

THE ROLE OF WEIGHT STIGMA IN HEALTHCARE AVOIDANCE AND MISTRUST  
AMONG PREGNANT WOMEN

By

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**ABSTRACT**

Past research has indicated a multitude of negative outcomes related to experiencing and internalizing weight stigma (Alberga et al., 2016; Hayward et al., 2018; Latner et al., 2014). Weight stigma is sometimes experienced in healthcare contexts, thus negatively impacting relationships between patients and providers (Mensing et al., 2018). In recent years, the number of pregnant women with overweight and obesity has steadily increased (CDC, National Center for Health Statistics, 2020), and the potential impact of weight stigma in healthcare settings is understudied in this population (Incollingo Rodriguez et al., 2021). The current thesis project aimed to examine the relationship between pre-pregnancy BMI, trust in one's healthcare provider, and healthcare avoidance. This project examined experienced stigma in healthcare and internalized weight bias as potential mediators of the relationship between pre-pregnancy BMI, trust in healthcare provider, and healthcare avoidance. In the current study, there was no relationship between a woman's pre-pregnancy BMI and her frequency of experiencing stigmatizing situations. Women with a higher pre-pregnancy BMI did report greater levels of

internalized weight bias. Further, for women reporting higher levels of both experienced and internalized stigma, trust in provider was lower, and healthcare avoidance was greater. There was no evidence of mediation, except for evidence of partial mediation in the model of avoidance related to body exam discomfort. Of note, it was observed that IWB acted as a suppressor variable rather than a mediator in all other models. This thesis adds to the current literature on pregnant women and weight stigma as it relates to healthcare experiences.



THE ROLE OF WEIGHT STIGMA IN HEALTHCARE AVOIDANCE AND MISTRUST  
AMONG PREGNANT WOMEN

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## TABLE OF CONTENTS

LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
CHAPTER 1: INTRODUCTION.....	1
Background.....	4
Summary of the Current Literature: Weight Stigma and Pregnancy.....	17
Research Aims.....	19
Hypotheses.....	20
CHAPTER 2: METHODS.....	21
Procedures and Participants.....	21
Measures.....	22
Data Analysis.....	25
CHAPTER 3: RESULTS.....	27
Covariates.....	27
Weight Stigma and Healthcare Variables.....	27
Correlations.....	28
Mediation Models of Avoidance.....	30
Mediation Models of Trust.....	39
CHAPTER 4: DISCUSSION.....	47
The Role of Weight Stigma in Healthcare Experiences.....	47
Strengths.....	55
Limitations.....	55
Clinical Implications.....	57

Future Directions.....	58
Conclusion.....	59

## REFERENCES

List of References.....	60
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## APPENDICES

Appendix A. IRB Approval.....	76
Appendix B. Informed Consent.....	77
Appendix C. Measures.....	79
Appendix D. Demographic and Obstetric Characteristics Tables.....	86
Appendix E. Weight Stigma and Healthcare Variables and Correlations.....	89



## LIST OF TABLES

1. Table 1: Participant Characteristics.....	87
2. Table 2: Obstetric Characteristics of Participants.....	88
3. Table 3: Weight Stigma and Healthcare Variables.....	89
4. Table 4: Correlations between Weight Stigma and Healthcare Variables.....	90

## LIST OF FIGURES

1. Figure 1: Mediation of Overall Healthcare Avoidance.....	31
2. Figure 2: Mediation of Generalized Avoidance.....	33
3. Figure 3: Mediation of Avoidance Related to Body Exam Discomfort.....	34
4. Figure 4: Mediation of Avoidance Related to Fear of Serious Illness.....	36
5. Figure 5: Mediation of Avoidance Related to Being Self-conscious.....	38
6. Figure 6: Mediation of Overall Trust in Healthcare Provider.....	40
7. Figure 7: Mediation of Trust- Subscale Interpersonal Communication.....	42
8. Figure 8: Mediation of Trust- Subscale Respectful Communication.....	44
9. Figure 9: Mediation of Trust- Subscale Professional Partnering.....	46

## **CHAPTER 1: INTRODUCTION**

Weight stigma is defined as the prejudicial attitudes and discriminatory behaviors directed toward individuals whose bodies are not considered as meeting societal ideals (i.e., individuals who are considered underweight or overweight). This phenomenon has often been studied in the context of Western society's idealization of thin and lean bodies, with larger bodies being considered negative or shameful (Himmelstein et al., 2018; Puhl & Heuer, 2010; Puhl & Suh, 2015; Vartanian, et al., 2014). In the United States (US), population rates of overweight and obesity have increased over time. In 2018, 42% of the US adult population was considered obese, with 9% of these individuals considered to have severe obesity (Hales et al., 2020); Unsurprisingly, it is estimated that about 40% of US adults have experienced weight stigma (Puhl et al., 2018).

Weight stigma is observable in many contexts including job settings, medical care settings, and social and romantic relationships, with the media also being a prominent source (Giel et al., 2010; Selensky & Carels, 2021; Vartanian et al., 2014). There are psychological and physical consequences associated with experiencing weight stigma. The more individuals with overweight or obesity experience weight stigma, the more they engage in maladaptive coping responses (e.g., disengagement, disordered eating) (Hayward et al., 2018). Also, at times, individuals with obesity internalize negative attitudes about people with obesity and this is referred to as internalized weight bias (IWB). These individuals internalize negatively charged, weight-based stereotypes and engage in self-stigmatization (O'Brien et al., 2016; Puhl, Himmelstein, & Pearl, 2020). IWB is associated with psychological maladjustment, disordered eating behaviors, depression, avoidance of preventive healthcare services, negative perception of one's body image, and poor physical health related quality of life (Alberga et al., 2016; Hayward

et al., 2018; Latner et al., 2014). Women are more likely to self-report high levels of internalized weight bias when compared to men, suggesting a potentially disparate effect of weight stigma among men and women (Himmelstein et al., 2017).

An additional risk of exposure to weight stigma is healthcare avoidance or underutilization of medical care. Negative experiences in medical settings are associated with healthcare avoidance and less trust in providers (Brownell et al., 2005; Mensinger et al., 2018; Phelan et al., 2015). Healthcare avoidance refers to a person's distancing themselves from the healthcare system, delaying both preventive and reactive care, a phenomenon which is associated with poor health outcomes and decreased overall well-being (Ye et al., 2012). Regarding decreased trust in providers, the distrust of medical providers and organizations is termed medical mistrust. Medical mistrust has been labeled as a significant barrier to healthcare utilization (Williamson & Bigman, 2018). Women who report feeling stigmatized because of their weight may avoid healthcare settings as they fear being shamed or pressured to lose weight (Brochu et al., 2018; Ferrante et al., 2016; Himmelstein et al., 2017; Lee & Pause, 2016; Major et al., 2014; Mensinger et al., 2018; Myre et al., 2021).

An important population in which stigma-based healthcare avoidance is particularly concerning is that of pregnant women who have overweight or obesity at the time they become pregnant. Generally, during pregnancy, women need increased medical attention for themselves and their developing neonate. It is recommended that pregnant women meet with an Obstetrician-Gynecologist (Ob-Gyn) or another obstetric care provider within the first 3 weeks of their pregnancy, with ongoing care throughout the pregnancy and up to 12 weeks postpartum, even in typical presentation, low-risk pregnancies (American College of Obstetricians and \complications such as metabolic dysfunction, increased risk of anesthesia-related complications,

breast-feeding complications, and depression (Catalano & Shankar, 2017). Women who are labeled as having high risk pregnancies (e.g., women with overweight and obesity) comparatively require more interactions with providers and spend more time in medical settings (Catalano & Shankar, 2017; Simon et al., 2019), thus there is a critical need for a positive, trusting relationship between patient and provider that encourages healthcare utilization (Dieterich & Demirci, 2020).

From 2016 to 2019, there was a steady increase in the number of women with pre-pregnancy obesity across age groups. Women under age 20, ages 20-29, and ages 30-39 had high rates of pre-pregnancy obesity, 20.5%, 30.4%, and 28.3%, respectively (CDC, National Center for Health Statistics, 2020). As the number of pregnant women with BMI categories of overweight or obese increases, the need for research on pregnant women's healthcare experiences does, too (Incollingo Rodriguez et al, 2020). Unfortunately, one recent study which surveyed pregnant and postpartum women found that about 20% of them had experienced weight stigma in a healthcare setting (Incollingo Rodriguez et al., 2020). While some research on weight stigma and related healthcare experiences has included pregnant women (Hurst et al., 2021; Incollingo Rodriguez et al., 2019; Incollingo Rodriguez et al., 2020; Lindhardt et al., 2013; Mulherin et al., 2013), further research is needed. The aim of this study is to explore the relationship between weight stigma and healthcare experiences in a sample of pregnant women. This paper will examine stigmatizing situations in healthcare and internalized weight bias as experienced by pregnant women with overweight or obesity in the context of healthcare avoidance and mistrust in providers.

## **Background**

### ***Pre-pregnancy Overweight and Obesity: Prevalence***

Pre-pregnancy weight refers to a person's weight at the time they become pregnant. Body Mass Index (BMI), which is calculated by dividing a person's weight in kilograms by their height in meters squared;  $\text{kg/m}^2$  is used to define weight as underweight, normal, overweight, or obese. This measure is used as an estimate of body adiposity. A person's BMI can be classified as underweight ( $<18.5$ ), normal weight ( $18.5-24.9$ ), overweight ( $25.0-29.9$ ), or obese ( $\geq 30$ ). Those considered obese can be further classified as Obese Class I, II, or III (CDC, 2021; World Health Organization, 2021). Having a BMI that is categorized as overweight or obese at the time of pregnancy is associated with several obstetric and perinatal complications including gestational diabetes and preeclampsia (Hernández-Higareda et al., 2017). Importantly, high-risk pregnancies can be categorized as such for reasons other than BMI; A pregnancy may be considered high-risk in relation to existing health conditions, multiple births, and mother's age, and these factors are not mutually exclusive (National Institutes of Health, 2016). High-risk pregnancies generate a need for frequent visits to a healthcare provider and other specialists for proactive screening and treatment (Simon et al., 2019).

Per the Pregnancy Risk Assessment Monitoring System (PRAMS), pre-pregnancy obesity increased by 0.5% each year from 2003 to 2009 (Fisher et al., 2013). A recent study assessing the global prevalence of overweight and obesity in pregnant women from 2005 to 2014 estimated that in 2014, there were 38.9 million overweight and obese pregnant women globally (Chen et al., 2018). Pre-pregnancy obesity increased from 2013 to 2018; By 2018, a third of US women were estimated to be obese, with 1.1 million pregnant women in the US being obese (Chen et al., 2018). In 2018, overall US prevalence of pre-pregnancy obesity was estimated to be

26.8%; that year, only a third of non-Hispanic Black women began pregnancy with a normal weight BMI. In fact, this trend of a decrease in normal weight BMI at the start of pregnancy was observed among all ethnic and racial groups, with normal weight BMI pre-pregnancy rates of 46.6%, 36.5%, and 42% among non-Hispanic White women, Hispanic women, and non-Hispanic Asian women, respectively. Other current estimates suggest that between 20 and 25% of women in the US who become pregnant have obesity, with the highest prevalence rates occurring among women of ethnic and racial minority (Ogunwole et al., 2021; Singh & DiBari, 2019). While there are variations among these estimates, even the most conservative estimates are cause for concern given the maternal and fetal health risks associated with pre-pregnancy obesity.

During a traditional, low-risk pregnancy, Ob-Gyn visits may occur as often as once a month for weeks 4-28, twice a month for weeks 28-36, and weekly from week 36 to delivery (Office on Women's Health- US Department of Health and Human Services, 2019). The need for pregnant women with overweight and obesity to have more frequent healthcare visits than those with a normal body weight is due in part to the need for extensive screening (e.g., gestational diabetes, weight/BMI, sexual health, substance use, mental health, blood pressure) as well as for early detection should a complication arise (American College of Obstetricians and Gynecologists, 2018).

Maternal obesity is associated with metabolic dysfunctions for the mother, increased risk for epidural failure or anesthesia-related complications, breast-feeding complications, and depression. For neonates, risks include fetal overgrowth, obesity, and later in life metabolic dysfunction (Catalano & Shankar, 2017). To date, it is somewhat unclear whether overweight

and obesity, the associated risks and conditions, or a combination of both are more to blame for adverse pregnancy outcomes.

A large meta-analysis of almost 200,000 women across 25 cohorts from Europe and North America examined the risks and outcomes associated with too little or too much gestational weight gain across BMI categories. The researchers defined adverse outcomes as including one or more of the following: pre-eclampsia, gestational hypertension or diabetes, cesarean delivery, pre-term birth, and/or having an infant born at a weight that is too small or too large at birth. Adverse outcomes occurred in 37% of the women, with 34% of the adverse outcomes occurring in women with an underweight BMI and 61% occurring in women with a BMI considered grade 3 obese (Voerman et al., 2019). With the increased risks of complications during pregnancy for women with overweight and obesity and the associated need for more frequent medical attention, any factors that damage the provider-patient relationship or create barriers to attending regular appointments, are of great importance. In both low- and high-risk pregnancies, which require frequent healthcare provider visits, positive healthcare experiences and a trusting relationship with one's healthcare provider is essential for a healthy pregnancy, particularly as pre-pregnancy weight trends reveal high numbers of pre-pregnancy obesity and increased risk for mother and neonate. In the context of maternal overweight and obesity, weight stigma in the healthcare environment and the associated negative outcomes are especially concerning.



## ***Weight Stigma***

It is estimated that about 40% of the US adult population has experienced weight stigma at least once (Puhl, et al., 2018). Weight stigma can be perpetuated by individuals, groups, or broader sources such as news and media (Incollingo Rodriguez et al., 2019; Nippert et al., 2021). Despite the evidence that shame and blame do not motivate individuals who have overweight or obesity to lose weight, weight bias in these forms perseveres (Alberga et al., 2016; Pearl et al., 2015; Vartanian & Novak, 2011).

A recent publication by Himmelstein et al. (2018) on weight stigma, health, and coping presented evidence that exposure to weight stigma has been linked to increased risk of weight gain, metabolic syndrome, exercise avoidance, stress, cardiovascular disease, and depression. Barriers to treatment seeking and preventive care created by weight stigma could potentially result in increased weight gain and difficulty maintaining weight loss. Psychological sequelae include depression, anxiety, low self-esteem, disordered eating, and body image dissatisfaction (Himmelstein et al., 2018). Individuals with overweight or obesity who report experiencing stigma will likely have poorer physical (i.e., diabetes risk, weight gain) and mental (i.e., anxiety, depression, body image) health as compared to individuals who do not report experiencing stigma or report lower a lower frequency (Wu & Berry, 2018).

While individuals of all sexes and genders can be targets of weight stigma, the experience of weight stigma, including the adverse outcomes with which it is associated, disproportionately affects women. Tronieri et al. (2017) reviewed the literature on sex differences in obesity and mental health. They reported that compared to men with obesity, women with obesity have more vulnerability to various mental health disorders such as depression and disordered eating. Possible explanations for this disparity are that women are likely to experience weight stigma

starting at an earlier age than men and that more societal value is placed on women meeting ideal body standards (Tronierei et al., 2017). Women are also more likely to endorse having experienced weight-based discrimination in everyday experiences, for example in employment settings (Spahlholz et al, 2016). Subsequently, women may have increased vulnerability to the negative mental health outcomes associated with experienced weight stigma (Tronierei et al., 2017).

***Medicalized Weight Stigma.*** In addition to employment, social, and interpersonal settings, people with overweight or obesity also experience weight stigma in medical settings. Weight bias in healthcare settings, often expressed by healthcare providers in the form of patronizing or disrespectful language, negatively affects care provision and is associated with underutilization of healthcare (Lawrence et al., 2021). Extant literature suggests that many healthcare providers report negative beliefs toward patients who are overweight or obese. Among physicians, there appears to be a high prevalence of reported negative attitudes toward individuals with obesity and overweight, as well as the belief that treatment of obesity is ineffective (Ferrante et al., 2009; Phelan et al., 2015). Recently, a systematic review of the literature regarding weight bias held by healthcare professionals (e.g., psychologists, nurses, dietitians, medical doctors) which spanned the literature from 1989 to 2020 confirmed that weight bias is indeed present in many healthcare settings (Lawrence et al., 2021).

Weight stigma in medical settings is particularly common for women. Women with obesity have reported experiences of weight stigma, such as providers' negative attitudes, non-courteous treatment, embarrassing weigh-in procedures, unsolicited weight loss advice, and gowns and equipment which are too small (Mensing et al., 2018; Phelan et al., 2015). Stigma experienced in medical settings (e.g., a negative comment about one's weight from a physician)

is likely to result in individuals with obesity feeling hesitant to reach out for medical care for both weight loss and other unrelated health concerns (Ferrante et al., 2016; Phelan et al., 2015; Puhl et al., 2021). Paradoxically, obesity has health consequences which could result in an increased need for medical visits, thus this problem is a critical one which should be addressed (Fruh et al., 2017). Another potential consequence of the experience of weight stigma in the medical setting is medical mistrust. Medical mistrust refers to a lack of trust in the relationship between patient and provider; it has been defined in the literature as the “interpersonal trust between physicians and patients,” generalizable to larger systems such as hospitals, care settings, etc. (Jaiswal & Halkitis, 2019). Overweight or obese pregnant women, as they may require frequent interactions with providers, may be at increased risk of developing medical mistrust in response to weight stigma.

***Internalized Weight Bias.*** Internalized weight bias (IWB) is the internalization of negative weight-based attitudes, or stigma directed toward oneself (Pearl & Puhl, 2014). Internalized weight bias is associated with body image disturbance, disordered eating, and negative mental health outcomes, including depressive symptoms, anxiety, and self-esteem (Pearl & Puhl, 2014; Pearl & Puhl, 2018). Carels et al. (2013) sought to examine the association between IWB and psychological maladjustment by surveying participants in a behavioral weight loss program. Participants were asked to complete both experienced and internal weight bias measures along with body image, binge eating, and depression measures; Negative self-ratings and IWB had a strong correlation with psychological maladjustment (Carels et al., 2013). Internalized weight bias has also been implicated as a moderating factor in the relationship between weight, experienced stigma, and health related quality of life (Latner et al., 2014). Physical health consequences of IWB include weight gain, more frequent unsuccessful

attempts at weight loss, and decreased physical activity (Hübner et al., 2015; Pearl & Puhl, 2018). Internalized weight stigma has been associated with experienced weight stigma and body shame (Forbes and Donovan, 2019); Generally, women may have higher levels of IWB due to more exposure to weight stigmatizing experiences (Hilbert et al., 2014).

### ***Weight Stigma as Experienced by Pregnant Women***

Pregnant women with overweight and obesity may be increasingly stigmatized in the context of their neonate's health and wellbeing, especially in medical care settings (Incollingo Rodriguez et al., 2020). Weight stigma during pregnancy has been conceptualized as comprising negative stereotypes, social devaluation, and alienation (Dieterich, Demirci, & Danford, 2020). A 2013 study conducted in Australian maternity care settings found that women with a higher BMI were more likely to report negative experiences with their provider pre- and postnatally when compared to women with lower BMIs. The providers involved in the study reported their perceptions of overweight and obese pregnant women and reported that they viewed these women as having poor self-management (Mulherin et al., 2013). In evaluating pregnant and postpartum women's experienced weight stigma in healthcare, Incollingo Rodriguez et al. (2020) noted that about 20% of their sample endorsed experiencing weight stigma in healthcare; also in this sample, among those with pre-pregnancy obesity, 28.4% reported the perception that healthcare providers were a source of stigma (Incollingo Rodriguez et al., 2020).

Additionally, medical research and practice guidelines suggest that before women become pregnant, lifestyle change-based weight loss approaches should be used to optimize weight (Belan et al., 2018; Denison et al., 2018), potentially indicating another source of bias for women who did not lose weight prior to becoming pregnant. Notably, these guidelines have the

potential to be constructively and productively discussed in a non-stigmatizing way which benefits the patient. Women who fail to lose weight prior to pregnancy may be judged harshly for noncompliance at the beginning of their pregnancy. A recent review of the literature on weight stigma in prenatal care settings identified several examples of weight stigma in prenatal healthcare settings: provider avoidance of weight discussions, assumption of lifestyle behaviors, and poor communication with patients (Nagpal et al., 2020). Subsequently, there is potential for pregnant women to underutilize medical services and develop negative attitudes toward their providers, all of which could lead to declining quality of medical care and more negative health outcomes.

Another notable source of weight stigma for pregnant women is the depiction of thin individuals being portrayed in a more positive way than heavier individuals (Puhl & Heuer, 2009; Puhl et al., 2013). Pregnant women with overweight and obesity are underrepresented in the media (Nippert et al., 2021). Nippert and colleagues (2021) conducted a two-part study in which they investigated media as a source of weight stigma for pregnant and postpartum women. The first part of their study asked participants for open-responses about sources of weight stigma (e.g., work, family, friends, partners) and the second part of the study analyzed online new-media sources containing weight-stigmatizing content. Their findings suggested that pregnant and postpartum women identify weight stigma as a source of pressure to gain minimal weight during pregnancy and lose weight quickly after birth (Nippert et al., 2021). Research generally confirms that pregnant and postpartum women experience a unique form of weight stigma via the media which emphasizes their need to “bounce back” and lose any weight gained during pregnancy (Roth, Homer, & Fenwick, 2012). Experiencing stigma from the media and in social settings in conjunction with experiencing medical weight stigma may have cumulative effects.

### ***Internalized Weight Bias Among Pregnant Women***

A recent model with great application to the current study is the Weight Gain, Obesity, Maternal-child Biobehavioral pathways, and Stigma (WOMBS) model (Incollingo Rodriguez & Nagpal, 2021). This newly created theoretical framework seeks to identify the psychophysiological mechanisms which underly weight-discrimination and weight gain among pregnant women, and to evaluate the mechanisms by which this increases the risk of childhood obesity in the neonate. The WOMBS framework suggests that maternal weight stigmatization is influenced by BMI and general internalization of ideas about body weight, which leads to weight gain and retention, furthering health risks to mother and neonate (Incollingo Rodriguez & Nagpal, 2021). With pre-pregnancy obesity on the rise and the attendant risk to mother and fetus, weight stigma in the medical setting is of great clinical importance. As an important note, the WOMBS framework focuses on gestational (during pregnancy) BMI and weight stigma, while the current study is focusing on women with pre-pregnancy overweight and obesity.

A recent exploration of weight bias internalization during pregnancy found that weight bias internalization was higher among pregnant individuals with BMIs categorized as obese, individuals formally diagnosed with obesity, and individuals with higher gestational weight gain (Nagpal et al., 2022).

### ***Healthcare Experiences and Trust***

The experience of weight stigmatizing situations in healthcare can decrease the quality of a person's relationship with their provider, specifically, how much trust a person has in their medical provider. In the context of healthcare, one study defined trust as having three core components: interpersonal and technical competence, moral compoment, and vigilance (Murray and McCrone, 2014). In considering the patient-provider relationship as a starting point

for patient centered care, Murray and McCrone place the onus for building trust on healthcare providers and cite trust as being associated with better health outcomes (2014). Trust has also been considered an outcome of larger scale measures. Hong and Oh (2020) evaluated patient-centered communication (PCC), or communication during which providers practice active listening to patients, express empathy toward patients, explain medical terms and concepts using laypersons' terms, and involve patients in decision making; these are considered primary goals of which trust in providers is an outcome or added benefit. Indeed, it was determined that use of PCC was positively associated with trust in healthcare providers and perception of healthcare quality (Hong & Oh, 2020). Doctor-patient interactions have been shown to impact both the immediate (e.g., change in concerns, recall of message from provider) as well as the long-term outcomes (e.g., changes in patient's health status and utilization of services) of healthcare services (Chandra et al., 2018).

It has been established that good communication improves the quality of the doctor-patient relationship (Bertakis, 2009). In summarizing the literature on trust in healthcare, LoCurto and Berg (2016) note that trust can be conceptualized as having been developed from past experiences, viewing another individual as reliable and dependable, having a willingness to place oneself in a vulnerable position for future benefit, and as creating a sense of confidence and security in the responses of another. They also note that in medical settings, trust is associated with improved patient outcomes, utilization of services, and adherence to medical recommendations (LoCurto & Berg, 2016).

Women with overweight and obesity may experience healthcare differently due to increased fear of stigmatizing experiences. In a small study on the impact of perceived weight stigma on doctor-patient relationships among underserved women with obesity, Ferrante et al.

(2016) surveyed women immediately following a physician visit. They reported that the experience of weight stigmatizing situations was negatively associated with patients' perception of their provider's level of empathy. Most frequently, participants reported weight stigma in the form of their physician providing unsolicited advice on weight and diets and equating weight to poor health (Ferrante et al., 2016).

Another study which sought to examine the experiences of low-income women deemed as having high-risk pregnancies, i.e., women at risk of developing postpartum type 2 diabetes, found that interactions with providers and the healthcare system were a source of lower perceived quality of care. Notably, the women in the study reported having unmet medical information needs (Oza-Frank et al., 2018). In a small study conducted in California, primarily Black and Hispanic pregnant women, as well as other pregnant women seeking social services who were at risk for preterm birth participated in focus groups regarding their prenatal care experiences. Regarding thematic concepts, the researchers found that these women felt disrespected, stressed because of their care experiences, and had unmet information needs. These women were asked what could have improved their experience and cited communication by healthcare providers as an area for improvement (McLemore et al., 2018). Previous research which has assessed trust in providers in the context of stigma has reported that pregnant and postpartum women with higher pre-pregnancy BMIs indicated distrusting their providers based on overemphasis of weight during treatment (Incollingo Rodriguez et al., 2020). These studies provide evidence that a variety of factors may undermine patient trust and communication.

In women, trust in medical providers is associated with greater perceived self-efficacy, which may be an important protective factor (Molina et al., 2015). One study found that high levels of healthcare system distrust were associated with underutilization of breast cancer and



cervical cancer screening (Yang et al., 2011). In a North Carolina-based study which sampled Black women with hypertension, adherence to medications was assessed in the context of trust in healthcare providers. Not surprisingly, the women who trusted their providers more were more adherent to their antihypertensive medication routines than those who did not trust their doctors (Abel & Efrid, 2013). The impact of trust on a person's willingness to communicate with their provider and to utilize care is critical as individuals who do not perceive their provider in a positive way may avoid healthcare altogether.

### ***Healthcare Avoidance as a Potential Consequence of Weight Stigma***

The experience of weight stigma in healthcare and its attendant impact on trust in one's provider may discourage healthcare utilization. Healthcare avoidance refers to a person's distancing themselves from the healthcare system, delaying both preventive and reactive care, a phenomenon which is associated with poor health outcomes and decreased overall well-being (Ye et al., 2012). Women with higher body weights may avoid healthcare and associate it with body shame, often linked to experienced and internalized stigma. Essentially, women who report feeling stigmatized by their healthcare provider are likely to avoid seeking care (Mensing, Tylka, & Calamari, 2018). The importance of prenatal medicine as a preventive care service cannot be overstated; it is critical in ensuring pregnant women's health as well as the health of their neonates, yet there is evidence of this population avoiding or not accessing care. In 2016, 77.1% of US women who gave birth began seeing a provider within the first trimester; 4.6% began care in their 3rd trimester, and 1.6% received no prenatal care (Osterman & Martin, 2018).

While the specific reasons for avoiding or delaying seeking care include varying administrative, demographic, personal, and provider factors (Byrne, 2008), weight-stigmatizing

experiences should not be ruled out as a plausible contributor to this avoidance. In a qualitative study which surveyed pregnant women who were considered high-risk because of their weight, women were asked which aspects of their care experiences they would change. The women reported a desire for their providers to focus less on weight, communicate more effectively and sensitively, and provide more options for weight management care (Nagpal et al., 2021). These findings suggest that eliminating weight stigmatizing aspects of healthcare could greatly improve women's experiences, potentially increasing likelihood of seeking care when needed.

There are indeed many explanatory variables in heavier individuals' avoidance of healthcare. Puhl et al. (2021) recently conducted a study on the role of weight stigma in healthcare and surveyed adults in six countries. They reported that there is supportive evidence that weight stigma impacts patient-provider interactions for individuals with a high body weight. They found that about 56% of participants reported a history of weight stigmatizing experiences, and two-thirds of these participants endorsed having felt stigmatized by their medical provider. Further, consistent in all six countries, participants with higher IWB self-reported avoiding healthcare, perceived judgment about their weight (from a medical provider), receiving less frequent check-ups, and lower perceived respect from providers (Puhl et al., 2021). Alberga and colleagues (2018) reviewed the literature on weight bias and healthcare utilization from 2000 to 2017. They sought to examine the relationship between perception of healthcare experiences and engagement with healthcare services in a population of obese individuals. Several of the themes which emerged from this review, e.g., lack of training, ambivalence, attribution of all health issues to weight, low trust, and poor communication, suggest a need for further study of the healthcare experiences of individuals with obesity (Alberga et al., 2018).

Further evidence of the relationship between weight bias and healthcare avoidance can be found in relation to specific diseases, for example, women with obesity are at increased risk of developing breast and cervical cancers but are less likely than non-obese women to receive proper preventive screening (Urbute et al., 2022). Paradoxically, obese women of reproductive age are at increased risk of some health conditions, yet research suggests that they may be less likely to seek treatment and may be engaging in healthcare avoidance (Brochu et al., 2018; Cardozo et al., 2013; Himmelstein et al., 2017; Mensinger et al., 2018; Myre et al., 2021). A potential explanation for this is that there is an association between BMI and experienced weight stigma, both of which are linked to body shame. Internalized weight bias is also linked to body shame, and the combination of body shame and health-related stress leads to healthcare avoidance (Mensing, Tylka, & Calamari, 2018). Among pregnant women with overweight and obesity, the phenomenon of healthcare avoidance, particularly in the context of weight stigma, involves complex mechanisms which need further exploration.

### **Summary of the Current Literature: Weight Stigma and Pregnancy**

While this area of research is growing, there is still a dearth of information on how pregnant women with overweight and obesity experience medical weight stigma and how this impacts their care trajectory. With increasing rates of pre-pregnancy overweight and obesity (Ogunwole et al., 2021; Singh & DiBari, 2019), furthering this area of research is necessitated. Incollingo Rodriguez and Nagpal's WOMBS framework (2021) offers a useful guide for pregnancy-related weight stigma and the accompanying publication gives a thorough presentation of the current literature, which was consulted for this project.

Thus far, the early literature on pregnancy and weight stigma has determined some important potential factors and considerations. Mulherin and colleagues' (2013) groundbreaking

study on weight stigma in maternity care in Australia established that during pregnancy and after giving birth, women with greater BMIs were in fact having more negative experiences in healthcare both during and after pregnancy than their lower weight counterparts. Smaller, US-based studies have reported findings which suggest that women who have obesity or higher body weight had at least one negative weight-related experience in the context of prenatal healthcare, and these experiences occurred along with depersonalized care (DeJoy et al., 2016; Hurs et al., 2021). Regarding current prevalence rates, Incollingo Rodriguez et al. (2021) reported that nearly two-thirds of pregnant and postpartum women endorsed having experienced weight stigma related to their pregnancy.

### ***Gaps in the Current Literature***

In recent years, research on pregnant women with obesity has, for good reason, focused on health risks to mother and neonate (Catalano & Shankar, 2017; Davies et al 2010; Voerman et al., 2019; World Health Organization, 2021). In this area of research, it is well established that having overweight or obesity during pregnancy increases risks for negative health outcomes. More recently, several studies have been published on weight stigma as experienced and internalized by pregnant women with obesity and overweight, both in the media and in everyday settings, including healthcare settings (Incollingo Rodriguez et al., 2019; Incollingo Rodriguez & Nagpal, 2021; Nagpal, et al., 2020). Regarding healthcare avoidance and weight stigma in the general population, a plethora of research exists (Brochu et al., 2018; Ferrante et al., 2016; Himmelstein et al., 2017; Lee & Pause, 2016; Major et al., 2014; Mensinger et al., 2018; Myre et al., 2021). The intersection of these topics as it relates to pregnant women is the gap in this research, i.e., how do weight stigma experiences and internalized weight bias among pregnant

women affect their level of trust in their healthcare providers and their willingness to seek needed healthcare?

### ***Research Aims***

While there is growing literature on population-level responses to weight stigma, including physical and psychological outcomes, less is known about the impact of weight stigma on pregnant women. These and other factors potentially related to weight stigma, such as healthcare avoidance, and low trust in providers, require further exploration among pregnant women, especially women with overweight and obesity. More research is needed on weight stigma among pregnant women as it occurs in medical settings, as well as the impact this has on trust in healthcare providers and healthcare seeking behaviors of pregnant women.

In describing the need for more general, medical research conducted in populations of pregnant women, Little and Wickremsinhe (2017) suggest that pregnant women need access to safe, effective, and equitable treatment. Likewise, regarding weight stigma and healthcare experiences, there are similar ethical reasons to conduct further research. Pregnant women should be considered as vulnerable to weight stigma and decreased trust in healthcare providers equally as compared to non-pregnant women. This project aimed to further highlight the experiences of pregnant women in this context. This thesis project assessed the extent to which pregnant women reported weight stigma, both experienced and internalized. Additionally, pre-pregnancy BMI was evaluated as a potential predictor of experienced and internalized weight stigma; these forms of weight stigma were tested as mediators of medical mistrust and healthcare avoidance. This study had three aims:

**Study Aim 1:** Examine the frequency of weight stigmatizing experiences in a healthcare context and general weight stigma internalization among pregnant women. Assess healthcare avoidance behavior and trust in medical providers.

**Study Aim 2:** Examine the relationship between pre-pregnancy BMI, internalized weight bias, experienced weight stigma, and trust in healthcare providers.

**Study Aim 3:** Examine the relationship between pre-pregnancy BMI, internalized weight bias, experienced weight stigma, and healthcare avoidance.

### *Hypotheses*

**Hypothesis 1.** Women with a higher pre-pregnancy BMI will report more frequent weight stigma experiences, more internalized weight bias, less trust in medical providers, and greater avoidance of medical care.

**Hypothesis 2.** Higher pre-pregnancy BMI will be associated with lower trust in healthcare provider directly and through greater stigmatizing situations in healthcare and internalized weight bias.

**Hypothesis 3.** Higher pre-pregnancy BMI will be associated with healthcare avoidance directly and through greater stigmatizing situations in healthcare and internalized weight bias.

## CHAPTER 2: METHODS

### Participants and Procedure

Data from this study is part of a larger project examining health, weight stigma, sexual satisfaction, and body image among pregnant women. IRB approval (UMCIRB 22-000145) was obtained and is shown in Appendix A. Pregnant participants were recruited through a Qualtrics online survey platform. Participants completed the survey after reading the online consent, to which participants were instructed to respond electronically. See Appendix B for informed consent. The study was described as seeking to evaluate experiences of weight and health during pregnancy. Inclusion criteria were based on the larger study of which this data collection was a part. Criteria were female sex assigned at birth, cisgender woman gender identity, currently sexually active, having a BMI of 17 or higher, and aged 18 to 45 years. Data collection of the currently utilized sample ran from July to October 2022. Pregnancy validity questions were included which asked participants to report date of last menstrual cycle, due date, and gestational weeks. See Appendix C for survey measures. Qualtrics provided approximately 220 responses, of which 25 were removed after being deemed invalid related to implausible or incomplete responses (e.g., implausible body weight and height), or reporting a BMI which did not meet inclusion criteria.

Participant demographic and anthropometric characteristics are listed in Table 1. A total of 195 participants ( $M_{age} = 32.8$ ,  $SD_{age} = 5.31$ ) were included in the present study. Participants were predominantly White, non-Hispanic/Latina//x, and heterosexual. Pre-pregnancy BMI for the sample was categorized as underweight (7.7%), normal weight (52.8), overweight (26.2%), or obese (13.3%). Average pre-pregnancy BMI was 24.67 ( $SD 5.42$ ) and most participants fell into the normal weight category.

Almost all participants (98.5%) reported having a single pregnancy as opposed to a multiple pregnancy (e.g., twins). Gestational weeks ranged from 2 to 39 ( $M_{weeks} = 22.4$ ,  $SD_{weeks} = 8.55$ ). Most participants reported a non-high risk pregnancy status (75.4%). The most frequently reported pregnancy care setting was an Ob-Gyn practice (69.2%) followed by a family medicine practice (20.5%); 1.5% reported not currently receiving care. Participants were asked whether they had a concurrent (with pregnancy) medical or mental health condition and 69.2% indicated yes to one or more mental or physical health conditions. Participants were also asked to identify their most recent provider and 72.8% indicated most recently seeing an Ob-gyn while 12.3% reported most recently seeing a pregnancy care provider who is not an ob-gyn (e.g., midwife), and 13.8% reported seeing a primary care or family doctor. Frequencies, means, and standard deviations of obstetric characteristics can be found in Table 2.

Using G\*Power 3.1.97, a statistical power analysis was conducted. The F test option was selected along with linear multiple regression, with total predictors entered as 3 (X, M1, and M2). The current sample size of 195 is sufficient for detecting a small to medium effect size (.06) in a model of multiple linear regression with .80 power.

## **Measures**

*Demographics.* Participants were asked to self-report their personal demographic, obstetric, and anthropometric data including sex, gender, age, education, annual income, employment status, partner status, and pre-pregnancy height, and weight. See Appendix B for a complete list of demographic items.

*Obstetrics Characteristics.* Participants were asked to self-report pregnancy characteristics (e.g., conception method, single or multiple pregnancy, number of previous



pregnancies), and pregnancy weight. Participants reported their pre-pregnancy height and weight which was used to calculate pre-pregnancy Body Mass Index (BMI; kg/height in m<sup>2</sup>).

*Internalized Weight Bias.* Internalized weight bias was measured using the Weight Bias Internalization Scale-Modified version (WBIS-M; Durso & Latner, 2008; Pearl & Puhl, 2014). This modified 11-item scale assesses participants internalization of weight bias using a 7-point Likert scale on which point 1 is labeled strongly disagree and point 7 is labeled strongly agree. Items are averaged and a mean score is determined. The modified version of this scale, the WBIS-M, was used in this study as it is more inclusive of women who do not identify as overweight or obese. In a study of 150 US residents, the WBIS-M demonstrated strong internal consistency ( $\alpha=0.94$ ; Pearl & Puhl, 2014). In a recent study examining the relationship between internalized weight stigma during pregnancy and breast-feeding outcomes, the WBIS-M had high internal consistency of  $\alpha = 0.81$  both during pregnancy and at postpartum follow up (Dieterich et al., 2021). This scale has previously been used in at least one study on weight bias and healthcare avoidance in women (Mensinger et al., 2018). Of note, one item (item 10) in the measure was erroneously unchanged from the original version and stated, “Because I am overweight, I don’t feel like my true self.” Correlation was run between all items and all items except for item 10 ( $r = 0.99$ ), thus item 10 was left in the measure. In the current study, reliability analysis using Cronbach’s alpha indicated good internal consistency ( $\alpha = 0.94$ ).

*Experienced Weight Bias in Healthcare Settings.* The Stigmatizing Situations in Healthcare (SSHHC) inventory was derived from Myers and Rosen’s Stigmatizing Situations Inventory (SSI; Myers & Rosen, 1999), a measure created to assess obese individuals’ experiences of weight stigma and ability to cope with weight stigma. This measure was modified by Ferrante et al. (2016) with the aim of creating a valid assessment of women’s weight

stigmatizing experiences in healthcare settings. Their study found this measure to have a strong internal consistency ( $\alpha = 0.92$ ). The SSHC is a 20-item self-report measure which asks participants to rate the frequency (e.g., never, more than once) with which they have experienced specific stigmatizing experiences (e.g., “a doctor saying weight is a health problem when you are in good health”). All items are averaged to create a mean score. Mensinger, Tylka, and Calamari (2018) utilized the brief version of this scale in a study on weight stigma and women’s avoidance of healthcare and found it to have a strong internal consistency ( $\alpha = .91$ ). In the current study, participants were instructed to consider their healthcare experiences over the past 12 months, including interactions with their primary care doctor, Ob-Gyn, and any other medical providers. Participants rated stigmatizing situations as occurring never, within the past week, within the past month, within the past 6 months, or within the past 12 months. In the current study, reliability analysis using Cronbach’s alpha indicated good internal consistency ( $\alpha = 0.95$ ).

*Trust in Healthcare Provider.* The Healthcare Relationship Trust Scale (HCRT) (Bova et al., 2006) is a 15-item self-report measure which assesses participants’ perceptions of their healthcare provider using three factors: interpersonal connection, respectful communication, and professional partnering. Response options in the form of a Likert scale on which point 0 is labeled none of the time and point 5 is labeled most of the time are solicited in response to items such as “How often does your HCP talk over your head?” and “My HCP is an excellent listener.” A composite, total score is recorded, as well as three factor scores. Bova et al (2006) reported internal consistency for these factors as good,  $\alpha = .85$ ,  $\alpha = .81$ , and  $\alpha = .89$ , respectively. The development and validation of the HCRT was completed using a sample of low-income adults living with HIV; no significant differences were noted in measures of trust with respect to gender. The initial scale was shown to have good overall internal consistency ( $\alpha = .92-.95$ ) with a

test-retest reliability of .59 (Bova et al., 2006). Further validity testing in a large sample of low-income adults in a primary care setting found a Cronbach's alpha of .96 (Bova et al., 2012). In the current study, participants were asked to complete this measure in reference to the provider they had seen most recently. Overall, internal consistency of the measure was good ( $\alpha = 0.95$ ). Internal consistency of factor 1 (interpersonal communication) was good ( $\alpha = 0.93$ ). In the current investigation, reliability was acceptable for factors 2 (respectful communication) and 3 (professional partnering),  $\alpha = 0.72$  and  $\alpha = 0.68$ , respectively.

*Healthcare Avoidance.* Healthcare avoidance is a term used to describe patient disengagement which impedes health via underutilization of healthcare services (Ye et al., 2012). The Health Information National Trends Survey (HINTS), an instrument developed by the National Cancer Institute, assesses health behaviors including screening and communication (Finney Rutten et al., 2020; Nelson et al., 2004). Four questions from the HINTS were used to assess healthcare avoidance and reasoning. Previous research on healthcare avoidance has utilized these four questions (Kannan & Veazie, 2014). In a study on weight stigma in healthcare experiences, Puhl et al. (2021) constructed a measure of healthcare experiences which included these four questions. For the current study, these items were rated on a 5-point Likert scale (strongly disagree to strongly agree). Participants were instructed to complete this measure in reference to all their healthcare experiences during the last 12 months. A composite score (the average across all 4 questions), as well as scores of the individual questions were included in this study.

### **Data Analysis**

Data was assessed for missing data, outliers, and normality of variables (skewness and kurtosis) using SPSS statistical software version 27. Because pre-pregnancy BMI was negatively skewed, it was log transformed for use in bivariate correlations. As indicated in Table 1, the

sample of the current study included numerous self-reported racial identities, therefore race was not examined as a covariate.

Hypothesis 1 was tested using bivariate correlations to examine the association of pre-pregnancy BMI with experienced weight stigma in healthcare settings, general weight stigma internalization, healthcare avoidance, and trust in healthcare providers. Hypotheses 2 and 3 were investigated using serial mediation analyses in which pre-pregnancy BMI was considered a predictor variable; weight stigma and internalization were entered as mediator variables. Paths of single mediation between pre-pregnancy BMI, experience of stigmatizing situations, and IWB were also examined. Outcome variables were trust in healthcare provider and healthcare avoidance. The PROCESS Model 6 (Hayes, 2013) in SPSS version 27 was used to examine mediation. This model uses bootstrap sampling of 5000 samples and confidence intervals were set at 95%. Effects were considered significant at  $p \leq .05$ .

## CHAPTER 3: RESULTS

### Covariates

Education, income, and age were tested as potential covariates. Analysis of bivariate correlations indicated that there were no significant relationships between income, education, or age and outcome variables.

### Weight Stigma and Healthcare Variables- Descriptive Statistics

Participants were asked how frequently they typically see a provider for recommended check-ups or routine physical examinations (not specific to prenatal care) and 36.9% indicated “always,” 16.9% indicated “most of the time,” 31.3% indicated “about half of the time,” 13.3% indicated “some of the time,” and 1.5% indicated “never.” Participants also reported the type of area in which they live; 52.3% of participants reported their residence as urban, 25.1% as suburban, and 16.4% as rural.

Participants’ average score of Internalized Weight Bias (IWB) (WBIS-M; Durso & Latner, 2008; Pearl & Puhl, 2014) was 3.55 ( $SD = 1.58$ ), indicative of low to moderate levels of internalized weight bias (Puhl et al., 2018). Over two-thirds of participants (68.7%) reported having experienced one or more stigmatizing situations in a healthcare setting over the past 12 months. Most participants reported moderate to high levels of overall trust ( $M = 43.8$ ,  $SD = 11.76$ ), with responses indicating perceived overall trust occasionally or a moderate amount of the time during interactions with healthcare providers. On trust factor 1, interpersonal communication ( $M = 15.45$ ,  $SD = 4.70$ ), responses indicated perceived interpersonal communication most of the time. On trust factor 2, respectful communication ( $M = 12.00$ ,  $SD = 3.24$ ), responses indicated perceived respectful communication most of the time. On trust factor 3, professional partnering ( $M = 16.34$ ,  $SD = 4.83$ ) responses indicated perceived professional

partnering occasionally or a moderate amount of the time. Overall avoidance of medical care during the past 12 months ( $M = 1.21, SD = 1.18$ ) was assessed. Regarding general healthcare avoidance, or avoidance not attributed to a specific concern ( $M = 1.45, SD = 1.45$ ), the average participant response was “somewhat agree.” Regarding avoidance related to discomfort with body exams ( $M = 1.08, SD = 1.37$ ), the average participant response was “somewhat agree.” For avoidance related to fear of serious illness ( $M = 1.23, SD = 1.41$ ), the average participant response was “somewhat agree.” Regarding avoidance related to being self-conscious of body weight ( $M = 1.08, SD = 1.30$ ), average participant response was “somewhat agree.” Means and standard deviations can be found in Table 3.

### **Correlations**

Pearson’s  $r$  correlation coefficients were used to examine the associations among pre-pregnancy BMI, experienced weight stigma, internalized weight bias, healthcare avoidance, and trust in healthcare provider. Pearson’s  $r$  correlation coefficients are reported in Table 4.

Supportive of hypothesis 1, pre-pregnancy BMI was positively, significantly correlated with internalized weight bias. Contrary to hypothesis 1, higher pre-pregnancy BMI alone was not significantly related to avoidance of care and was positively, significantly related to trust, albeit weakly. Pre-pregnancy BMI was not significantly related to experiences of stigmatizing situations.

Higher internalization of weight bias was weakly, significantly associated with greater experiences of stigmatizing situations and lower overall trust in medical providers. Higher IWB was moderately significantly associated with increased overall avoidance of care. There was a moderate significant association between greater frequency of stigmatizing situations and lower overall trust in healthcare providers. There was also a moderately significant, positive

relationship between frequency of stigmatizing situations and avoidance of healthcare. Greater overall trust in medical provider was moderately significantly associated with lower avoidance of medical care.

## Mediation Models of Avoidance

### Overall Avoidance of Healthcare

Results of mediation model are shown in Figure 1. Direct and total effects were examined. Pre-pregnancy BMI was not a significant predictor of experienced stigma in healthcare ( $b = -.02, t(193) = -1.36, p = .18$ ). Higher pre-pregnancy BMI was a significant predictor of higher levels of internalized weight bias ( $b = .08, t(192) = 4.11, p < .001$ ). Greater frequency of experiencing stigmatizing situations also significantly predicted higher levels of internalized weight bias ( $b = .61, t(192) = 6.34, p < .001$ ). Greater frequency of experiencing stigmatizing situations significantly predicted greater overall avoidance ( $b = .37, t(191) = 5.20, p < .001$ ) as did higher levels of internalized weight bias ( $b = .29, t(191) = 6.02, p < .001$ ). The direct effect of pre-pregnancy BMI on overall avoidance was not significant ( $b = -.03, t(191) = -1.93, p = .06$ ). The total effect of pre-pregnancy BMI on overall avoidance was not significant ( $b = -.01, t(193) = -.85, p = .40$ ).

Indirect effects were examined. Experience of stigmatizing situations did not mediate the relationship between pre-pregnancy BMI and overall avoidance ( $b = -.007, 95\% \text{ CI } [-.02, .002]$ ). Experience of stigmatizing situations and IWB did not serially mediate the relationship between pre-pregnancy BMI and overall avoidance ( $b = -.003, 95\% \text{ CI } [-.008, .001]$ ). The path between pre-pregnancy BMI and avoidance through internalized weight bias was significant ( $b = .02, 95\% \text{ CI } [.01, .04]$ ).

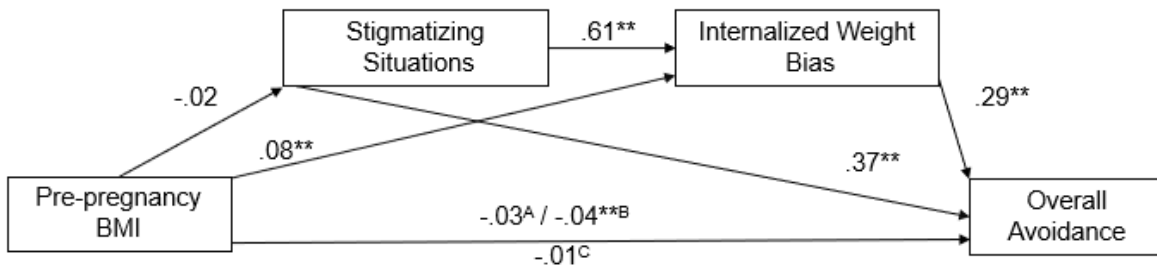
Because there was a significant indirect pathway between pre-pregnancy BMI and overall avoidance through IWB, IWB was examined as a single mediator (without experienced stigma in healthcare) in post hoc analyses. The direct effect of pre-pregnancy BMI on overall avoidance



was significant ( $b = -.04$ , 95% CI  $[-.066, -.012]$ ,  $p = .005$ ). Considering that the previously nonsignificant, negative relationship between pre-pregnancy BMI and avoidance became significant with the addition of IWB (i.e., direct effect), this suggests that IWB acted as a suppressor variable between pre-pregnancy BMI and avoidance. In other words, pre-pregnancy BMI accounted for more variation in overall avoidance after controlling for IWB.

**Figure 1**

*Mediation of Overall Healthcare Avoidance*



*Note.* Superscript A denotes the direct effect of pre-pregnancy BMI on avoidance with stigmatizing situations and IWB as mediators. Superscript B denotes the direct effect of pre-pregnancy BMI on avoidance with IWB only as a mediator. Superscript C denotes total effect of pre-pregnancy BMI on avoidance.

Statistical significance is indicated as \* $p < .05$ , \*\* $p < .01$ .

### **Healthcare Avoidance: Generalized Avoidance**

Results of mediation model are shown in Figure 2. Direct and total effects were examined. As previously mentioned, pre-pregnancy BMI was not a significant predictor of experienced stigma in healthcare, but higher pre-pregnancy BMI was a significant predictor of higher levels of internalized weight bias. Frequent stigmatizing experiences also significantly predicted higher levels of IWB. Greater frequency of experiencing stigmatizing situations significantly predicted greater generalized avoidance ( $b = .22$ ,  $t(191) = 2.22$ ,  $p = .03$ ), as did higher levels of internalized weight bias ( $b = .31$ ,  $t(191) = 4.54$ ,  $p < .001$ ). The direct effect of

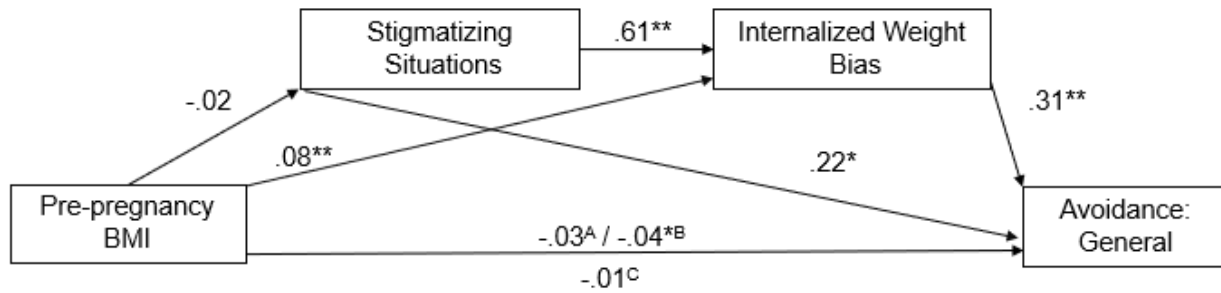
pre-pregnancy BMI on generalized avoidance was not significant ( $b = -.03$ ,  $t(191) = -1.62$ ,  $p = .11$ ). The total effect of pre-pregnancy BMI on generalized avoidance was not significant ( $b = -.01$ ,  $t(193) = -.72$ ,  $p = .48$ ).

Indirect effects were examined. Experience of stigmatizing situations did not mediate the relationship between pre-pregnancy BMI and generalized avoidance ( $b = -.004$ , 95% CI [-.01, .001]). Experience of stigmatizing situations and IWB did not serially mediate the relationship between pre-pregnancy BMI and generalized avoidance ( $b = -.004$ , 95% CI [-.009, .001]). The path between pre-pregnancy BMI and avoidance through internalized weight bias was significant ( $b = .02$ , 95% CI [.01, .04]).

Because there was a significant indirect pathway between pre-pregnancy BMI and generalized avoidance through IWB, IWB was examined as a single mediator (without experienced stigma in healthcare) in post hoc analyses. The direct effect of pre-pregnancy BMI on generalized avoidance was significant ( $b = -.04$ , 95% CI [-.074, -.002],  $p = .04$ ). Considering that the previously nonsignificant, negative relationship between pre-pregnancy BMI and avoidance became significant with the addition of IWB (i.e., direct effect), this suggests that IWB acted as a suppressor variable between pre-pregnancy BMI and avoidance. In other words, pre-pregnancy BMI accounted for more variation in generalized avoidance after controlling for IWB.

**Figure 2**

*Mediation Healthcare Avoidance: Generalized Avoidance*



Note. Superscript A denotes the direct effect of pre-pregnancy BMI on avoidance with stigmatizing situations and IWB as mediators. Superscript B denotes the direct effect of pre-pregnancy BMI on avoidance with IWB only as a mediator. Superscript C denotes total effect of pre-pregnancy BMI on avoidance.

Statistical significance is indicated as \* $p < .05$ , \*\* $p < .01$ .

### **Healthcare Avoidance: Avoidance Related to Body Exam Discomfort**

Results of mediation model are shown in Figure 3. Direct and total effects were examined. As previously mentioned, pre-pregnancy BMI was not a significant predictor of experienced stigma in healthcare, but higher pre-pregnancy BMI was a significant predictor of higher levels of internalized weight bias. Frequent stigmatizing experiences also significantly predicted higher levels of IWB. Greater frequency of experiencing stigmatizing situations significantly predicted greater avoidance related to body exam discomfort ( $b = .31$ ,  $t(191) = 3.38$ ,  $p < .001$ ), as did higher levels of internalized weight bias ( $b = .30$ ,  $t(191) = 4.91$ ,  $p < .001$ ). The direct effect of pre-pregnancy BMI on avoidance related to body exam discomfort was significant ( $b = -.03$ ,  $t(191) = -, p = .05$ ). The total effect of pre-pregnancy BMI on avoidance related to body exam discomfort was not significant ( $b = -.02$ ,  $t(193) = -1.07$ ,  $p = .29$ ).

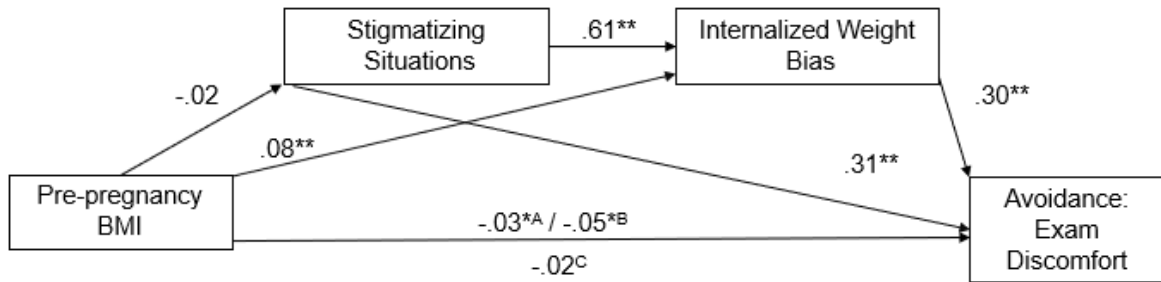
Indirect effects were examined. Experience of stigmatizing situations did not mediate the relationship between pre-pregnancy BMI and avoidance related to body exam discomfort ( $b = -$

.006, 95% CI [-.02, .01]). Experience of stigmatizing situations and IWB did not serially mediate the relationship between pre-pregnancy BMI and avoidance related to body exam discomfort ( $b = -.004$ , 95% CI [-.009, .001]). The path between pre-pregnancy BMI and avoidance through internalized weight bias was significant ( $b = .02$ , 95% CI [.01, .04]).

Because there was a significant indirect pathway between BMI and avoidance related to body exam discomfort through IWB, IWB was examined as a single mediator (without experienced stigma in healthcare) in post hoc analyses. The direct effect of pre-pregnancy BMI on avoidance related to body exam discomfort was significant ( $b = -.05$ , 95% CI [-.078, -.012],  $p = .01$ ). Considering that the significant relationship between pre-pregnancy BMI and avoidance remained significant with the addition of IWB, this suggests partial mediation occurred.

**Figure 3**

*Mediation Healthcare Avoidance: Avoidance Related to Body Exam Discomfort*



*Note.* Superscript A denotes the direct effect of pre-pregnancy BMI on avoidance with stigmatizing situations and IWB as mediators. Superscript B denotes the direct effect of pre-pregnancy BMI on avoidance with IWB only as a mediator. Superscript C denotes total effect of pre-pregnancy BMI on avoidance.

Statistical significance is indicated as  $*p < .05$ ,  $**p < .01$ .

### **Healthcare Avoidance: Avoidance Related to Fear of Serious Illness**

Results of mediation model are shown in Figure 4. Direct and total effects were examined. As previously mentioned, pre-pregnancy BMI was not a significant predictor of experienced stigma in healthcare, but higher pre-pregnancy BMI was a significant predictor of higher levels of internalized weight bias. Frequent stigmatizing experiences also significantly predicted higher levels of IWB. Greater frequency of experiencing stigmatizing situations significantly predicted greater avoidance related to fear of serious illness ( $b = .41, t(191) = 4.58, p < .001$ ), as did higher levels of internalized weight bias ( $b = .30, t(191) = 4.92, p < .001$ ). The direct effect of pre-pregnancy BMI on avoidance related to fear of serious illness was not significant ( $b = -.03, t(191) = -1.75, p = .08$ ). The total effect of pre-pregnancy BMI on avoidance related to fear of illness was not significant ( $b = -.02, t(193) = -.91, p = .36$ ).

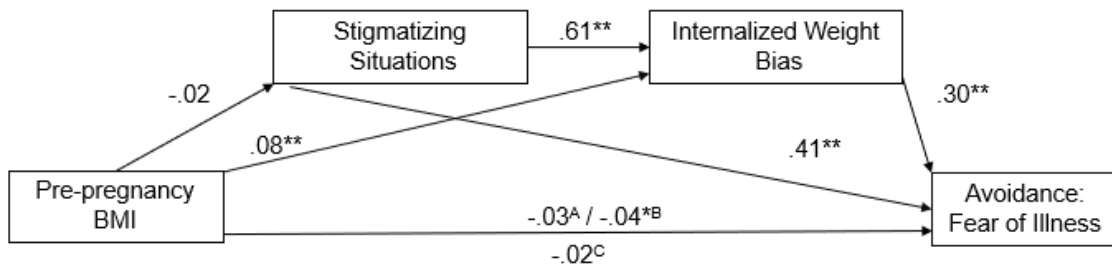
Indirect effects were examined. Experience of stigmatizing situations did not mediate the relationship between pre-pregnancy BMI and avoidance related to fear of illness ( $b = -.008, 95\% \text{ CI} [-.02, .002]$ ). Experience of stigmatizing situations and IWB did not serially mediate the relationship between pre-pregnancy BMI and avoidance related to fear of illness ( $b = -.004, 95\% \text{ CI} [-.009, .001]$ ). The path between pre-pregnancy BMI and avoidance through internalized weight bias was significant ( $b = .02, 95\% \text{ CI} [.01, .04]$ ).

Because there was a significant indirect pathway between pre-pregnancy BMI and avoidance related to fear of illness through IWB, IWB was examined as a single mediator (without experienced stigma in healthcare) in post hoc analyses. The direct effect of pre-pregnancy BMI on avoidance related to fear of illness was significant ( $b = -.04, 95\% \text{ CI} [-.078, -.011], p = .01$ ). Considering that the previously nonsignificant, negative relationship between pre-pregnancy BMI and avoidance became significant with the addition of IWB (i.e., direct

effect), this suggests that IWB acted as a suppressor variable between pre-pregnancy BMI and avoidance. In other words, pre-pregnancy BMI accounted for more variation in avoidance related to fear of illness after controlling for IWB.

**Figure 4**

*Mediation Healthcare Avoidance: Avoidance Related to Fear of Serious Illness*



*Note.* Superscript A denotes the direct effect of pre-pregnancy BMI on avoidance with stigmatizing situations and IWB as mediators. Superscript B denotes the direct effect of pre-pregnancy BMI on avoidance with IWB only as a mediator. Superscript C denotes total effect of pre-pregnancy BMI on avoidance.

Statistical significance is indicated as \* $p < .05$ , \*\* $p < .01$ .

### **Healthcare Avoidance: Avoidance Related to Being Self-Conscious of Body Weight**

Results of mediation model are shown in Figure 5. Direct and total effects were examined. As previously mentioned, pre-pregnancy BMI was not a significant predictor of experienced stigma in healthcare, but higher pre-pregnancy BMI was a significant predictor of higher levels of internalized weight bias. Frequent stigmatizing experiences also significantly predicted higher levels of IWB. Greater frequency of experiencing stigmatizing situations significantly predicted greater avoidance related to body weight ( $b = .54, t(191) = 7.11, p < .001$ ), as did higher levels of internalized weight bias ( $b = .26, t(191) = 4.93, p < .001$ ). The direct effect of pre-pregnancy BMI on avoidance related to body weight was not significant ( $b =$

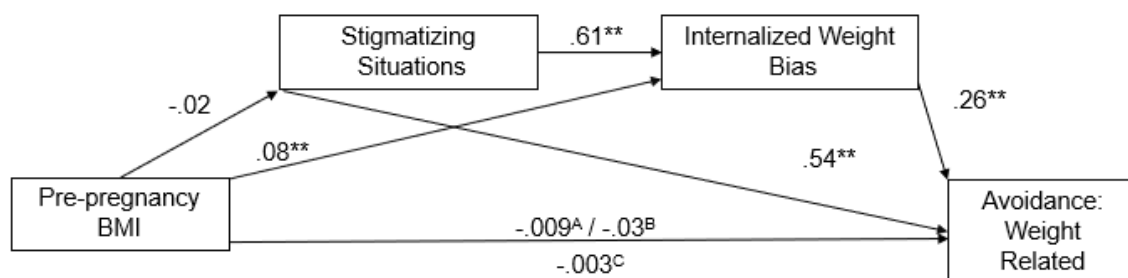
$-.01, t(191) = -.65, p = .52$ ). The total effect of pre-pregnancy BMI on avoidance related to body weight was not significant ( $b = -.003, t(193) = -.15, p = .88$ ).

Indirect effects were examined. Experience of stigmatizing situations did not mediate the relationship between pre-pregnancy BMI and avoidance related to body weight ( $b = -.01, 95\% \text{ CI } [-.02, .003]$ ). Experience of stigmatizing situations and IWB did not serially mediate the relationship between pre-pregnancy BMI and avoidance related to body weight ( $b = -.003, 95\% \text{ CI } [-.007, .00]$ ). The path between pre-pregnancy BMI and avoidance through internalized weight bias was significant ( $b = .02, 95\% \text{ CI } [.01, .03]$ ).

Because there was a significant indirect pathway between BMI and avoidance related to body weight through IWB, IWB was examined as a single mediator (without experienced stigma in healthcare) in post hoc analyses. The direct effect of pre-pregnancy BMI on avoidance related to body weight was nearly significant ( $b = -.03, 95\% \text{ CI } [-.060, -.001], p = .06$ ). Considering that the previously nonsignificant, negative relationship between pre-pregnancy BMI and avoidance nearly became significant with the addition of IWB (i.e., direct effect), this suggests that IWB acted as a suppressor variable between pre-pregnancy BMI and avoidance. In other words, pre-pregnancy BMI accounted for more variation in avoidance related to body weight after controlling for IWB.

**Figure 5**

*Mediation Healthcare Avoidance: Avoidance Related to Being Self-Conscious of Body Weight*



*Note.* Superscript A denotes the direct effect of pre-pregnancy BMI on avoidance with stigmatizing situations and IWB as mediators. Superscript B denotes the direct effect of pre-pregnancy BMI on avoidance with IWB only as a mediator. Superscript C denotes total effect of pre-pregnancy BMI on avoidance.

Statistical significance is indicated as  $*p < .05$ ,  $**p < .01$ .



## Mediation Models of Trust

### Overall Trust in Healthcare Provider

Results of mediation model are shown in Figure 6. Direct and total effects were examined. Pre-pregnancy BMI was not a significant predictor of experienced stigma in healthcare ( $b = -.02, t(193) = -1.36, p = .18$ ). Higher pre-pregnancy BMI was a significant predictor of higher levels of internalized weight bias ( $b = .08, t(192) = 4.11, p < .001$ ). Greater frequency of experiencing stigmatizing situations also significantly predicted higher levels of internalized weight bias ( $b = .61, t(192) = 6.34, p < .001$ ). Greater frequency of experiencing stigmatizing situations significantly predicted lower overall trust in healthcare provider ( $b = -4.20, t(191) = -5.52, p < .001$ ), as did higher levels of internalized weight bias ( $b = -1.45, t(191) = -2.80, p = .006$ ). The direct effect of pre-pregnancy BMI on overall trust was significant ( $b = .41, t(191) = 2.93, p = .003$ ). The total effect of pre-pregnancy BMI on overall trust was significant ( $b = .40, t(193) = 2.58, p = .01$ ) and relatively unchanged from the direct effect.

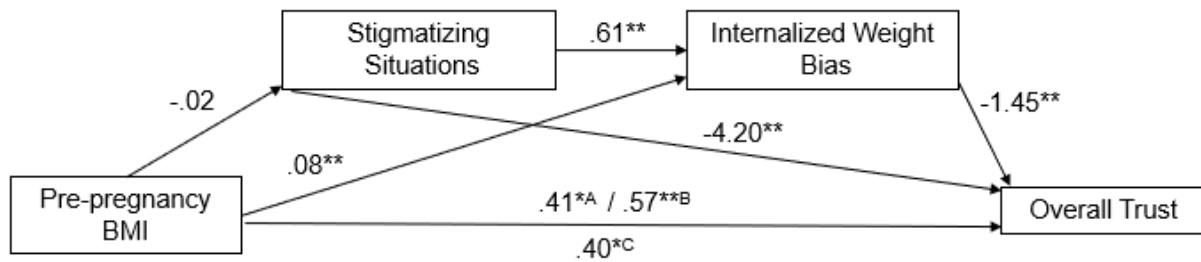
Indirect effects were examined. Experience of stigmatizing situations did not mediate the relationship between pre-pregnancy BMI and overall trust ( $b = .08, 95\% \text{ CI } [-.02, .18]$ ). Experience of stigmatizing situations and IWB did not serially mediate the relationship between pre-pregnancy BMI and overall trust ( $b = .02, 95\% \text{ CI } [-.004, .05]$ ). The path between pre-pregnancy BMI and overall trust through internalized weight bias was significant ( $b = -.11, 95\% \text{ CI } [-.22, -.03]$ ).

Because there was a significant indirect pathway between pre-pregnancy BMI and overall trust through IWB, in post hoc analyses, IWB was examined as a single mediator (without experienced stigma in healthcare). The direct effect of pre-pregnancy BMI on overall trust was

significant ( $b = .57$ , 95% CI [.280, .861],  $p < .001$ ). As indicated above, higher pre-pregnancy BMI was associated with greater internalized weight bias and greater internalized weight bias was associated with decreased trust in healthcare provider. This finding suggests that IWB acted as a suppressor variable between pre-pregnancy BMI and trust. In other words, pre-pregnancy BMI accounted for more variation in overall trust after controlling for IWB.

**Figure 6**

*Mediation of Overall Trust in Healthcare Provider*



*Note.* Superscript A denotes the direct effect of pre-pregnancy BMI on trust with stigmatizing situations and IWB as mediators. Superscript B denotes the direct effect of pre-pregnancy BMI on trust with IWB only as a mediator.

Superscript C denotes total effect of pre-pregnancy BMI on trust.

Statistical significance is indicated as \* $p < .05$ , \*\* $p < .01$ .

### **Trust: Subscale- Interpersonal Communication from Healthcare Provider**

Results of mediation model are shown in Figure 7. Direct and total effects were examined. As previously mentioned, pre-pregnancy BMI was not a significant predictor of experienced stigma in healthcare, but higher pre-pregnancy BMI was a significant predictor of higher levels of internalized weight bias. Frequent stigmatizing experiences also significantly predicted higher levels of IWB. Greater frequency of experiencing stigmatizing situations significantly predicted lower perceived interpersonal communication from healthcare provider ( $b = -1.21$ ,  $t(191) = -3.78$ ,  $p < .001$ ), as did higher levels of internalized weight bias ( $b = -.60$ ,  $t$

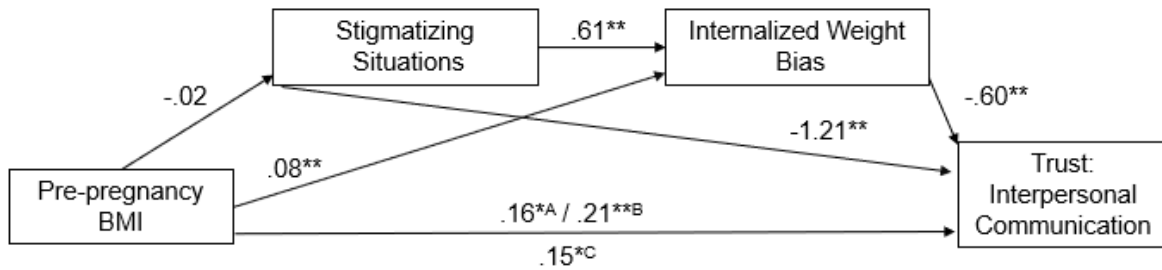
(191) = -2.75,  $p = .007$ ). The direct effect of pre-pregnancy BMI on interpersonal communication was significant ( $b = .16$ ,  $t(191) = 2.78$ ,  $p = .006$ ). The total effect of pre-pregnancy BMI on interpersonal communication was significant ( $b = .14$ ,  $t(193) = 2.41$ ,  $p = .02$ ) and relatively unchanged from the direct effect.

Indirect effects were examined. Experience of stigmatizing situations did not mediate the relationship between pre-pregnancy BMI and perceived interpersonal communication ( $b = .02$ , 95% CI [-.006, .06]). Experience of stigmatizing situations and IWB did not serially mediate the relationship between pre-pregnancy BMI and interpersonal communication ( $b = .007$ , 95% CI [-.002, .02]). The path between pre-pregnancy BMI and interpersonal communication through internalized weight bias was significant ( $b = -.05$ , 95% CI [-.09, -.01]).

Because there was a significant indirect pathway between pre-pregnancy BMI and perceived interpersonal communication through IWB, IWB was examined as a single mediator (without experienced stigma in healthcare) in post hoc analyses. The direct effect of pre-pregnancy BMI on interpersonal communication was significant ( $b = .21$ , 95% CI [.092, .329],  $p < .001$ ). As indicated above, higher pre-pregnancy BMI was associated with greater internalized weight bias and greater internalized weight bias was associated with decreased perceived interpersonal communication. This finding suggests that IWB acted as a suppressor variable between pre-pregnancy BMI and interpersonal communication. In other words, pre-pregnancy BMI accounted for more variation in perceived interpersonal communication after controlling for IWB.

**Figure 7**

*Mediation of Trust: Subscale- Interpersonal Communication*



Note. Superscript A denotes the direct effect of pre-pregnancy BMI on communication with stigmatizing situations and IWB as mediators. Superscript B denotes the direct effect of pre-pregnancy BMI on communication with IWB only as a mediator. Superscript C denotes total effect of pre-pregnancy BMI on communication.

Statistical significance is indicated as \* $p < .05$ , \*\* $p < .01$ .

### **Trust: Subscale- Respectful Communication from Healthcare Provider**

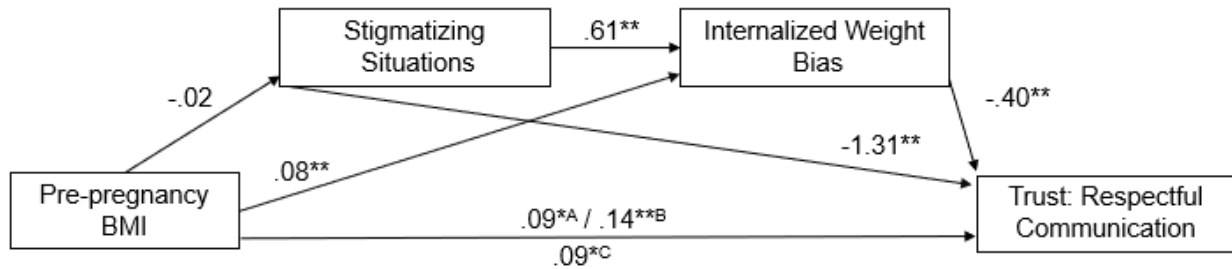
Results of mediation model are shown in Figure 8. Direct and total effects were examined. As previously mentioned, pre-pregnancy BMI was not a significant predictor of experienced stigma in healthcare, but higher pre-pregnancy BMI was a significant predictor of higher levels of internalized weight bias. Frequent stigmatizing experiences also significantly predicted higher levels of IWB. Greater frequency of experiencing stigmatizing situations significantly predicted lower perceived respectful communication from healthcare provider ( $b = -1.31, t(191) = -6.38, p < .001$ ), as did higher levels of internalized weight bias ( $b = -.40, t(191) = -2.89, p = .004$ ). The direct effect of pre-pregnancy BMI on respectful communication was significant ( $b = .09, t(191) = 2.39, p = .02$ ). The total effect of pre-pregnancy BMI on respectful communication was significant ( $b = .09, t(193) = 2.10, p = .04$ ) and relatively unchanged from the direct effect.

Indirect effects were examined. Experience of stigmatizing situations did not mediate the relationship between pre-pregnancy BMI and perceived respectful communication ( $b = .02$ , 95% CI [-.006, .06]). Experience of stigmatizing situations and IWB did not serially mediate the relationship between pre-pregnancy BMI and respectful communication ( $b = .005$ , 95% CI [-.001, .01]). The path between pre-pregnancy BMI and respectful communication through internalized weight bias was significant ( $b = -.03$ , 95% CI [-.06, -.01]).

Because there was a significant indirect pathway between pre-pregnancy BMI and perceived respectful communication through IWB, IWB was examined as a single mediator (without experienced stigma in healthcare) in post hoc analyses. The direct effect of pre-pregnancy BMI on communication was significant ( $b = .14$ , 95% CI [.060, .220],  $p < .001$ ). As indicated above, higher pre-pregnancy BMI was associated with greater internalized weight bias and greater internalized weight bias was associated with decreased perceived respectful communication. This finding suggests that IWB acted as a suppressor variable between pre-pregnancy BMI and respectful communication. In other words, pre-pregnancy BMI accounted for more variation in perceived respectful communication after controlling for IWB.

**Figure 8**

*Mediation of Trust: Subscale- Respectful Communication*



Note. Superscript A denotes the direct effect of pre-pregnancy BMI on communication with stigmatizing situations and IWB as mediators. Superscript B denotes the direct effect of pre-pregnancy BMI on communication with IWB only as a mediator. Superscript C denotes total effect of pre-pregnancy BMI on communication.

Statistical significance is indicated as \* $p < .05$ , \*\* $p < .01$ .

### **Trust: Subscale- Professional Partnering by Healthcare Provider**

Results of mediation model are shown in Figure 9. Direct and total effects were examined. As previously mentioned, pre-pregnancy BMI was not a significant predictor of experienced stigma in healthcare, but higher pre-pregnancy BMI was a significant predictor of higher levels of internalized weight bias. Frequent stigmatizing experiences also significantly predicted higher levels of IWB. Greater frequency of experiencing stigmatizing situations significantly predicted less perceived professional partnering ( $b = -1.68, t(191) = -5.23, p < .001$ ), as did higher levels of internalized weight bias ( $b = -.45, t(191) = -2.04, p = .04$ ). The direct effect of pre-pregnancy BMI on professional partnering was significant ( $b = .16, t(191) = 2.63, p = .01$ ). The total effect of pre-pregnancy BMI on professional partnering was significant ( $b = .16, t(193) = 2.52, p = .01$ ) and relatively unchanged from the direct effect.

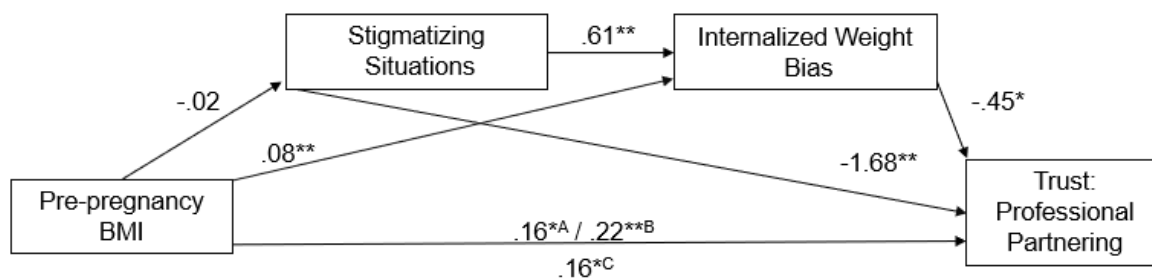
Indirect effects were tested. Experience of stigmatizing situations did not mediate the relationship between pre-pregnancy BMI and perceived professional partnering ( $b = .03, 95\% \text{ CI}$

[-.009, .07]). Experience of stigmatizing situations and internalized weight bias did not serially mediate the relationship between pre-pregnancy BMI and perceived professional partnering ( $b = .005$ , 95% CI [-.001, .02]). The path between pre-pregnancy BMI and professional partnering through internalized weight bias was significant ( $b = -.03$ , 95% CI [-.08, -.001]).

Because there was a significant indirect pathway between pre-pregnancy BMI and perceived professional partnering through IWB, IWB was examined as a single mediator (without experienced stigma in healthcare) in post hoc analyses. The direct effect of pre-pregnancy BMI on professional partnering was significant ( $b = .22$ , 95% CI [.097, .341],  $p < .001$ ). As indicated above, higher pre-pregnancy BMI was associated with greater internalized weight bias and greater internalized weight bias was associated with decreased perceived professional partnering. This finding suggests that IWB acted as a suppressor variable between pre-pregnancy BMI and professional partnering. In other words, pre-pregnancy BMI accounted for more variation in perceived professional partnering after controlling for IWB.

**Figure 9**

*Mediation of Trust: Subscale- Professional Partnering*



*Note.* Superscript A denotes the direct effect of pre-pregnancy BMI on partnering with stigmatizing situations and IWB as mediators. Superscript B denotes the direct effect of pre-pregnancy BMI on partnering with IWB only as a mediator. Superscript C denotes total effect of pre-pregnancy BMI on partnering.

Statistical significance is indicated as  $*p < .05$ ,  $**p < .01$ .



## CHAPTER 4: DISCUSSION

With increased body weight comes a greater likelihood of experiencing stigmatizing situations and internalizing that stigma (Puhl et al., 2018). Findings from recent research which examined the role of weight stigma in pregnant women's healthcare experiences indicate that it may negatively impact healthcare (Incollingo Rodriguez & Nagpal, 2021; Mulherin et al., 2013). This is of great importance given that research has observed increasing overweight and obesity among pregnant women (Chen et al., 2018; Ogunwole et al., 2021; Singh & DiBari, 2019), thus the likelihood of pregnant women facing weight stigma increases. The current study aimed to examine pre-pregnancy BMI along with experiences and internalization of weight stigma among pregnant women as it relates to their healthcare experiences. Further, this study aimed to test whether stigmatizing experiences and internalized weight bias mediated the relationship between pre-pregnancy BMI and healthcare avoidance, as well as trust in healthcare providers among pregnant women.

It was hypothesized that higher pre-pregnancy BMI would be associated with frequent weight stigmatizing experiences in healthcare settings, greater IWB, greater health care avoidance, and lower trust in one's health care provider. In the present study, there was not a significant relationship between pre-pregnancy BMI and experience of stigmatizing situations. This finding is surprising since the hypothesized relationship between pre-pregnancy BMI and stigmatizing situations was based on several lines of research. First, previous research on weight stigma as experienced in the general population has suggested that individuals with heavier bodies are subject to experiences of weight stigma in employment settings, social and romantic relationships, and from media sources (Puhl et al., 2020; Vartanian et al., 2014). Second, individuals with higher BMIs are more likely to report experienced stigma specific to healthcare

contexts (e.g., providers using patronizing language or attributing all medical concerns to body weight), than those with lower BMIs (Alberga et al., 2019; Lawrence et al., 2021; Remmert et al., 2019). Third, research focused on women's experiences of weight stigma in healthcare has reported an association between women's BMI and their reported stigmatizing experiences, with higher BMI predicting greater frequency of stigmatizing situations (Ferrante et al., 2016).

Despite these past positive associations, findings on pregnancy and the experience of weight stigma have been more varied. For example, in one study on weight stigma in pregnant and post-partum women, similar to this investigation, pre-pregnancy BMI was not related to frequency of stigmatizing experiences (Incollingo Rodriguez et al., 2019). However, in a study on weight stigma and pregnancy, Mulherin et al. (2013) found that among pregnant women who had overweight or obesity (pre-pregnancy), there was an increase in self-reported negative, stigmatizing experiences in healthcare. Others have reported similar findings (Incollingo Rodriguez & Nagpal, 2021; Nagpal et al., 2020).

Methodological differences between studies may account for the inconsistent findings among pregnant women's BMI and stigmatizing situations. For example, while Mulherin et al.'s 2013 study of women's maternity care experiences found that participants with higher BMIs reported a greater number of negative care experiences during their pregnancy and post-partum care, different assessments of stigma were employed. In the study by Mulherin and colleagues (2013), negative experiences among post-partum women were assessed using survey questions related to retrospective perceived quality of healthcare, while in the present study a healthcare-specific version of the Stigmatizing Situations Inventory (Ferrante et al., 2016; Myers & Rosen, 1999) was utilized. It is possible that broader negative experiences (e.g., not being treated kindly) occur more commonly than overtly weight stigmatizing experiences (e.g., a doctor making cruel

remarks). Also, while mean pre-pregnancy BMI in the current study ( $M = 24.67$ ,  $SD = 5.42$ ) was very similar to that in Mulherin et al.'s (2013) study ( $M = 24.66$ ,  $SD = 5.14$ ), the latter had a much larger sample size than the current study and therefore greater statistical power to detect relationships. Finally, Mulherin et al. (2013) surveyed women who were postpartum, and participants were asked to recall their experiences of healthcare specifically during pregnancy and post-partum. In the present study, participants were currently pregnant and asked to respond based on all healthcare experiences from the previous 12 months. It is possible that assessing a narrower time frame of healthcare experiences contributed to the current study's null findings.

Other potential explanations for the mixed findings among pregnant women are considered here. Prenatal care is a specialized area thus women may be more selective and intentional in choosing a provider (Mattar et al., 2019; Mavis et al., 2005); subsequently, women may have a more positive perception of their provider. Recent research on services provided at ob-gyn visits has suggested that reproductive health services (e.g., breast exams, contraceptive provision, pelvic exams) are more likely to be provided than non-reproductive services (e.g., glucose testing, counseling on weight reduction and diet) (Attanasio et al., 2022). As 69.2% of the pregnant women in the current study reported currently receiving treatment at an ob-gyn, it may be the case that they would be less likely to discuss weight reduction with their providers, reducing the likelihood of stigmatizing remarks. Finally, those with heavier bodies are at increased risk of complications during pregnancy (Voerman et al., 2019) and these complications may require prioritization, resulting in less discussion of body weight itself and more discussion of how the excess body weight will be treated medically. Perhaps these differences result in less perceived focus on weight and obesity, which pregnant women are interpreting as non-stigmatizing.

It was also hypothesized that higher pre-pregnancy BMI would be associated with higher levels of internalized weight bias (IWB). The hypothesized relationship between pre-pregnancy BMI and IWB was based on previous research suggesting that individuals with higher BMIs will report higher levels of IWB (Puhl et al., 2018); additionally, it was based on reports of higher levels of IWB in women relative to men (Himmelstein et al., 2017; Puhl & Heuer, 2009). As hypothesized, in the present study, higher pre-pregnancy BMI and higher levels of IWB were significantly related, albeit weakly.

Based on prior research examining BMI and trust in healthcare providers (Gudzune et al., 2014), it was hypothesized that in the current study, higher pre-pregnancy BMI would be associated with lower levels of trust in healthcare providers. Overall trust as well as three trust subscales were examined (interpersonal communication, respectful communication, and professional partnering; Bova et al., 2006). This hypothesis was not supported. Conversely, there was a significant, *positive* relationship with higher BMI predicting increased trust. While there is not a well-established body of research, Gudzune et al. (2014) found that among adults, about one-fifth of overweight and obese participants endorsed feeling judged about their weight by their primary care provider and these participants reported lower trust in their providers. As suggested earlier, it is possible that discrepant findings between pre-pregnancy BMI and trust are a result of the unique nature of primary care vs ob-gyn visits. Visits to a primary care physician are less frequent and more broadly focused, whereas visits to an ob-gyn could be more personalized and tailored to the patient. Potentially, among pregnant women with overweight or obesity, more frequent visits to providers that are less focused on weight could result in a greater number of positive interactions, thereby increasing trust in the patient-provider relationship. In the current study, pregnant women were asked which provider they had seen most recently.

Research indicates a significant relationship between higher BMI and healthcare avoidance among adults with fear of stigma or perceived stigma related to weight being cited as a reason for avoiding care (McGuigan & Wilkinson, 2015). In the current study, a positive relationship between pre-pregnancy BMI and avoidance of healthcare was hypothesized. There was no relationship found between pre-pregnancy BMI and healthcare avoidance. Of course, research on weight and healthcare avoidance among pregnant women is a nascent area of research and may not generalize to the broader research literature on BMI and health care avoidance. Healthcare avoidance may be less likely in pregnant women as they often prioritize the needs of their neonate or are strongly encouraged to seek regular medical care (Office on Women's Health- US Department of Health and Human Services, 2019). As less than two percent of pregnant women report receiving no prenatal care during their pregnancy (Osterman & Martin, 2018), it was not surprising that in the current study, healthcare avoidance was low.

### **Pre-pregnancy BMI, Weight Stigma, and Avoidance**

Previous research has reported an association between perceived stigma and avoidance of healthcare (Mensing et al., 2018; Puhl et al., 2021). It was hypothesized that experienced stigma and internalized weight bias would serially mediate the relationship between pre-pregnancy BMI and avoidance of healthcare. Overall avoidance, as well as individual items (e.g., avoidance related to being self-conscious of weight) (Finney Rutten et al., 2020; Nelson et al., 2004) were examined. As no serial mediation occurred, this hypothesis was not supported. This finding was not consistent with previous research on healthcare avoidance. Mensinger, Tylka, and Calamari (2018) examined the relationship between weight stigma and healthcare avoidance among US women and reported that there was an indirect relationship between experienced stigma, internalized weight bias, and avoidance which was moderated by body shame and

healthcare stress. Of course, Mensinger et al. (2018) were not examining pre-pregnancy BMI as a predictor, but rather looking at mediators of the stigma and avoidance relationship. Ultimately, these are very different research questions.

Subsequent models in this investigation looked at overall as well as individual reasons for avoidance. On overall avoidance as well as the individual reasons for avoidance, as expected, more frequent stigmatizing experiences meant more avoidance of healthcare and higher levels of internalized weight bias were associated with greater avoidance. In the single mediation models of avoidance, the addition of IWB revealed a previously obscured relationship between pre-pregnancy BMI and avoidance.

In the case of healthcare avoidance related to body exam discomfort, there was a significant relationship between higher pre-pregnancy BMI and lower avoidance of healthcare. Additionally, pre-pregnancy BMI was indirectly related to healthcare avoidance through IWB, indicating that for women with higher pre-pregnancy BMI, a high level of IWB may increase the likelihood of avoidance. Taken together with the finding in the study that higher pre-pregnancy BMI was associated with greater trust, this suggests that perhaps pre-pregnancy BMI acts as a protective factor as higher weight during pregnancy drives women to seek more frequent medical care. This finding is not surprising considering that in current literature, much of the research implicates the experience of stigmatizing situations as playing a critical role in healthcare avoidance (Brochu et al., 2018; Ferrante et al., 2016; Himmelstein et al., 2017), and in the current study there was not a significant relationship between pre-pregnancy BMI and experienced stigma.

In other mediation models of avoidance (overall avoidance, avoidance not attributed to a specific reason, avoidance related to fear of serious illness, avoidance related to being self-

conscious of body weight), internalized weight bias acted as a suppressor variable in the relationship between pre-pregnancy BMI and healthcare avoidance. Though initially pre-pregnancy BMI and healthcare avoidance were not significantly related, the addition of IWB as a potential mediator to the models revealed a previously suppressed relationship. The non-significant relationship between pre-pregnancy BMI and avoidance became a significant relationship with the addition of IWB as a mediator. These findings suggest that for example, if a woman has a higher level of IWB, and has a high pre-pregnancy BMI, she may be more likely to avoid seeking needed healthcare; however, if she has a high pre-pregnancy BMI and lower IWB, she might be more inclined to seek healthcare. As there are several negative outcomes associated with high levels of IWB (Alberga et al., 2016; Hayward et al., 2018; Latner et al., 2014), and pregnant women with higher pre-pregnancy BMIs are at greater risk of health and birth complications (Catalano & Shankar, 2017), it stands to reason that avoidance of healthcare by a person with high BMI and IWB could have detrimental effects.

### **Pre-pregnancy BMI, Weight Stigma, and Trust**

It was hypothesized that experienced stigma and internalized weight bias would mediate the relationship between pre-pregnancy BMI and trust in healthcare provider. While no serial mediation occurred and this hypothesis was not supported, interesting findings emerged. As previously reported, higher pre-pregnancy BMI was not associated with greater frequency of experiencing stigmatizing situations. However, as expected, as participants reported experiencing stigmatizing situations more frequently, their trust in healthcare provider decreased. Similar findings on provider perception were reported in a study of women with obesity in which experienced weight stigma in healthcare was linked to lower perceived empathy from providers (Ferrante et al., 2016). In the current study, while pre-pregnancy BMI was a poor predictor of

who experienced stigma, if a woman did experience weight stigma it appeared to be a potent factor in patient-provider relationships.

As expected, as participants' IWB increased, they trusted their providers less. As noted earlier, greater pre-pregnancy BMI was associated with greater IWB; therefore, pre-pregnancy BMI was directly associated with greater trust and indirectly associated with lower trust through IWB. IWB had a suppression effect; when IWB was controlled for, the strength of the relationship between pre-pregnancy BMI and trust in healthcare provider increased. In additional models of mediation which included the three trust subscales individually (perceived interpersonal communication, respectful communication, and professional partnering), similar findings were observed. Mediation of the relationship between pre-pregnancy BMI and trust in a sample of currently pregnant women has not yet been studied to the author's knowledge.

A possible interpretation of the current findings is that once a woman internalizes weight bias, regardless of the source, it can impact multiple domains of their life, including diminished trust in one's health care provider. Likewise, while women with higher pre-pregnancy BMIs tend to report higher IWB, this relationship to lower trust is indirect, because as noted, higher pre-pregnancy BMI was significantly associated with greater trust. As noted above, it is possible that heavier pregnant women who attend more frequent visits to providers are experiencing a greater number of positive interactions, thereby increasing trust in the patient-provider relationship. Despite these findings, it is important to remember that heavier pregnant women are vulnerable to stigmatizing experiences outside of healthcare contexts such as stigma from media and social situations (Incollingo Rodriguez et al., 2019; Nippert et al., 2021). Pregnant women may feel increasingly vulnerable in healthcare settings as they face pressure to adhere to medical advice and take the utmost care of themselves and their neonate; for those who do internalize and



experience weight stigma, it can have a negative impact on trust. Therefore, these findings are consistent with current literature which finds that weight stigma can be a major contributor to mistrust in healthcare contexts (Mensing et al., 2018; Phelan et al., 2015; Puhl et al., 2021).

### **Strengths**

This study had several strengths. The study is one of only a few to examine weight stigmatizing healthcare experiences among pregnant women. By examining the mediating role of experienced and internalized weight stigma in pregnant women's healthcare experiences and behaviors, this study contributes to a novel area of research. Further, in considering pregnant women's experiences and perceptions related to healthcare as related to pre-pregnancy BMI, this study was able to explore the impact of body weight and determine that factors such as IWB are potentially more impactful than weight alone. Pregnant women who had higher pre-pregnancy BMIs reported greater trust and pre-pregnancy BMI was not significantly associated with healthcare avoidance; these findings show that for pregnant women, trust in healthcare as well as engagement with healthcare providers is not necessarily impacted by weight alone- a unique finding in the weight stigma literature. Other strengths are the sampling of women who were currently pregnant, thus more temporally close to their prenatal care experiences, as well as assessment of their experiences of weight stigma using a healthcare-focused measure rather than a measure of generalized weight stigma experiences.

### **Limitations**

The present study had several limitations. First, the cross-sectional design precludes making assumptions about causality. Pregnancy is a temporary condition with varying health and weight changes potentially occurring throughout the duration of the pregnancy, thus

measurement of stigma and health behaviors at one point in time is potentially problematic as it does not fully represent the transient impacts of pregnancy. Participants were asked to report on experiences based on provider and time, thus experiences could include both prenatal and non-prenatal care. Although participants were asked to report on their history of avoidance and healthcare trust as far back as 12 months, it is possible that the full scope of their experiences was not captured and that lifetime experiences not reported (e.g., healthcare experiences occurring greater than 12 months prior) have significantly impacted outcomes. Additionally, interactions with the healthcare system often increase during pregnancy, thus a participant's responses might change post-pregnancy when visits with a healthcare provider are less strongly encouraged.

A further limitation is that of the strict inclusion criteria of this study. As previously mentioned, this study was part of a larger project which focuses on women's health and sexual satisfaction during pregnancy, thus the criteria for participants to be sexually active was necessary. Additionally, participants with a BMI of lower than 17 were excluded due to possible misrepresentation of weight or additional health conditions related to being underweight.

The homogenous make-up of the sample is also a limiting factor in generalizability. The sample is comprised primarily of White, heterosexual, normal BMI women. As the variables of interest in this study (i.e., avoidance of care, and high levels of internalized weight stigma) have been shown to disproportionately impact heavier women as well as women of color or minority women (McLemore et al., 2018; Yang, et al., 2011), this sample may not fully capture the sequelae of weight stigma among pregnant women.

A further limitation is the use of self-report measures. Participants were asked to self-report whether their pregnancy was high-risk (yes, no, or unsure). Subsequently, it cannot be

determined whether participants were accurate in their reporting and external factors (e.g., a physician discussing risks but not using the phrase “high-risk”) should be considered. Whether women were considered as having a high-risk pregnancy status was assessed related to the potentially increased need for healthcare during high-risk pregnancies. Of note, only a small percentage of participants endorsed having a high-risk pregnancy (10.8%).

The use of self-reported Body Mass Index as a measure of weight is another significant limitation of this study. BMI is commonly used in both medical and psychological research but has been criticized as an imprecise measure of body fat and risk, with measures such as waist circumference and biomarkers considered superior (Ahima & Lazar, 2013). Also, in previous research, pregnant women have tended to underreport pre-pregnancy weight (Headen et al., 2017). A limitation of this study is that pre-pregnancy BMI was the marker used to measure weight, thus any changes to weight during pregnancy which might impact healthcare attitudes and behaviors were not captured. It should be noted that BMI is subject to frequent change during pregnancy and is not necessarily representative of a person’s perception of their weight before or after pregnancy (Incollingo Rodriguez et al., 2020; Ogunwole et al., 2021).

### **Clinical Implications**

Several clinical implications can be drawn from this study. Firstly, internalized weight bias appeared to have an impact on participants’ levels of trust and avoidance which was independent of weight. At times, clinicians may reserve assessment of IWB for heavier patients or patients with overt eating disorder symptoms. These data highlight additional reasons for assessing weight stigma, namely, to identify patients who might be vulnerable to avoiding healthcare visits or express distrusting their providers. The findings of this study suggest that as in non-pregnant women, in pregnant women there is a vulnerability to weight stigma, both

experienced and internalized. There has been limited research on weight stigma among pregnant women and as demonstrated in the current study, weight stigma appears to negatively relate to healthcare; for these reasons screening and assessment during early pregnancy may be beneficial. Secondly, there are implications related to provider interactions. Medical providers as well as mental health providers play a large role in addressing and educating patients on weight and weight-related behaviors. It is important that discussions and interventions are discussed in ways which promote trust and engagement from patients, rather than in a stigmatizing way. Discussion of weight in a way which is stigmatizing, or non-collaborative may erode the trust between patient and provider. This is especially concerning as it could not only lead to lower trust, but healthcare avoidance.

### **Future Directions**

Considering the findings and limitations of this study, future research should continue to study and address weight stigma among pregnant women, especially in healthcare contexts. Longitudinal research could reveal additional patterns and insights related to the longer-term post-partum consequences of experienced and internalized weight stigma. Another important area of future research is research among populations of pregnant women of color. Previous literature suggests that pregnant women of color have increased risk factors and poorer pregnancy outcomes than their White counterparts (McLemore et al., 2018; Yang et al., 2011), and it is not clear at this time whether weight stigma which leads to healthcare avoidance plays any role in those outcomes. Additionally, as weight stigma and IWB are noted in extant literature as being more prevalent among individuals with overweight and obesity, future studies should focus on women with higher body weights to further examine the impact of weight.

## **Conclusion**

The number of pregnant women with overweight and obesity has steadily increased in recent years (CDC, National Center for Health Statistics, 2020). Heavier individuals are subject to weight stigma which is associated with negative health outcomes (Puhl et al., 2018). This project contributed to a growing literature on how pregnant women's healthcare experiences are impacted by weight stigma. This project showed that potentially, healthcare behaviors and experiences are impacted by internalized weight bias, thereby this study highlights a critical intervention point for providers of prenatal care. Internalized weight bias among pregnant women requires further study, especially as it relates to negative impacts on their healthcare experiences.

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## Appendix A. IRB Approval



**EAST CAROLINA UNIVERSITY**  
**University & Medical Center Institutional Review Board**  
4N-64 Brody Medical Sciences Building - Mail Stop 682  
600 Moye Boulevard - Greenville, NC 27834  
Office 252-744-2914 - Fax 252-744-2284  
[rede.ecu.edu/umcirb/](http://rede.ecu.edu/umcirb/)

### Notification of Exempt Certification

From: Social/Behavioral IRB  
To: [Kayla Sall](#)  
CC: [Robert Carels](#)  
Date: 5/23/2022  
Re: [UMCIRB 22-000145](#)  
Weight Bias and Health Outcomes among Pregnant Women

I am pleased to inform you that your research submission has been certified as exempt on 5/23/2022. This study is eligible for Exempt Certification under category # 2a.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

Document	Description
Email advertisement for ECU(0.02)	Recruitment Documents/Scripts
Measures Packet v4(0.04)	Surveys and Questionnaires
Sall Dissertation Proposal(0.02)	Study Protocol or Grant Application
Social Media Advertisement 1(0.02)	Recruitment Documents/Scripts
SROC confirmation email from Kyle Chapman(0.01)	Additional Items
Weight and Health during Pregnancy Consent v2(0.03)	Consent Forms

For research studies where a waiver or alteration of HIPAA Authorization has been approved, the IRB states that each of the waiver criteria in 45 CFR 164.512(i)(1)(i)(A) and (2)(i) through (v) have been met. Additionally, the elements of PHI to be collected as described in items 1 and 2 of the Application for Waiver of Authorization have been determined to be the minimal necessary for the specified research.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

## **Appendix B. Informed Consent**

### **Title of Research Study: “Experiences of Weight and Health during Pregnancy”**

**Principal Investigator:** Kayla Sall, MA (Person in Charge of this Study)

**Co-Investigators:** Robert Carels, Ph.D, Rhonda Byrd, MSW

**Institution, Department or Division:** Department of Psychology Address: 123 Rawl, East Carolina University, Greenville, North Carolina 27858

**Telephone #:** 252-737-5070

**Study Coordinator:** Kayla Sall, MA

Researchers at East Carolina University (ECU) study issues related to society, health problems, environmental problems, behavioral problems and the human condition. To do this, we need the help of volunteers who are willing to take part in research.

### **Why am I being invited to take part in this research?**

You are being invited to participate in a research study titled “Experiences of Weight and Health during Pregnancy” being conducted by Kayla Sall, MA, a doctoral candidate in Clinical Health Psychology at East Carolina University in the Psychology department. The goal is to survey at least 500 individuals across the nation. It is hoped that this information will assist us to better understand how weight can affect pregnancy and experiences with healthcare providers.

### **Are there reasons I should not take part in this research?**

I understand I should not volunteer for this study if I am under 18 or over 45 years of age and am not currently pregnant.

### **What other choices do I have if I do not take part in this research?**

You can choose not to participate. Your information and responses will be kept confidential, and no data will be released or used with your identification attached. Your participation in the research is voluntary. You may choose not to answer any or all questions, and you may stop at any time.

### **Where is the research going to take place and how long will it last?**

The research will be conducted online. You will need to go to a quiet place to focus while completing the questionnaire. The survey will take approximately 20-30 minutes to complete.

### **What might I experience if I take part in the research?**

We don't know of any risks (the chance of harm) associated with this research. Any risks that may occur with this research are no more than what you would experience in everyday life. There may not be any personal benefit to you by participating in this study, but we hope that you find it interesting. In addition, the information gained by doing this research may help others in the future.

**Will I be paid for taking part in this research?**

You will receive payment through Qualtrics upon completion of the survey to compensate you for your time.

**Will it cost me to take part in this research?**

It will not cost you any money to be part of the research.

**How will you keep the information you collect about me secure?**

Coded or identified data will never be released to anyone outside of the study staff or IRB for the purposes of an audit. Your responses will be kept confidential, and no data will be released or used with your identification attached.

**What if I decide I don't want to continue in this research?**

You can stop at any time after it has already started. There will be no consequences if you stop, and you will not be criticized. You will not lose any benefits that you normally receive.

**Who should I contact if I have questions?**

The people conducting this study will be able to answer any questions concerning this research, now or in the future. You may contact the Principal Investigator (Monday-Friday, between 9am-5pm) Kayla Sall, MA at (252) 737-5070 for any research related questions or the University & Medical Center Institutional Review Board (UMCIRB) at 252-744-2914 for questions about your rights as a research participant.

**I have decided I want to take part in this research. What should I do now?**

The person obtaining informed consent will ask you to read the following and if you agree, select 'I AGREE' below:

- I have read (or had read to me) all of the above information.
- I have had an opportunity to ask questions about things in this research I did not understand and have received satisfactory answers.
- I know that I can stop taking part in this study at any time.
- By being provided with this informed consent form, I am not giving up any of my rights

I agree to participate in this study.

I DO NOT agree to participate in this study.



## Appendix C. Measures

### Demographic Questions

We would like to know a little bit more about you. Please answer these questions to the best of your ability.

**1. How old are you? Please select from the dropdown menu.**

\_\_\_ Age in years

*\*Note.* Exclusion criterion: Participants will exit the survey if under the age of 18 or over the age of 40.

**2. What is your gender?**

\_\_\_ Woman

\_\_\_ Man

\_\_\_ Transgender

\_\_\_ Other \_\_\_\_\_

*\* Note.* Exclusion criterion: Participants will exit the survey if they do not select woman as their gender.

**3. Are you currently pregnant?**

\_\_\_ Yes

\_\_\_ No

*\* Note.* Exclusion criterion: Participants will exit the survey if they select ‘no’ as their response.

**4. Please indicate your current partner status.**

\_\_\_ Single

\_\_\_ Dating, long-term relationship with one partner

\_\_\_ Dating, relationship with more than one partner

\_\_\_ Cohabiting, long-term relationship with one partner

\_\_\_ Cohabiting, relationship with more than one partner

\_\_\_ Married

*\* Note.* Exclusion criterion: Participants will exit the survey if they select that they are single or in a relationship with more than one person.

**5. Please describe your ethnicity**

\_\_\_ Hispanic/Latina

\_\_\_ Non-Hispanic/Latina

**6. Tell us what you consider yourself (Mark all that apply).**

- Asian or Pacific Islander
- Black or African American
- Caribbean Islander
- Native American/ Alaskan Native
- North African/Middle Eastern
- White (Caucasian/European or European American)
- Multi-ethnic
- Other

**7. Please describe your sexual orientation.**

- Asexual/Aromantic
- Bisexual
- Gay
- Heterosexual/straight
- Lesbian
- Pansexual
- Queer

**8. Please describe the gender of your romantic partner.**

- Woman
- Man
- Transgender
- Other \_\_\_\_\_

**9. Please provide your educational level or status.**

- Completed 8<sup>th</sup> grade education
- Completed high school degree or GED equivalent
- Some college
- Associate degree (two years of college)
- Four-year degree or equivalent (bachelor's)
- Graduate degree (master's level)
- Professional degree (doctoral level PhD, JD, MD, etc.)

## **Obstetric Characteristics & Sexual Activity**

### **1. By which conception method did you become pregnant?**

- Sexual intercourse with partner
- In vitro fertilization (IVF)
- Gamete intrafallopian transfer (GIFT)
- Zygote intrafallopian transfer (ZIFT)
- Surrogacy/Gestational Carrier

### **2. What is your current trimester for your pregnancy?**

- First trimester (conception to 12 weeks)
- Second trimester (12 to 24 weeks)
- Third trimester (24 to 40 weeks)

### **3. How many gestational weeks along are you in your current pregnancy? Please select from the dropdown menu.**

- Gestational weeks

*\*Note.* Weeks will be listed from 0 to 40+. Participants who select 0 weeks will be excluded from continuing the survey.

### **4. What type of pregnancy are you having?**

- Single pregnancy
- Multiple pregnancy (twins, triplets, etc.)

### **5. Have you been sexually active during your pregnancy? (Sexual activities include but are not limited to kissing, sexual touching, oral, vaginal, or anal sex).**

- Yes
- No

*\*Note.* Participants who are not sexually active will exit the survey.

## **Pregnancy-related Weight Changes**

### **1. What is your current height and weight?**

- feet  inches
- weight in pounds (lbs)

### **2. What was your weight just prior to pregnancy?**

- weight in pounds (lbs)

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**Weight Bias Internalization Scale-Modified (WBIS-M)**

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1. Because of my weight, I feel that I am just as competent as anyone.\*
2. I am less attractive than most other people because of my weight.
3. I feel anxious about my weight because of what people might think of me.
4. I wish I could drastically change my weight.
5. I think a lot about my weight, I feel depressed.
6. I hate myself for my weight.
7. My weight is a major way that I judge my value as a person.
8. I don't feel that I deserve to have a really fulfilling social life, because of my weight.
9. I am OK being the weight that I am.\*
10. Because I'm overweight, I don't feel like my true self.\*\*
11. Because of my weight, I don't understand how anyone attractive would want to date me.

---

*Note.* Items marked with \* are reverse scored. Item marked with \*\* should read “Because of my weight, I don’t feel like my true self.”

Items are rated using a 7-point Likert scale with point 1 being labeled “strongly disagree” and point 7 being labeled “strongly agree.”

## Stigmatizing Situations in Healthcare

How often has this happened to you in the past 12 months?

Response options: never (0 points), within the past week (1 point), within the past month (2 points), within the past 6 months (2 points), or within the past 12 months (3 points).

- 
1. A doctor blaming unrelated physical problems on your weight.
  2. A doctor saying weight is a health problem when you are in good health.
  3. A doctor makes cruel remarks, ridicules you or calls you names.
  4. A doctor recommending a diet even if you did not intend to discuss weight.
  5. Not being able to find medical equipment, such as blood pressure cuffs or gowns that fit you.
  6. A doctor telling you to lose weight but not providing weight loss treatment options or advice on how to get help for weight loss.
  7. Being stared at by medical staff when you go to the doctor's office.
  8. Having medical staff make negative comments about weight to others,
  9. Having health care professionals suggest diets to you without you asking for advice.
  10. Overhearing medical staff make rude comments to you.
  11. When you are weighed on a scale, the scale is not large enough for your size.
  12. When you are weighed on a scale, the medical staff makes negative comments about your weight.
  13. Having nurses make negative remarks, ridicule you or call you names.
  14. Having office staff, for example a front desk receptionist, make negative remarks to you.
  15. Not being able to fit in chairs in the waiting room.
  16. A doctor refusing to do an exam on you because of your weight.
  17. Having doctors or other health professionals assume you overeat or binge-eat because you are overweight.
  18. Having doctors or other health professionals assume you have emotional problems because you are overweight.
  19. Being treated as less competent by health care providers because of your weight.
  20. Being treated as lazy by health care providers because of your weight.
-

## Health Care Relationship Trust Scale

Response options: none of the time, some or a little of the time, occasionally or a moderate amount of time, most of the time, all of the time

---

### **How often does your health care provider (HCP):**

- 1) Talk over your head?\*
- 2) Discuss options and choices with you before health care decisions are made?

### **My HCP is:**

- 3) Committed to providing the best care possible
- 4) Sincerely interested in me as a person
- 5) An excellent listener

### **My HCP:**

- 6) Accepts me for who I am
- 7) Tells me the complete truth about my health-related problems
- 8) Treats me as an individual
- 9) Makes me feel that I am worthy of their time and effort
- 10) Takes time to listen to me during each appointment

### **I feel:**

- 11) That other patients get better care from their HCPs\*
- 12) Comfortable talking to my HCP about my personal issues
- 13) Better after seeing my HCP

### **How often:**

- 14) Do you think about changing to a new HCP?\*
- 15) Does your HCP consider your need for privacy?

---

*Note.* Participants were instructed to answer the following questions in relation to the healthcare provider they had seen most recently.

Items marked with \* are reverse scored.

### Health Care Avoidance: Brief Questionnaire

(Adapted from Health Information National Trends Survey)

1. At times, I have avoided seeking medical care when I thought I needed it.
2. I avoid seeing my doctor because I feel uncomfortable when my body is being examined.
3. I avoid seeing my doctor because I fear I may have a serious illness.
4. I avoid seeing my doctor because I am self-conscious about my weight.

*Note.* Items are rated using a 5-point Likert scale with point 1 being labeled “strongly disagree” and point 5 being labeled “strongly agree.”

## Appendix D. Demographic and Obstetric Characteristics Tables

**Table 1**

*Participant Characteristics*

Characteristic	<i>n</i> (%)	<i>M</i> ( <i>SD</i> )
Age		32.8 (5.31)
Pre-pregnancy BMI (kg/m <sup>2</sup> )		24.67 (5.42)
Race		
Black	33 (16.9%)	
Biracial	6 (3%)	
East Asian	3 (1.5%)	
Hispanic or Latina/o/x	15 (7.7%)	
Indigenous (e.g., Native American, First Nations)	3 (1.5%)	
Southeast Asian	1 (0.5%)	
White	134 (68.7%)	
Ethnicity		
Hispanic or Latina/o/x	40 (20.5%)	
Non-Hispanic or Latina/o/x	155 (79.5%)	
Annual income		
\$20,000 or less	18 (9.2%)	
\$20,001 to \$40,000	27 (13.8%)	
\$40,001 to \$60,000	22 (11.3%)	
\$60,001 to \$80,000	34 (17.4%)	
\$80,001 to \$100,000	40 (20.5%)	
\$100,000 or more	54 (27.7%)	
Education		
Completed 8th grade	4 (2.1%)	
High school degree/GED	35 (17.9%)	
Some college	27 (13.8%)	
Associate's degree	22 (11.3%)	
Four-year degree or equivalent	49 (25.1%)	
Graduate degree	38 (19.5%)	
Professional degree	20 (10.3%)	
Employment status		
Unemployed	23 (11.8%)	
Employed	167 (85.6%)	
Disability	5 (2.6%)	
Relationship status		
Single	23 (11.8%)	
Married	113 (57.9%)	
Dating	29 (14.9%)	
Cohabiting	30 (15.3%)	
Sexual orientation		
Asexual/ Aromantic	5 (2.6%)	
Bisexual/ Biromantic	17 (8.7%)	
Gay	1 (0.5%)	



Characteristic	<i>n</i> (%)
Heterosexual/ Straight	169 (86.7%)
Lesbian	1 (0.5%)
Pansexual	1 (0.5%)

*Note.* Continuous variables presented as *M* (*SD*).  
Categorical variables presented as *n* (%).

**Table 2***Obstetric Characteristics of Participants*

Obstetric characteristic	<i>n</i> (%)
Number of previous pregnancies	
Zero	25 (12.8%)
One	66 (33.8%)
Two	52 (26.7%)
Three or more	52 (26.7%)
Current trimester	
First (conception to 13 weeks)	36 (18.5%)
Second (14 to 26 weeks)	84 (43.1%)
Third (27 to 40 weeks)	75 (38.5%)
Pregnancy type	
Single	192 (98.5%)
Multiple	3 (1.5%)
Gestational weeks	22.42 (8.54)
Method of conception	
Sexual intercourse with partner	184 (94.4%)
Assisted reproductive technology	10 (5.1%)
Surrogacy/Gestational Carrier	1 (0.5%)
Prenatal treatment care setting	
OB/GYN practice	135 (69.2%)
Family Medicine practice	40 (20.5%)
Planned Parenthood	16 (8.2%)
Other	1 (0.5%)
Not receiving prenatal care with a clinic	3 (1.5%)
High risk status	
Yes	21 (10.8%)
No	147 (75.4%)
Unsure	27 (13.8%)
Health Condition Reported	
Yes	135 (69.2%)
No	60 (30.8%)

*Note.* Continuous variables presented as *M* (*SD*). Categorical variables presented as *n* (%).

## Appendix E. Weight Stigma and Healthcare Variables and Correlation Table

**Table 3**

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*Weight Stigma and Healthcare Variables*

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Variable	<i>M (SD)</i>
IWB	3.56 (1.58)
Stigmatizing Situations	0.95 (1.06)
Trust (composite)	43.80 (11.76)
Interpersonal Communication	15.46 (4.70)
Respectful Communication	12 (3.24)
Professional Partnering	16.34 (4.83)
Avoidance	1.21 (1.18)
Generalized	1.45 (1.45)
Body Exam Discomfort	1.08 (1.37)
Fear of Serious Illness	1.23 (1.41)
Self-conscious of Weight	1.08 (1.30)

---

**Table 4***Correlations between Weight Stigma and Healthcare Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11
1. PBMI	-										
2. SS	-0.09	-									
3. IWB	.22**	.38**	-								
4. Trust	.18*	-.47**	-.29**	-							
5. Tf1	.17*	-.36**	-.26**	.94**	-						
6. Tf2	.14*	-.51**	-.32**	.91**	.84**	-					
7. Tf3	.17*	-.44**	-.24**	.91**	.75**	.72**	-				
8. Avoidance	-0.06	.49**	.49**	-.45**	-.40**	-.48**	-.38**	-			
9. A1	-0.05	.30**	.37**	-.35**	-.32**	-.38**	-.28**	.81**	-		
10. A2	-0.07	.38**	.40**	-.37**	-.35**	-.39**	-.31**	.89**	.66**	-	
11. A3	-0.06	.44**	.43**	-.42**	-.36**	-.45**	-.36**	.87**	.60**	.69**	-
12. A4	-0.01	.56**	.47**	-.39**	-.32**	-.43**	-.35**	.82**	.50**	.68**	.67**

*Note.* PBMI = pre-pregnancy BMI; SS = stigmatizing situations; Tf1 = trust factor 1; A1 = avoidance question 1.

\*\* Indicates that correlation is significant at the 0.01 level (2-tailed). \* Indicates that correlation is significant at the 0.05 level (2-tailed). N = 195; DF (N-2) = 193