aforementioned archetypes of Black women (i.e., items related to sexual activity and risk, motherhood status and socioeconomic status), especially the Welfare Queen archetype (Rosenthal & Lobel, 2016). Further, Black pregnant targets were more likely to be viewed by participants as single mothers or in need of public assistance than White pregnant targets (related again to the Welfare Queen archetype; Rosenthal & Lobel, 2016). This study is especially important in the context of the present work, given that these archetypes may directly influence the perception of Black pregnant women in an unfavorable way. For instance, if a doctor believes that a patient is hypersexual and/or has had children before, the doctor may be less likely to empathize with the concerns of the patient. Given that these stereotypes exist and at least affect the perception of Black women (and Black pregnant women), it is important to consider them in the context of medical treatment. Little
research has connected these stereotypes to medical treatment outcomes, and because other types of stereotypes seem to affect medical treatment, it is important to examine these stereotypes specific to Black women’s sexuality/reproductive ability, femininity, socioeconomic status and willingness to work, and ability to adequately care for her children.

**Empathy as a Mediator**

Empathy, defined as the ability to share and understand the feelings of another (New Oxford American Dictionary, 2019), has been identified as another potential cause for the disconnect between medical providers and their patients, given that the lack of empathy between a doctor and their patient can lead to ineffective treatment for a patient’s symptoms. For example, a meta-analysis of racial differences in helping behavior found that when helping behavior (such as helping a Black versus White person who is stranded on the highway) was “lengthier, riskier, more difficult, more effortful”, and when helping behaviors involved helping potential targets who were a further distance away, less help was provided to Black versus White targets (Saucier, Miller & Doucet, 2005). These findings are notable, as they demonstrate that the willingness to help an individual, a behavior which is often related to empathy, is influenced by the race of the perceived target. It is therefore possible that behaviors related to empathy, such as the validation of a patient’s report of their symptoms and subsequent treatment, can be influenced by the race of the patient as well. It is also possible that empathy for a person is related to the race of that person. For instance, one study found that racial bias alters participants’ empathetic responding to target pain, such that participants who exhibited higher implicit bias toward their ingroup (i.e., implicitly favored their ingroup) also
demonstrated greater differences in their reactivity to the pain of an ingroup versus an outgroup target (Avenanti, Sirigu, & Aglioti, 2010). Specifically, a lack of empathy for outgroup members’ pain was higher in participants who demonstrated higher implicit racial bias.

Relatedly, using functional magnetic resonance imaging, researchers found an increase in activity in the empathetic neural response of White and Asian participants when they viewed ingroup members in pain simulations; however, the researchers also found a decrease in the empathetic neural response when these same participants viewed a different-race target in a pain simulation (Xu, Zuo, Wang, & Han, 2009). Finally, Drwecki et al. (2010) found that pro-White biases with regard to empathy were significantly predictive of pain-treatment biases. In experiment one, these researchers found that participants reported higher levels of empathy on average for the White versus Black patients. In the second and third experiments, participants interacted with four patients, similar to experiment 1 (two Black and two White patients) and were randomly assigned to engage in an empathy-inducing exercise (experimental condition) or a control condition. Participants who engaged in the empathy-inducing exercise demonstrated a reduction in pain-treatment biases compared to participants who did not complete the exercise (Drwecki, Moore, Ward & Prkachin, 2010). In their assessment of target patients, nursing professionals (participants in experiment three) were asked to respond to a 4-item treatment questionnaire in which they were asked to report how much pain medication, physical therapy, pain-focused massage therapy, and pain-focused acupuncture therapy they would recommend for the patient on a scale from 1 (none) to 9 (a very strong amount). Pro-white biases in pain treatment in the case of this study
manifests as scoring relatively lower on any of these four items compared to other participants, and RN’s (nursing professionals) who were assigned to the control condition recommended less pain treatment on average for Black versus White targets.

These studies demonstrate that empathy can have an impact on the medical treatment of pain, but limited research has been conducted on the effect of empathy in other medical treatment contexts. While empathy from a doctor/medical provider has been demonstrated to influence doctor response to and treatment of pain, there are minimal examinations of the influence that doctor empathy has on the treatment of, for instance, cancer, HIV, and finally—specific to the present research—pregnancy-related conditions. Further, given that racial biases influence levels of empathy in the case of pain treatment, it is important to examine how racial biases influence empathy in the context of the treatment of pregnancy-related conditions.

**Current Study**

The purpose of the current study was to examine the effect that the beliefs of White participants pretending to be physicians have on the treatment of a Black pregnant patient presenting with symptoms of gestational diabetes versus the treatment of a White pregnant patient presenting with the same symptoms. Moreover, the present study attempts to examine the extent to which race of the pregnant patient target influences archetype endorsement, which will influence empathy for the pregnant patient target, which, in turn, will influence medical providers’ severity ratings of the pregnant patient’s symptoms. I hypothesized that participants would rate the White target patient’s symptoms as being comparatively more severe overall. I hypothesized that this would be the case specifically because participants would more strongly endorse archetypes
specific to Black women when interacting with the Black versus White target patient, which would in turn be associated with decreased empathy for the Black target patient, which would finally be associated with ratings of decreased symptom severity for the Black target patient (i.e., her symptoms will be perceived as less severe; serial mediation).

**Method**

Participants completed an online survey, during which they were introduced to a filler and target patient, assessed on their endorsement of Black-women archetypes specific to the target patient, empathy towards the target patient, ratings of the severity of the patient target’s symptoms, and other demographic information. Additionally, participants were assessed on their endorsement of physiological differences between Black and White individuals, as well as their Social Dominance Orientation (these assessments were not the foci of the present study).

**Participants**

Participants (N = 278) were recruited through Amazon TurkPrime. Participants were White laypersons between the ages of 18 and 91 (M_{Age} = 44.17). An a priori power analysis conducted using G*Power determined that we would need 130 participants in order to achieve sufficient power (power = .80) to detect a small to medium effect size (f = .15) using an analysis of covariance. We oversampled by 160 (to recruit 290 participants total) participants to account for participant attrition, failed manipulation checks, and potential bots—online automatic survey takers which complete a survey in place of a real participant. To participate in the survey, participants followed the link provided through Amazon Mechanical Turk, and were unable to take the survey if they
were not White, if they were less than 18 years of age, or were employed as a physician or any other type of medical provider (e.g., nurse). The sample was 61% female (N=171). Participants who failed three or more manipulation checks or attention checks, failed to complete the survey, or failed to provide the correct payment code upon study completion were removed from analysis. Further, participants who indicated that they were uncomfortable with their data being used had their data removed from analysis as well (N=79; this number includes bots not recruited through Amazon TurkPrime). Upon study completion, participants were rewarded $1.25 through Amazon TurkPrime. This study received Rutgers University institutional review board approval.

**Procedure**

After being directed to the online survey via a survey link provided through Amazon Mechanical Turk, participants were told that the purpose of the study was to mimic the decision-making processes of doctors and other health-care providers and asked to sign an online consent form before continuing. Next, participants were given the filler patient file (see Appendix B). Following this, participants were randomly assigned to review the Black or White pregnant target patient file (Appendix C), which listed the patient’s symptoms and her reason for visiting. Thereafter, participants were assessed on their perceptions of the target patient (modified from Rosenthal & Lobel, 2016; see Appendix D). Next, participants were assessed on their level of empathy for the patient (Baston et al., 1988; Drwecki et al., 2010; see Appendix E). After this, participants were provided with a health briefer of common pregnancy symptoms (see Appendix F). Next, participants were asked to assess the target pregnant patient’s symptoms (see Appendix G). Finally, participants responded to items assessing their social dominance orientation
(Ho et al., 2015; see Appendix H) and their endorsement of false biological differences between Black and White people (Hoffman et al., 2016; see Appendix I) although these constructs and measures were not foci of this master’s thesis project. Lastly, participants were debriefed and compensated.

Measures

Patient Photos

Target Patient Photos

To collect images of pregnant target patients, I searched for images of pregnant women via a Google search using keywords “pregnant”, “woman”, “Black”, “White”, “medical gown”, and “hospital”. Images featured Black and White pregnant women in similar positions (i.e., standing and holding their stomach) and who were all similar regarding their pregnancy stage (i.e., similar stomach sizes). I also used featured headshots of White and Black women collected from the Chicago Face Database (Ma, Correll, & Wittenbrink, 2015). While the headshots would not accurately represent pregnancy, the headshots were used as backup stimuli, should the images of pregnant women have appeared too dissimilar on necessary domains (i.e., prototypicality, attractiveness, femininity, etc.).

To ensure that these images differed only by race, I conducted a pretest online using Qualtrics survey software, with 85 participants as laypersons recruited via Amazon Mechanical Turk. Participants were all White with 34 female participants, 58 male participants, and 1 transgender (female to male) participant. On average, participants were 34.96 years old, with the minimum age being 18 years old and the maximum age being 69 years old ($SD=11.12$). Pre-testers identified the perceived race & ethnicity,
attractiveness, prototypicality (i.e., how representative an individual’s physical characteristics are of their race group), femininity, masculinity, age, and number of months pregnant for the photos of pregnant women. Pre-test raters were randomly assigned 8 pregnant women to rate (4 White and 4 Black), as well as sixteen headshots (8 headshots of White women, 8 headshots of Black women per participant). I then selected the pregnant women targets unanimously identified as Black and White, respectively, and that were rated the most comparably in terms of femininity ($M_{\text{Black Target}} = 6.30$, $M_{\text{White Target}} = 5.94$), masculinity ($M_{\text{Black Target}} = 2.72$, $M_{\text{White Target}} = 2.97$), and perceived attractiveness ($M_{\text{Black Target}} = 5.60$, $M_{\text{White Target}} = 5.53$), and prototypicality ($M_{\text{Black Target}} = 5.45$, $M_{\text{White Target}} = 5.44$), with these items being scored on a scale of 1 (strongly disagree) to 7 (strongly agree) for statements such as “This person is attractive” or “This person’s face has the typical features for someone of his/her racial/ethnic group”. These images also rated most comparably on age ($M_{\text{Black Target}} = 2.36$, $M_{\text{White Target}} = 2.53$; appearing between 20-29 years old). Additionally, I matched the Black pregnant woman to the White pregnant woman based on perceived pregnancy status (i.e., how far along in the pregnancy the target seemed to be; $M_{\text{Black Target}} = 3.40$, $M_{\text{White Target}} = 3.31$; appearing about 4-7 months pregnant). The final images that were selected of the Black pregnant woman and White pregnant woman are found in the Appendix A (Figure 1 and Figure 2, respectively). The final images used did not include headshots from the Chicago Face Database because the images of the pregnant Black and White women in hospital gowns were rated most comparably in terms of femininity, masculinity, age, perceived pregnant status, perceived attractiveness, and prototypicality. Additionally, the selected images better depicted pregnancy (i.e., the women were visibly pregnant in the photos) than the
headshots from the Chicago Face Database. A series of independent-samples t-tests determined that these images did not significantly differ on the domains mentioned above. For the results of these t-tests, see Appendix B, Table 1.

*Filler Patient Photos*

The filler patient was an East Asian female. We pretested images of East Asian females taken from the Chicago Face Database (Ma, Correll, & Wittenbrink, 2015). These images were also evaluated for race & ethnicity, attractiveness, prototypicality, femininity, and masculinity. Pre-testers were presented with 20 East Asian female headshots. We selected the final image of the East Asian woman by choosing the image most comparable on attractiveness, prototypicality, femininity and masculinity to both the Black and White pregnant target images. The final image of the East Asian woman is found in Appendix A (Figure 3). For the results of the t-tests comparing the East Asian Filler Patient and the Black and White pregnant target patients, see Appendix B, Tables 2 and 3 respectively.

*Filler Patient File*

The filler patient file was presented to all participants, and featured a headshot of an East Asian woman, as well as a set of symptoms designed to mimic the symptoms of a broken arm. The presented symptoms included bruising in left forearm and pain in left forearm. The patient was 27 years old, and her name was Olivia (see Appendix C).

*Target Patient File*

The patient file that was presented to participants varied only by the race of the pregnant target (Black versus White). The file featured a picture of the target, as well as a set of symptoms designed to mimic the symptoms of gestational diabetes. The presented
symptoms included frequent urination, feeling hungry more often, and feeling lethargic.

The age of the patient was 26 years old, the average age of pregnant women in the United States as of 2016 (Livingston, 2018). The patient was 34 weeks pregnant. The target patient’s name was Noelle (see Appendix D).

**Endorsement of Archetypes Measure**

The present study adapted measures used by Rosenthal & Lobel (2016; $\alpha = .67$) to assess participants’ perceptions of the patient target. The items were designed and previously used to operationalize the archetypes specific to Black women (i.e., the sapphire, etc.; Rosenthal & Lobel, 2016). Specifically, after reading the patient file participants were asked about the 1) sexual activity of the patient, 2) motherhood status of the patient (i.e., “it is a good idea for her to be a mother right now” or “she would make a good mother”) and 3) socioeconomic status of the patient (i.e., “she will need some sort of public assistance if she has her baby”). This measure, as well as the measures below, contain both “internalized” and “externalized” items, with “internalized” representing the participants’ own feelings/perceptions of their patient, and “externalized” representing how the participant believes others will feel about/perceive their patient. After completing the internalized items (i.e., she will need some sort of public assistance if she has her baby”; $\alpha = .67$) participants were asked the extent to which others might endorse these same sentiments (i.e., “others will think she will need some sort of public assistance is she has her baby”; $\alpha = .75$), again, with these items being referred to as “Externalized items”. The purpose of these “externalized”, or rather, projective items was to potentially offset any social desirability bias from participants, wherein survey participants are hesitant or unable to report accurately on sensitive topics.
in order to either manage the impression they make on others or for “ego-defensive”
reasons (Fisher, 1993). Research suggests that asking indirect questions (e.g., projective)
reduces social desirability biases on variables that are subject to social influence (Fisher,
1993), which includes race in the case of this study. Participants responded to these items
on a scale from 1 (Strongly disagree) to 6 (Strongly agree). For the Endorsement of
Archetypes measure, there are 15 internalized and 15 externalized items, which can be
found in Appendix E.

Participant scores on this measure were calculated across internalized (N\textsubscript{items} = 15)
and externalized (N\textsubscript{items} = 15) items separately by averaging each set of items to form
composite scores representing internalized archetype endorsement and externalized
archetype endorsement per participant.

Empathic Concern Scale

To assess participant empathy for the patient, we employed the Empathic Concern
Scale (Baston et al., 1988; Drwecki et al., 2010). Researchers who have designed and
used the scale note that the scale “attempts to quantify the in-the-moment experience of
empathy” (Baston et al., 1988; Drwecki et al., 2010, p.1002) by asking participants the
extent to which they (internalized items) or others (externalized items) feel “tender”,
“softhearted”, “warm”, “compassionate,” “moved,” “concerned,” and “sympathetic”
toward the patient on a scale from 1 (not at all) to 7 (extremely). The original scale
included only internalized items (i.e., “to what extent do you feel compassionate towards
the patient”) and was modified for the purpose of this study to include the externalized
items (i.e., “to what extent would others feel compassionate towards the patient”). See
Appendix F for items. I created a composite score per participant for internalized
empathy ($\alpha = .93$) and externalized empathy ($\alpha = .95$) separately by averaging each set of items ($N_{items} = 5$ for internalized and externalized items separately).

**Health Briefer Measure**

The health briefer outlined three separate pregnancy conditions to aid the participants (laypersons) in responding with as much information as possible to the symptoms each target patient presented with. Additionally, the health briefer was included in the present study to mimic, as closely as possible, the information medical providers might have on hand when treating pregnant patients. The presented pregnancy conditions included pre-eclampsia (a hypertensive condition), gestational diabetes (a natal diabetic condition) and anemia. The health briefer also included an official website link where more information on these conditions could be found (See Appendix G).

**Symptom Assessment Measure**

To assess overall symptom severity, participants were asked to answer a series of questions on a scale from 1 to 6 ($1 = \text{not likely at all}; 6 = \text{very likely}$), with higher scale numbers indicating greater endorsement of perceived symptom severity ($\alpha = .74$) of the patient’s symptoms (internalized). Some sample items include: 1) How severe do you perceive the patient’s symptoms to be, 2) How likely are you to recommend some form of treatment for the presented symptoms, and 3) How likely is it that the patient is exaggerating her symptoms. Additionally, participants were also asked to assess the patient’s symptoms based on others’ perspective (i.e., externalized—"how severe will others perceive the patient’s symptoms to be”, etc.; $\alpha = .67$). Further, to ensure that participants were actively engaged with responding to the target patient’s symptoms, the present study employed a series of manipulation checks designed to assess the
participants’ memory of the patient’s symptoms and other details about the patient. Participant scores on this measure were calculated across internalized ($N_{items}=10$) and externalized ($N_{items}=7$) symptom assessment items separately by averaging each set of items to form composite scores representing internalized symptom assessment and externalized symptom assessment per participant. This measure can be found in Appendix H.

**Data Analytic Plan**

**Data Cleaning**

Participants who failed three or more manipulation checks, failed to complete the survey, or failed to provide the correct payment code upon study completion were removed from the final analytic sample. Further, participants who indicated that they were uncomfortable with their data being used had their data removed from analysis as well. Because participants who failed to complete the survey were removed from analysis, there were no missing data. I checked for outliers by using scores that fell three or more standard deviations above or below the mean. As no participants scored this high or low on any of my measures, there were no outliers in the data. Further, I examined the distribution of my variables of interest (i.e., empathy, archetype endorsement, and symptom assessment) for skewness and kurtosis and found that for each variable, kurtosis values were each less than one. Additionally, each variable had a skewness value that approached zero. As such, the distributions of our variables of interest were not skewed or kurtotic.
Results

I wanted to test the hypothesis that participants assigned to treat the Black pregnant target patient would more strongly endorse Black women archetypes than participants assigned to treat the White pregnant target patient. I predicted that this increased endorsement of archetypes would lead to less empathy for the Black target patient, which would therefore lead to less perceived symptom severity (i.e., the patient’s symptoms would be perceived as less severe) for the Black target patient.

First, I conducted an independent-samples t-test using SPSS version 27 to assess the influence of gender on symptom assessment, as previous research notes gender differences in the application of empathy (Hojat et al., 2002; Hojat et al., 2018). The results of this t-test found a significant difference between men and women, such that the women in our sample ($M = 5.14; SD = .63$) rated the target patient’s symptoms as more severe than men in our sample ($M = 4.96; SD = .55$), $t(276) = -2.328, p = .021; d = .60$.

Additionally, I conducted a chi-square test using SPSS version 27 to examine potential conditional differences in participant ability to correctly guess the purpose of the study. The results of this test revealed a significant conditional difference in ability to accurately guess the study’s purpose, such that participants in the Black pregnant target condition more often guessed the purpose of the study ($N_{yes} = 69; N_{no} = 74$) than participants in the White pregnant target condition ($N_{yes} = 38; N_{no} = 97$), (coded as “yes” = correctly guessed the study purpose; “no” = incorrectly guessed the study purpose); $X^2(1, N = 278) = 11.85, p < .001$. Because of the results from the two tests above, these variables (gender and guessing the purpose of the study) were included as covariates in the primary analyses.
Primary Analyses

To test the hypothesis that participants assigned to treat the Black pregnant target would rate the patient’s symptoms as less severe, I conducted a one-way ANCOVA using SPSS version 27. This allowed me to compare participants in the White pregnant target condition to participants in the Black pregnant target condition on their overall symptom severity ratings, while controlling for both gender and participant’s ability to guess the study’s purpose correctly. The results of the one-way ANCOVA conducted using the internalized symptom severity assessment items revealed that participants in the Black (\(M = 5.14; SD = .59\)) and White (\(M = 5.00; SD = .62\)) target conditions did not significantly differ on their ratings of their patient’s symptom severity, \(F(1, 274) = 3.10, p = .08, \eta^2 = .011\). The results of the one-way ANCOVA conducted using the externalized symptom severity assessment items additionally revealed no significant differences in externalized symptom assessment (i.e., the extent to which others will respond to the patient’s symptoms) between participants in the White target condition (\(M = 5.13; SD = .64\)) and participants in the Black target condition (\(M = 5.11; SD = .66\); \(F(1, 274) = .08, p = .772, \eta^2 = .00\).

Mediation analyses for Internalized Items

To assess the relationship between target patient race and internalized symptom severity ratings as mediated by internalized archetype endorsement and empathy, I used Hayes’ PROCESS macro (Hayes, 2013). Researchers and statisticians have suggested bootstrapping as a way of testing indirect effects while simultaneously avoiding power issues. Following the recommendations of Hayes (2013), I conducted mediation analyses with 10,000 bias-corrected bootstrapped confidence intervals using model six of the
PROCESS macro (Hayes, 2013) to examine the indirect effect of target patient race (White versus Black; X) on perceived symptom severity (Y) through archetype endorsement (M1) and empathy (M2). I included gender and whether participants were able to correctly guess the study’s purpose as covariates in the mediation models below.

The model for the mediation analysis I conducted to examine the indirect effect of target patient race on perceived symptom severity through archetype endorsement and empathy can be found in Appendix H, Figure 5. Overall, there was no significant direct effect of target patient race (Black versus White pregnant target patient) on internalized symptom severity rating, $B = -.02, t(273) = -.28, p = .78; SE = .06; 95\% CI: [-.14, .10]$. The indirect effect of target patient race on internalized symptom severity rating through archetype endorsement and empathy was additionally non-significant, $B = -.01, SE = .01; 95\% CI: [-.03, .02]$. The association between target patient race and internalized archetype endorsement was non-significant, $B = .02, t(273) = .39, p = .69; SE = .06; 95\% CI: [-.09, .13]$. While internalized archetype endorsement did not serve as a significant serial mediator (M1) in the relationship between target patient race and internalized symptom severity ratings, the association between internalized archetype endorsement and internalized empathy was significant, $B = -.74, t(273) = -5.28, p < .001; SE = .14; 95\% CI: [-1.0, -.46]$, such that as archetype endorsement increased, empathy for the target patient decreased. Further, the relationship between internalized empathy and internalized symptom severity ratings was significant, such that as empathy for the target patient increased, participants increasingly viewed their target patient’s symptoms as more severe; $B = .32, t(273) = 11.33, p < .001; SE = .03; 95\% CI: [.26, .37]$, although similarly to internalized archetype endorsement (M1), internalized empathy did not serve as a
significant serial mediator (M2) in the assessed model. Further, the relationship between target patient race and internalized empathy was significant, $B = -.34$, $t(273) = -2.62$, $p < .01$; $SE = .13$; 95% CI: [-.60, -.08], such that participants reported significantly less empathy for the White target patient than the Black target patient. Finally, the relationship between internalized archetype endorsement and internalized symptom severity ratings was non-significant, $B = .08$, $t(273) = 1.20$, $p = .23$; $SE = .07$; 95% CI: [-.05, .21].

**Mediation analyses for Externalized Items**

To assess the relationship between target patient race and externalized symptom severity ratings as mediated by externalized archetype endorsement and empathy, I conducted a mediation analysis with 10,000 bias-corrected bootstrapped confidence intervals using model six of the PROCESS macro (Hayes, 2013) to examine the indirect effect of target patient race (White versus Black; X) on perceived symptom severity (Y) through externalized archetype endorsement (M1) and externalized empathy (M2). I included gender and whether participants were able to correctly guess the study’s purpose as covariates.

There was no significant direct effect of target patient race on externalized symptom severity ratings, $B = .01$, $t(273) = .07$, $p = .94$; $SE = .08$; 95% CI: [-.14, .15]. The association between target patient race and externalized empathy was non-significant, $B = -.15$, $t(273) = -1.12$, $p = .26$; $SE = .13$; 95% CI: [-.40, .11]. Finally, the relationship between externalized archetype endorsement and externalized symptom severity ratings was non-significant, $B = .12$, $t(273) = 1.80$, $p = .07$; $SE = .07$; 95% CI: [-.01, .25].
However, the serial mediation model was significant, $B = .11$, $SE = .03$; 95% CI: [.07, .17]. Target patient race influenced externalized archetype endorsement, $B = -.43$, $t(273) = -5.82$, $p < .001$; $SE = .07$; 95% CI: [-.57, -.28], which in turn was negatively associated with externalized empathy, $B = -.88$, $t(273) = -8.70$, $p < .001$; $SE = .10$; 95% CI: [-1.10, -.68], which in turn influenced externalized symptom severity ratings, $B = .30$, $t(273) = 8.60$, $p < .001$; $SE = .04$; 95% CI: [.23, .37]. Both externalized archetype endorsement and externalized empathy acted as significant serial mediators (M1 and M2 respectively) in the relationship between target patient race and externalized symptom severity ratings, and as such there was a significant indirect relationship between target patient race and externalized symptom severity ratings, $B = .11$, $SE = .03$; 95% CI: [.07, .17]. In other words, participants reported that others would be more likely to endorse the archetypes when interacting with the Black pregnant target patient than with the White pregnant target patient; participants believed that individuals who more strongly endorsed the archetypes would have less empathy for the patient and endorsement of less externalized empathy was associated with lower externalized overall symptom severity ratings. For the serial mediation model with externalized items/measures, see Appendix H, Figure 6.

Supplemental Analyses

As a post-hoc analysis, I examined a serial mediation model with externalized archetype endorsement as the first mediator, and internalized empathy as the second mediator in the relationship between race and internalized symptom assessment to determine whether externalized archetype endorsement was predictive of participants’ own empathy. Both the direct effect and indirect effect of race on internalized symptom
severity ratings through externalized archetype endorsement and internalized empathy were non-significant, $B = .05, t(273) = .78, p = .43; SE = .06; 95\% CI: [-.08, .18]$, and $B = .03; SE = .02; 95\% CI: [-.0031, .07]$, respectively. Externalized archetype endorsement (M1) and internalized empathy (M2) did not serially mediate the relationship between target patient race and internalized symptom severity ratings. However, the analyses revealed a significant association between race and externalized archetype endorsement, $B = -.43, t(273) = -5.82, p < .001; SE = .07; 95\% CI: [-.57, -.28]$. Externalized archetype endorsement was significantly related to internalized empathy, $B = -.24, t(273) = -2.10, p = .04; SE = .11; 95\% CI: [-.46, -.02]$, and internalized empathy was significantly related to internalized symptom assessment, $B = .32, t(273) = 11.98, p < .001; SE = .03; 95\% CI: [.26, .37]$. Further, there was a significant association between race and internalized empathy, $B = -.46, t(273) = -3.18, p = .002; SE = .14; 95\% CI: [-.75, -.18]$, as well as between externalized archetype endorsement and internalized symptom severity ratings, $B = .15, t(273) = 3.09, p = .002; SE = .05; 95\% CI: [.06, .25]$. For the full serial mediation model, please see Appendix H, Figure 7.

I conducted an additional post-hoc analysis wherein I examined a serial mediation model with externalized archetype endorsement as the first mediator, and externalized empathy as the second mediator in the relationship between target patient race and internalized symptom severity ratings to determine whether externalized archetype endorsement and externalized empathy would influence internalized symptom severity ratings. The direct effect of race on internalized symptom assessment was non-significant, although the indirect effect of race on internalized symptom assessment was significant; $B = -.06, t(273) = -.86, p = .49; SE = .07; 95\% CI: [-.21, .08]$, and $B = .09; SE$
Externalized archetype endorsement was significantly influenced by target patient race, $B = -.43$, $t(273) = -5.82$, $p < .001$; $SE = .07$; 95% CI: [-.57, -.28]. As a result, externalized archetype endorsement significantly influenced externalized empathy; $B = -.88$, $t(273) = -8.70$, $p < .001$; $SE = .10$; 95% CI: [-1.08, -.68], which then influenced internalized symptom severity ratings, $B = .23$, $t(273) = 6.80$, $p < .001$; $SE = .03$; 95% CI: [.16, .29]. The relationship between race and empathy was non-significant; $B = -.15$, $t(273) = -1.12$, $p = .26$; $SE = .13$; 95% CI: [-.40, .11]. The relationship between externalized archetype endorsement and internalized symptom severity ratings was significant; $B = .28$, $t(273) = 4.41$, $p < .001$; $SE = .06$; 95% CI: [.15, .40]. The full serial mediation model can be found in Appendix H, Figure 8.

**Discussion**

The purpose of the present study was to investigate the role racialized and gendered biases (archetypes specific to Black women) towards Black women, and how these biases work to influence empathy and ultimately, severity ratings and treatment of pregnancy conditions, specifically gestational diabetes. I hypothesized that participants randomly assigned to treat a Black pregnant target (versus a White pregnant target) would view the target in ways consistent with stereotypes about Black women, which would in turn decrease their empathy for this target, and therefore lead participants to view the Black pregnant target’s symptoms as less severe than the White pregnant target.

In part, my hypothesis was unsupported. I hypothesized first that there would be a significant main effect of race on symptom severity ratings, such that participants would report higher symptom severity for the White rather than the Black pregnant target patient. However, there were no significant difference in symptom severity ratings.
between participants in the Black and White target conditions. Additionally, I found a non-significant indirect effect of target patient race on internalized symptom severity ratings as serially mediated through archetype endorsement and empathy for the target patient. My hypothesis was partially supported in the internalized model, as I found significant relationships between archetype endorsement, empathy, and symptom severity ratings. As archetype endorsement increased, empathy significantly decreased. Additionally, as empathy decreased, symptom severity ratings decreased as well. My hypothesis was also partially supported with the externalized model, given that the model was significant. The results from the internalized model provide evidence that endorsement of archetypes/stereotypes can influence the perceived symptom severity of a pregnant patient through empathy, which could potentially alter downstream treatment outcomes. As such, the present study established a pathway between racialized/gendered biases and pregnancy treatment.

There was a significant indirect effect of target patient race on externalized symptom severity ratings, as mediated through externalized archetype endorsement and externalized empathy. Results from the externalized model suggest that participants may be more likely to demonstrate their own biases in a projective manner. By adjusting for socially desirable responding, the externalized items may have revealed participants biases racialized/gendered biases towards the target patient, which would go on to influence participants’ empathy for the target patient, thereby influencing participants’ perception of the target patient’s symptom severity. Alternatively, the results from the alternative model suggest that participants believe others to hold significant racialized/gendered biases towards their patients (as influenced by the race of the
patient), and these racialized/gendered biases that others hold influence the empathy that others may have for a patient, thereby influencing the patient’s pregnancy treatment.

Previous research has demonstrated a link between stereotypes/biases and health treatment, specifically stereotypes and biases as they relate to race (Anderson et al., 2000; Calabrese et al., 2014; Hoffman et al., 2016), gender (Defrin, Shramm, & Eli, 2009; Dillon, McDonald, & Bridge, 1991; Fillingim, Edwards, & Powell, 1999; Wise et al., 2002) and even sexual orientation (Calabrese et al., 2014). However, very limited research examines pregnancy treatment specifically as a form of health treatment or outcome variable. With that, it is possible that there are additional factors that health care providers or individuals who are mimicking health care providers’ decision-making must consider when treating pregnant patients. For instance, most research involving the influence of racial and gender biases on medical treatment examine racial biases in the treatment of pain (Hoffman et al., 2016; Hollingshead, Meints, Miller, Robinson, & Hirsh, 2016; Mathur, Richeson, Paice, Muzyka, & Chiao, 2014). It is important to note that not all pregnancy conditions include symptoms of pain, and so it’s possible that the racial biases examined in the context of medical treatment are specifically relevant to pain—meaning, these racial biases may only be activated in the context of medical treatment when a medical professional is providing treatment for pain and/or conditions preceded by or related to pain. While the archetypes examined in this study may be related to sexuality and/or sexual behaviors, it is possible that individuals separate these archetypes from pregnancy. Plainly put, it is possible that the influence of racial or gender biases in medical treatment are especially relevant when treating pain, rather than treating other medical conditions that are unrelated to or not preceded by pain.
Additionally, it is possible that social desirability bias could be playing a role in the connection between the Black-women archetypes, empathy, and the race of the target patient. One alternative explanation offered for the significance of the externalized model was that participants assumed that 1) other people would endorse the archetypes more for the Black pregnant target than for the White pregnant target, and that this endorsement would 2) decrease the level of empathy others have for their patient. Additionally, with the externalized items, participants believed that 3) a person with decreased empathy for their patient would perceive the patient’s symptoms as less severe. Thus, asking participants about their patient in an “externalized” or rather, in a projective way, allows researchers to circumvent social desirability bias. (Fisher, 1993). Research has found that asking questions in this manner helps with reducing social desirability, which is especially pertinent in situations highly susceptible to social desirability—socially sensitive issues such as race, gender, and so on (Fisher, 1993). Considering the projective nature of the questions asked in the externalized model, it may be more plausible that participants did not want to seem racial biased in connecting their patient to the archetypes specific to Black women, and/or that they did not want to seem non-empathetic towards their pregnant target patient if she were Black. This possibility can be further examined and expanded upon when looking at the supplemental data analysis.

The supplemental data analysis sought to further examine potential socially desirable responses by looking at whether participants would feel increased empathy for their patient if they endorsed other people might stereotype the patient target in accordance with the archetypes specific to Black women, especially since participants overall expressed more internalized empathy for the Black versus the White pregnant
target. Interestingly, the data showed that 1) Participants believed that others would more often endorse the archetypes specific to Black women when interacting with the Black pregnant target (externalized archetype endorsement), and 2) felt significantly less empathy (internalized empathy) for the target who was “subjected to” these archetypes (e.g., the Black pregnant target). This finding suggests that the externalized archetype endorsement items may have especially served as projective items, wherein participants felt less pressure to present as unbiased.

Further, the supplemental data analysis also found that participants awareness that others might stereotype their patients, and their awareness that others would in turn have less empathy for the patient did not alter their view of the patient’s symptoms. Specifically, the awareness of others’ beliefs and empathy for the patient influenced their own assessment of their patient, such that patients who were believed to be subjected to increased archetype endorsement and less empathy received lower symptom severity ratings from participants. This finding, in conjunction with the other findings from the supplemental data analysis that examined participants’ externalized responses to their patient, may support and be a truer test of the serial mediation hypothesis.

*Limitations and Future Directions*

It is important that future studies continue to examine the role that racial and gendered biases play in the treatment of pregnant Black women, especially given that Black women sit at the intersection of at least two marginalized identities and are thus subjected to a unique set of stereotypes/archetypes that are both racialized and gendered. This becomes especially important when Black women consistently experience poorer maternal health outcomes in the United States.
To further examine the relationship between the endorsement of archetypes specific to Black women and the medical treatment of Black women’s pregnancy conditions, it is important that future studies utilize a sample of participants who are involved in the application of treatment for pregnancy conditions, such as OB/Gyns or obstetric nurses, rather than laypersons participants, as is the case with the present study. While this study attempted to offset the general lack of knowledge laypersons may have in understanding pregnancy conditions with a health briefer, only individuals who are medically trained to treat pregnant women will have a firm grasp on the potential outcomes of their treatment decisions, as well as the treatment decisions that are most realistic for their patient.

Additionally, it is important that future studies utilize a design that allows research participants (who are not doctors or medical personnel) to treat a fake target patient in real-time. An interesting future study might include video footage of a target patient reporting their symptoms, or even an actor-patient interacting with a potential participant. A Video or in-person study in this case would provide a level of realism—for instance, participants would be able to see their “patient’s” real-time reactions to their symptoms, thus simulating a real doctor-patient interaction by providing the human-interaction element of such interactions. Additionally, participants would be able to make real-time decisions regarding their “patients”, much like doctors do on a regular basis. If not, it is important that future studies examine an OB/gyn or obstetric nurses’ actual pregnant patient care outcomes and how these outcomes relate to the potential biases that these healthcare providers may have.
This study was conducted online, and as such it is difficult to gauge genuine reactions to a pregnant patient via self-report. For instance, a participant may believe that they would take an additional step and recommend a treatment for a patient, but doctors often have to administer their recommended treatment to their patient, which could be a time-consuming process that participants may not actually follow through with.

Additionally, it is difficult to predict an individual’s behaviors using a hypothetical/imagined event, as was done with the current study, given that participants in studies like this one may be hyperbolic about or understate their intended behaviors. Participants may believe that they would behave in a certain way, but this may not be the truth upon observing their actual behaviors in a given situation.

Finally, it may be beneficial for future studies to employ a longitudinal design, such as a study that uses medical provider-patient care treatment outcomes over time after an initial assessment of medical provider biases (or lack thereof). The present study employs a cross-sectional design, and while the variables of interest were ordered in a way that satisfies the requirement for temporal precedence, researchers still argue that cross-sectional studies cannot demonstrate temporal precedence (Maxwell & Cole, 2007). Additionally, conducting a mediation analysis using cross-sectional data rather than longitudinal data tends to generate biased estimates of longitudinal parameters (Maxwell & Cole, 2007). I examined my mediators in reverse order (e.g., Empathy = M1 and Endorsement of Archetypes = M2) and both the internalized and externalized serial mediation models appeared no different than the original models (e.g., both the direct and indirect relationship between race and symptom assessment remained non-significant) and overall, the relationships between each variable did not change. Still, it is still
arguably difficult to say whether the mediators actually affect our dependent variable (as is the case with most regression analyses). Employing a study with a longitudinal design may provide more insight, especially as pregnancy treatment progresses (typically) over the course of nine to 10 months, rather than through an in-the-moment assessment of a person’s symptoms.

Limitations notwithstanding, this study is one of the first studies to examine pregnancy treatment as a dependent variable in the relationship between race and medical treatment disparities. Most of the literature on the psychological factors influencing medical treatment focuses on the role that racial biases play in the treatment of pain. By examining the extent to which gendered racial biases affect the treatment of pregnancy, the present study not only addresses the effect that having an intersecting identity can have on medical treatment, but also examines a realm of medical treatment historically neglected in the literature. Given that the United States has historically poorer pregnancy outcomes as compared to other developed nations (Martin & Montagne, 2018), it is especially important for studies to examine all the factors influencing pregnancy mortality in the United States. Further, psychology researchers argue that it has become increasingly important for researchers to incorporate intersectionality into psychological
literature (Rosenthal, 2016). As such, the present study also attempted to incorporate an increasingly important concept into the field.
References


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Appendix A

Target and Filler Patient Photos

Figure 1: Black Pregnant Target Photo

Figure 2: White Pregnant Target Photo

Figure 3: East Asian Woman Filler Patient Photo
### Appendix B

**Independent-Samples T-test Results from Stimuli pre-test**

**Table 1: T-tests Comparing Black and White Target Photos**

<table>
<thead>
<tr>
<th>Variable</th>
<th>BPT Average (n = 53)</th>
<th>WPT Average (n = 32)</th>
<th>df</th>
<th>T</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Femininity</td>
<td>6.3 (.96)</td>
<td>5.94 (1.52)</td>
<td>83</td>
<td>-1.34</td>
<td>1.00</td>
</tr>
<tr>
<td>Masculinity</td>
<td>2.72 (2.16)</td>
<td>2.97 (2.35)</td>
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<td>0.62</td>
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<td>Perceived Attractiveness</td>
<td>5.6 (.88)</td>
<td>5.53 (1.39)</td>
<td>83</td>
<td>-0.28</td>
<td>1.00</td>
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<td>Prototypicality</td>
<td>5.45 (1.31)</td>
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<td>1.23</td>
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<td>Perceived Pregnancy Status</td>
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<td>3.31 (.64)</td>
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<td>1.00</td>
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</table>

**Table 2: T-tests Comparing Black and East Asian Target Photos**

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<th>Variable</th>
<th>BPT Average (n = 53)</th>
<th>EAT Average (n = 53)</th>
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<th>T</th>
<th>Sig</th>
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<td>Masculinity</td>
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<td>2.8 (2.21)</td>
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<td>0.85</td>
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<td>Perceived Attractiveness</td>
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<td>5.7 (.99)</td>
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<td>Prototypicality</td>
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<td>-0.12</td>
<td>1.00</td>
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<td>Perceived Age</td>
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<td>2.38 (.06)</td>
<td>104</td>
<td>0.3</td>
<td>0.76</td>
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<tr>
<td>Perceived Pregnancy Status</td>
<td>3.4 (.69)</td>
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<td>N/A</td>
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**Table 3: T-tests Comparing White and East Asian Target Photos**

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<th>Variable</th>
<th>WPT Average (n = 32)</th>
<th>EAT Average (n = 53)</th>
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<th>T</th>
<th>Sig</th>
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<td>1.00</td>
</tr>
<tr>
<td>Perceived Pregnancy Status</td>
<td>3.31 (.64)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Key**

WPT = White Pregnant Target  
BPT = Black Pregnant Target  
EAT = East Asian Filler  
(##) = Standard Deviation
Instructions: Imagine that you are a doctor at Hudson Regional Hospital. You have been working on-call for about three hours when you are called down to an examination room to talk with a patient who has already spoken with the nurse. Keep in mind that doctors often have to manage multiple patients in a day in addition to staying on schedule in order to treat each patient within a reasonable time. You will now be presented with your first of two patients. Read your patient’s symptoms carefully, as you will be asked to recall her symptoms later on, as well as assess them and recommend treatment based on how severe her symptoms seem.

This is Olivia. She is 27 years old. She’s visiting today because she says she’s been experiencing the following symptoms for a little over a week now:

- Pain in her left arm (forearm of her left arm)
- Stiff muscles (around her left forearm)
- Severe Bruising on her left arm

When you ask Oliva about how tired she feels, she mentions that she has called out of work because she’s too tired to move and has felt like this for about four days, and it especially hurts to move her arm. Finally, she mentions that it hurts to move her muscles, although it may be because she goes to the gym regularly. Olivia Mentions that she hit her arm really hard while working out a little over a week ago, but in the moment didn’t
think anything of it. Now, she feels like the pain has gotten so bad that she just had to see a doctor.
Appendix D

Target Patient File

Instructions: You will now be presented with your second of two patients. Again, imagine that you are a doctor at Hudson Regional Hospital. You have been working on-call for about three hours when you are called down to an examination room to talk with a patient who has already spoken with the nurse. Keep in mind that doctors often have to manage multiple patients in a day in addition to staying on schedule in order to treat each patient within a reasonable time. Unfortunately, this patient that you will now interact with has arrived to this appointment late, which could make you late for your next appointment. Read your patient’s symptoms carefully, as you will be asked to recall her symptoms later on, as well as assess them and recommend treatment based on how severe her symptoms seem.

This is Noelle. She is 26 years old and 34 weeks pregnant. She’s visiting today because she says she’s been experiencing the following symptoms for a little over a week now:

- Frequent urination
- Feeling hungry more often
- Generally feeling more lethargic/feeling like it’s hard to move

When you ask her about the frequent urination, she mentions that she can barely hold her bladder throughout the day, even if she doesn’t drink that much water during the day. When you ask her about feeling more hungry than normal, she mentions that while she expected some cravings because of the pregnancy, feeling hungry seems to happen more often for her than it should. Finally, when you ask her about the weight gain, she mentions that it really hurts her to walk because she’s gained so much weight during her pregnancy, which makes her feel lethargic.
Noelle has visited three times in the past month complaining of similar symptoms, although it seems that she followed your previous recommendation of tracking her eating habits.
Appendix E

Endorsement of Archetypes Measure (Modified from Rosenthal & Lobel, 2016)

Instructions for Internized Items ($\alpha = .67$):

You will now be asked to make some judgements about one of your patients, which are related to her reasons for visiting. This patient will be randomly assigned, and this will also be the patient whose symptoms you will treat. Sometimes, patients can feel quite uncomfortable with providing some forms of information to doctors, however these forms of information may be necessary to better treat your patient. As such, you should try to the best of your ability to guess this information about your patient. Be as honest and accurate as possible and remember this information will not be shared with the patient.

To what extent are the following things likely to be true about the patient? (1 = not likely at all; 6 = very likely)

Instructions for Externalized Items ($\alpha = .75$):

You will now be asked to make some judgements about one of your patients, who will be randomly assigned, based on what others (other healthcare providers) may think about her. While it is likely that you yourself do not agree with these judgements, it is possible that others might. Sometimes, patients can feel quite uncomfortable with providing some forms of information to doctors, however these forms of information may be necessary to better patients. As such, you should be as accurate as possible and remember this information will not be shared with the patient.

To what extent are others likely to assume the following things about the patient? (1 = not likely at all; 6 = very likely)

Items:

1. She has children
2. She has been pregnant sometime in the past
3. It is a good idea for her to be a mother right now (reverse-code)
4. She is currently employed full-time (reverse-code)
5. She received some sort of public assistance
6. The father of her baby will play a role in raising the child (reverse-code)
7. She would make a good mother (reverse-code)
8. She will need some sort of public assistance if she has her baby
9. She is independent and self-sufficient
10. She is assertive
11. She is feminine (reverse-code)
12. She is promiscuous
13. She has had multiple sexual partners
14. She is masculine
15. She is likely to use Medicaid to cover her medical expenses
Appendix F

Empathic Concern Scale (Modified from Baston et al., 1988; Drwecki et al., 2010)

Instructions for Internalized Items ($\alpha = .93$):
Please rate the extent to which you feel each of these items for the patient on a scale from 1 (not at all) to 6 (extremely)

Instructions for Externalized Items ($\alpha = .95$):
Please rate the extent to which other people feel each of these items for the patient on a scale from 1 (not at all) to 7 (extremely)

Items:
1. Warm
2. Compassionate
3. Moved
4. Concerned
5. Sympathetic
Appendix G

Health Briefer Measure

Instructions: Because you were assigned to treat Noelle, it is important that you have information on some common pregnancy conditions that she could be experiencing. Healthcare providers must often have this information on-hand and/or committed to memory in order to best treat their patients. Please carefully read the information presented below.

Some common pregnancy conditions include:

**Anemia:** Anemia is a condition wherein a person doesn't have the proper amount of healthy red blood cells to carry oxygen to important places in their body. In a person who is pregnant, this can mean that less oxygen is being carried to their fetus (unborn baby). Anemia during pregnancy can lead to increased risk of complications like pre-term delivery, or low birth weight in newborn infants. **Common symptoms of anemia during pregnancy include:**

- Feeling tired or weak
- Headache
- Chest pains
- Cold hands and feet

**Gestational Diabetes:** Gestational diabetes is a diabetic condition that occurs only during pregnancy and goes away once the infant is born. Individuals with gestational diabetes experience high blood sugar levels during pregnancy. Gestational diabetes can lead to an increased risk of complications like pre-term delivery, or infant mortality (i.e., a baby that dies shortly after birth). **Common symptoms of gestational diabetes include:**

- Feeling thirsty or hungry more often than normal
- Nausea
- Feeling tired or weak
- Blurred vision
- Frequent bladder infections

**Pre-Eclampsia:** Pre-eclampsia is a pregnancy condition wherein a pregnant person's blood pressure increases suddenly and significantly after the 20th week of pregnancy. This is a severe and life-threatening pregnancy condition that can cause pre-term (early) delivery, infant death, having an infant with low birth weight, damage to the kidneys, liver, brain, and other organs for the pregnant person, poor fetal growth, and placental abruption (i.e., the placenta, a crucial organ during pregnancy that provides nutrients to the fetus, separates from the uterus where the fetus is held). **Common symptoms of pre-eclampsia include:**

- Headaches
- Problems with vision
- Abdominal (stomach) pains
- Trouble breathing

For more information on any of these conditions, please visit the following links:
Information on gestational diabetes and anemia:
Appendix H

Symptom Severity Rating Assessment

Instructions: Based on what you read about the patient’s symptoms and the information on her condition that you were presented with, please respond to the following questions:

1. How severe do you perceive the patient’s symptoms to be? (1 = Not severe at all; 6 = Very severe) (internalized)
2. How severe do you think other people will perceive the patient’s symptoms to be? (1 = Not severe at all; 6 = Very severe) (externalized)
3. How likely are you to recommend some form of treatment for the presented symptoms? (1 = Not likely at all; 6 = Very likely) (internalized)
4. How likely do you think other people will be to recommend some form of treatment for the presented symptoms? (1 = Not likely at all; 6 = Very likely) (externalized)
5. How likely do you think this it is that the patient is exaggerating her symptoms? (1 = Not likely at all; 6 = Very likely) (internalized)
6. How likely do you think other people are to perceive the patient as exaggerating her symptoms? (1 = Not likely at all; 6 = Very likely) (externalized)
7. How accurately do you think the patient has presented her symptoms? (1 = Not accurately at all; 6 = Very accurately) (internalized)
8. How accurately will other people think the patient has presented her symptoms? (1 = Not accurately at all; 6 = Very accurately) (Externalized)
9. I trust the patient’s report of her symptoms (1 = Strongly disagree; 6 = Strongly agree) (internalized)
10. Other people will trust the patient’s report of her symptoms (1 = Strongly disagree; 6 = Strongly agree) (externalized)
11. What condition (if any) do you think the patient might be experiencing? (Open-ended)
12. What form of treatment (if any) would you recommend for her symptoms? If you are unsure, you may type “N/A” (open-ended)
13. The patient’s symptoms are normal pregnancy symptoms (1 = Strongly disagree; 6 = Strongly agree)

14. The patient’s symptoms resemble gestational diabetes (1 = Strongly disagree; 6 = Strongly agree)

15. How likely do **you** think the patient would be to follow the treatment plan you recommend after this visit? (1 = Not likely at all; 6 = Very likely) (internalized)

16. How likely is it that **you** would spend an additional ten minutes with the patient to run medical tests and/or recommend more treatment options? (1 = Not likely at all; 6 = Very likely) (internalized)

17. How likely would **you** be to recommend the patient talk with a social worker after her visit? (1 = Not likely at all; 6 = Very likely) (internalized)

18. How likely is it that **other people** would spend an additional ten minutes with the patient to run medical tests and/or recommend more treatment options? (1 = Not likely at all; 6 = Very likely) (externalized)

19. How likely would **other people** be to recommend the patient talk with a social worker after her visit? (1 = Not likely at all; 6 = Very likely) (externalized)
Appendix I
Serial Mediation Model and Results

Figure 4: Serial Mediation Model

Figure 5: Serial Mediation Model with Internalized Items
Figure 6: Serial Mediation Model with Externalized items

Figure 7: Serial Mediation Model with Externalized Endorsement and Internalized Empathy
Figure 8: Serial Mediation Model with Externalized Endorsement and Empathy, predicting Internalized Symptom Severity Ratings