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Meanings of Preconception Health to Overweight Women in an Economically Depressed County

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Abstract

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Dissertation Submitted in Partial Fulfillment

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Health Psychology

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Abstract

The intention-behavior gap between receiving professional health information and transitioning to improved health behaviors prior to conception is not well understood. In order to improve preconception health across the board, a more integrative understanding of the problem must present itself. This study combined elements from the theory of planned behavior, self-determination theory, and the bioecological model of human development as it's foundation. Qualitative phenomenology and semistructured face-to-face interviews were used to gain a deeper understanding of the ways in which nine overweight and obese women described preconception intentions and beliefs and the bioecological experiences leading to those beliefs. Interpretation of the results suggested socio-environmental conditions that affect the development of beliefs, intentions, and attitudes toward preconception health. Key discoveries regarding planning intention and behavior included laissez faire attitudes toward preconception planning, advice-seeking methods, perceived need to change behaviors, and ability to navigate the healthcare system and social programs. Future recommendations include using the more complex bioecological view to improve the global preconception health imperative. This study's potential for positive social change includes opportunities to hold important conversations about preconception health by disseminating study results locally and the expansion of knowledge in a field dedicated to the improvement of women and infant health worldwide through publication.

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Dedication

I would like to dedicate my doctoral study to those who supported and encouraged me throughout the long process. Without the encouragement of my mother I never would have begun this journey and, although she was not on this earth for the completion of this task, the echoes of her patient voice remained with me. I am grateful for the enduring amazement of my father at my ability to complete such a daunting task. He boosted my confidence and reenergized my spirit. Finally, without the steadfast love and support from my husband, who patiently listened to my complaints and asked pertinent questions about my work, this would have been a lesser document.

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Chapter 1

Introduction

The transition period between receiving professional preconception health information aimed at reducing the risk factors associated with being overweight or obese and the intentional health behavior change women choose when preparing for a healthy pregnancy is understudied (Toivonen, Oinonen, & Duchene, 2016). The attitudes women hold regarding preconception health behaviors and their beliefs about whether their own health behaviors affect the health of their baby at conception and beyond are important predictors of behavior change (Borrero et al., 2015). It is important to understand the ways in which overweight women describe a healthy pregnancy from the preconception stage and the experiences that led them to those beliefs. The social and environmental conditions people experience present influencing factors to the ways in which beliefs and intentions are formed and enacted and therefore should form a key component of any investigation on behavior change intentions (Bronfenbrenner, 2005).

The potential risk factors of maternal (and paternal) overweight and obesity have far reaching implications for the health of the offspring (Baird et al., 2017). It is generally understood that the influence of the parents' phenotypes (physical appearance dependent on the interaction of the genes and the environment) at the time of conception have the potential to promote a persistent trend of obesity in future generations (World Health Organization, Geneva, SWITZERLAND [WHO], 2015). Alongside the intergenerational trend toward obesity, the implications of obesity at preconception and leading through to the perinatal period include a higher risk for the mother of developing gestational

diabetes, preeclampsia, complicated labor potentially leading to cesarean delivery, and intrapartum weight retention which may perpetuate risk factors for future pregnancies (Baptiste-Roberts, 2014; Nicholson, 2014; Poston et al., 2016). Maternal obesity increases the incidence of stillbirth, premature birth, fetal macrosomia, and possibly long-lasting developmental programming effects for the child (Baptiste-Roberts, 2014).

Nearly 50% of women in the United States who became pregnant and gave live birth in 2014 were overweight or obese (Branum et al., 2016). Understanding the behavior change intentions of women planning a pregnancy may shed light on the challenges that create the intention-behavior gap and inform future program design, primary care protocols, and educational materials aimed toward improving preconception health in overweight or obese women.

In this chapter, I will summarize what is known about preconception health and health behaviors and relate that information as it applies to overweight women living in a poor county who are intending to become pregnant in the future. I placed the emphasis on how the individual's interpretation of a healthy pregnancy and the socioeconomic characteristics of the lived environment may influence the preconception intention-behavior gap present in this population of women. A description of the research methodology, theoretical foundations and conceptual frameworks, strengths, weaknesses, and limitations of the study, along with the significance and potential contributions to society will follow.

Background

Preconception health is a central concern for many global initiatives including the Healthy People 2020 campaign (healthypeople.gov), the WHO Commission on Ending Childhood Obesity (WHO, 2015), and the International Federation of Gynecology and Obstetrics (FIGO) Think Nutrition First campaign (Roura & Arulkumaran, 2015). The growing health challenges posed by obesity as it relates to preconception and maternal and infant health require immediate attention. The implications of obesity at preconception through the perinatal period include increased risk of fertility issues, gestational diabetes, preeclampsia, complicated labor leading to cesarean delivery, and weight retention between pregnancies (Baptiste-Roberts, 2014; Nicholson, 2014; Poston et al., 2016). There is also mounting evidence that obesity during preconception and during the prenatal period may lead to long-lasting developmental programming for the offspring creating an intergenerational cycle of obesity and chronic disease (Baird et al., 2017). Despite a decade of research and program implementation, many studies fall-short of capturing the complex challenges of preconception behavior change, few include multiple factors such as lived environment, beliefs and attitudes, and stress, and almost none seek to understand intent to engage in preconception behaviors (Toivonen, Oinonen, & Duchene, 2016).

Problem Statement

There is limited research to date on the beliefs and intentions of overweight and obese women regarding the adoption of preconception health behaviors and whether

overweight and obese women understand how their health behaviors and current physical condition may influence their pregnancy and the wellbeing of their offspring.

Healthy People 2020 has marked maternal, infant, and child health and wellbeing (MICH-14-16) as important determinants to the health of the next generation (healthypeople.gov, n.d.). Goals outlined in MICH-16.1-16.5 are aimed toward increasing the proportion of women who receive preconception care and who practice key recommended behaviors. These goals include improving the number of women who (a) discuss preconception care with a healthcare worker, (b) take multivitamins/folic acid in the preconception period, (c) abstain from tobacco and alcohol use prior to becoming pregnant, and (d) are at a healthy weight prior to becoming pregnant (healthypeople.gov).

Borrero et al. (2015) studied perspectives on pregnancy intention and planning in a sample of low-income women. Their qualitative research study discovered important interpersonal and cognitive links related to each woman's pregnancy intention and the decisions to use or not use contraception methods (Borrero et al., 2015). These included individual perceptions of not being in control of whether they became pregnant, perceptions of low likelihood for becoming pregnant because it had not happened in past unprotected sexual encounters, and coercion to become pregnant by a male partner who undermined attempts to use contraception (Borrero et al., 2015). In addition to perceptions of reproductive control, Borrero et al. also discovered that from the participants' perspective, pregnancy planning and intent to become pregnant indicated two separate requirements and that the low-income women's ideal situation in which to

plan for a baby (financial stability and in a committed relationship) were generally out of reach (2015).

The complex social and ecological conditions women live in calls into question the traditional dichotomous views of pregnancy intentions as planned or unplanned and leaves a gap in the literature for how to design meaningful and effective programs for this population. My goal was to add to the Borrero et al. (2015) findings by incorporating a bioecological framework in order to help researchers and health providers understand what this population of women believe to be true about their own preconception health and lifestyle as it relates to a healthy pregnancy and the experiences shaping those beliefs.

It is important investigate the complex interactions between individuals and their lived environment in order to understand how important intentions are made and whether new health behaviors are adopted or not (intention/behavior gap), especially during a transitional time when individuals are most amenable to change (Hanson et al., 2017; Temel, Van Voorst, Jack, Denktas, & Steegers, 2014). The utilization of Bronfenbrenner's bioecological model of human development (Bronfenbrenner, 1977; Bronfenbrenner & Morris, 2006) to date has not be applied to understanding the preconception beliefs and behaviors of overweight women living in a low-economic, rural environment. The bioecological model combines the long-discussed nature-nurture debate and presents the *process*, i.e., the complexity of the lived experience, as the interaction between the individual and her environment throughout the lifecourse (Bronfenbrenner & Morris, 2006). This direct interaction between the individual and her

world (social groups, varying interconnected environments, and symbols) over the lifecourse informs how she sees the world she lives in (Bronfenbrenner, 2005). This represents a gap in the literature that I aimed to fill.

Purpose of the Study

In order to improve preconception health among those at higher risk of maternal and fetal complications during the pre- and perinatal periods, it is vital to gain a better understanding of the preconception beliefs and intentions overweight women have regarding preconception health behaviors. The ways in which women describe a healthy pregnancy and the socioecological experiences, including the challenges and benefits leading to the development of those views throughout the lifecourse, will provide important insights for shaping preconception programs for women who are overweight prior to conception. The qualitative phenomenological paradigm of this study aimed to explore the meaning of preconception health to overweight women intending to become pregnant.

Research Questions

1. Research Question 1 (RQ1) –What combination of bioecological factors do over-weight or obese women experience when thinking about a future pregnancy?
    - RQ1 subquestion 1: How do individual beliefs and attitudes toward pregnancy affect intentions toward preconception behavior change?

- RQ1 subquestion 2: How does the individual's own upbringing and social context affect preconception beliefs and intentions?
- RQ1 subquestion 3: How does the area the individual lives in affect preconception beliefs and intentions?

2. Research Question 2 (RQ2) –What information do OW/OB women receive about preconception health and how do they receive it?
3. Research Question 3 (RQ3) –Where do women turn for trusted information?
4. Research Question 4 (RQ4) –What key personal, social, or societal elements would encourage OW/OB women to make critical changes to their lifestyle during preconception planning?

Theoretical Foundation

The theory of planned behavior as developed by Ajzen (1991, 2002) describes three kinds of beliefs (i.e., behavioral, normative, and control) that drive behavior with the addition of the intention to perform the behavior as the critical connection leading to action. Ajzen (2002) described *behavioral beliefs* as determinants of the attitude toward an action. Attitudes are composed of three components affective (emotion-based), cognitive (belief/knowledge-based), and conative (behavior-based). These three components are expressed in concert, in various degrees, and represent an enduring response to encounters throughout the lifecourse. *Normative beliefs* are considerations of how others view the behaviors in question. These, in turn, lead to *subjective norms* or the perceived social pressures to act in a certain way. Finally, *control beliefs* are perceptions

of one's ability to perform a certain behavior and the ability to overcome any obstacles that may be encountered in the adoption of the behavior (Ajzen, 2002). Perceived behavioral control is the key link in determining intent to engage in a particular health behavior and, along with perceived norms and affective evaluation, are important predictors of behavior change (Case, Sparks, & Pavey, 2016; Ajzen, 2002). These theoretical building blocks are presented in greater detail in Chapter 2.

Self-determination theory developed by Deci and Ryan (2008) contrasts autonomous and controlled (self-determined versus non-self-determined) motivations and their effects on the satisfaction or thwarting of the three universal psychological needs (i.e., autonomy, competence and relatedness) as important to psychological health and well-being. The interaction of the individual with various social and environmental experiences throughout her life determine the level of self-determined or controlled behaviors adopted. This theory presents a complex psychosocial view of behavior and has applications to the health behavior realm (Ryan, Patrick, Deci, & Williams, 2008). A more in-depth description is presented in chapter 2.

Conceptual Framework

The bioecological model (Bronfenbrenner, 1977, 2005) describes the complex interactions between an individual and her environment (i.e., proximal processes) that result in behavioral choices and the ways in which those choices are determined throughout the lifecourse (Bronfenbrenner, 2005). This interconnected network of interactions and experiences creates a unique perspective from which individuals make decisions and create their world. The proximal processes may change dramatically over

the lifecourse and invite opportunities to revise one's beliefs and behaviors accordingly (Bronfenbrenner & Ceci, 1994). This bioecological model is an important perspective with which to view preconception health and behavior change because of the interdependent nature of person and place. A more descriptive explanation of Bronfenbrenner's model is presented in Chapter 2.

Implicit or Non-conscious processes are important to consider when incorporating the lived environment and social structures into an inquiry of beliefs and intentions. Many theories of health behavior place conscious modes of action (the reflective system) such as intentions or risk perceptions at the forefront; however, it seems that neither knowledge nor intention guarantee behavior change (Sheeran, Gollwitzer and Bargh, 2012). Implicit processes are those drivers of behavior that lie below the level of conscious awareness and are influenced by environmental cues and previous experiences (Hollands, Marteau, & Fletcher, 2016). This impulsive system is driven by affective (emotion-based) attitudes, especially for short-term behavioral choices (St. Quinton & Brunton, 2017). These implicit processes may yield insight into why cognitive behavioral interventions fall short of their goals (Sheeran, Gollwitzer and Bargh, 2012).

Intention-behavior gap is a critical element in behavior change interventions and research. Many programs show short-term effectiveness over a wide variety of behaviors, but effectiveness declines dramatically over the longer term. The concept that only one half of intended behaviors get translated into actions is a key element in the preconception health behavior problem (Sheeran & Webb, 2016). Conner et al. (2016) point out that intentions based on anticipated affective reactions (i.e., pride-guilt,

happiness-regret) lead to a stronger intention-behavior relationship. This is complicated (or supported) by behaviors that are automatically triggered by cues from the environment or by habit (2016). This study presents the potential intention-behavior gap in preconception beliefs and intentions described by the study participants. More information on the intention-behavior gap is presented in chapter 2.

Nature of the Study

The transition from preconception health information to recommended behavior change is a significant challenge particularly for those women who are overweight or obese and living in an economically challenged environment (Heslehurst et al., 2013). My choice to use qualitative phenomenology came from the desire to understand this complex problem from the perspectives of those women who were at higher risk of complications before, during, and after pregnancy, due to overweight or obesity, as well as presenting a risk to the fetus. The preconception stage of family building is a critical point for health behavior change (CDC, n.d.) and it is from this point the study sought to solicit the perspectives, beliefs, and experiences of these women.

I posted a flyer with information about the study in various locations including, but not limited to, health departments and doctors' offices, the local community college, community centers, and churches. Women with the intention to become pregnant in the next year were invited to call me for more information about the project and to answer a few questions to determine eligibility. Those women who were residents of the North Carolina county in which the study took place and who were overweight (as classified by calculating body mass index (BMI) using self-reported height and current weight) were

invited to participate. I used semistructured, face-to-face interviews to gain detailed accounts of the women's beliefs, attitudes, and experiences in a private setting. Full transcripts of the in-depth interviews were reviewed and analyzed for themes. The conclusion of the study presents the findings, connections, and any outlying information from the analysis.

Definitions

Autonomy: is one of the three universal psychological needs described by Deci and Ryan in their theory of self-determination. *Autonomy* is described by Deci and Ryan as the innate psychological need of an individual to pursue experiences and behave in ways that are intrinsic to his or her own personal nature and desires (Deci & Ryan, 2000).

Competence: is one of the three universal psychological needs described by Deci and Ryan (2000) in their theory of self-determination. *Competence* is the perceived ability to pursue goals and activities in an effective and capable manner.

Intention-behavior gap: is described by Sheeran and Webb (2016) is mainly comprised of *inclined abstainers*, those who intend to change their behavior but do not (Sheeran & Webb, 2016, pg. 504)

Implicit processes: are those processes that occur below the level of conscious awareness and are identified as automatic (St. Quinton & Brunton, 2017) and occur in response to environmental cues (Hollands et al., 2016)

Low-economic area versus socioeconomic status: is the dynamic that occurs when the economic condition of a particular area (county, city, rural area) affects the availability of services for all residents regardless of socioeconomic class.

Perceived behavioral control: is the belief in whether a given behavior can be *controlled* or achieved (Ajzen, 2002).

Preconception behaviors: are those behaviors intended to support a healthy conception and pregnancy including, but not limited to, visiting a professional health care provider, achieving a healthy weight, stopping tobacco and alcohol use, eating a healthy and varied diet, supplementing with folic acid six weeks prior to conception, and being active most days of the week (Centers for Disease Control [CDC], n.d.).

Preconception health: as defined by the CDC is the health of men and women throughout their reproductive years (Centers for Disease Control [CDC], n.d.). For this study, preconception health will refer only to women.

Preconception health care: is the professional care designed to address the known avenues leading to healthy conception and birth outcomes for both mother and child and often requires behavior change (CDC, n.d.).

Proximal processes: are the direct interactions between the individual and her bioecological environment throughout the lifecourse (Bronfenbrenner, 2006).

Relatedness: is one of the three universal psychological needs described by Deci and Ryan in their theory of self-determination. *Relatedness* is an innate need "to love and care, and to be loved and cared for" (Deci & Ryan, 2000, p. 231)

Tier-one county: is a county that exhibits persistent poverty for two years or more, has a population of less than 50,000, and has 19% or more unemployment(nccommerce.com).

Assumptions

I assumed that all information collected from the participants in this study was honest and reflected the individual's true preconception experiences, beliefs, and intentions. I also assumed that women who are planning to conceive have a desire to create the best possible environment for the intended pregnancy which includes preconception visit(s) to a professional health care provider and making deliberate changes to prepare for the pregnancy (i.e. taking folic acid and multivitamins, stopping tobacco and alcohol use, starting or continuing to exercise, checking to make sure prescription medications are appropriate, and refraining from recreational drug use).

Scope and Delimitations

My goal for this study was to discover what overweight women intending to become pregnant in the near future believe to be true about their health prior to conception and how their health may impact the healthy development of their baby. In light of the current number of women who enter pregnancy overweight or obese, this information may aid the development of programs that address the specific challenges this subset of the general population faces. It does not include women who are currently pregnant or women who did not want to have children. Once a woman knows she is pregnant, the optimal window of opportunity to supplement with folic acid has passed (Bodecs, Horvath, Szilagyi, Nemeth, & Sandor, 2011) and, while weight loss during pregnancy is beneficial, it does not provide the same risk reduction that weight loss prior to conception does (Hanson et al., 2017). Women with no pregnancy intentions may also not intend to prevent pregnancy which puts them at risk of unplanned pregnancy. This is

a population worthy of a qualitative investigation on their own with a different design and recruitment strategy. These women are unlikely to volunteer for a study on preconception beliefs and intentions and do not fulfill the inclusion criterion of intent to become pregnant in the next year.

The study was set in one North Carolina county that represented the mixed low and middle economic status of the rural southeastern portion of the state. This county is classified as a persistently poor (tier one) county with the two greatest health issues being substance abuse and obesity (Columbus County Health Department [CCHD], 2016). This county represents specific challenges to population health as indicated by the lowest community health rankings for North Carolina over a 7-year period as reported by the University of Wisconsin (University of Wisconsin Population Health Institute [UW-PHI], 2015) and 2016 community health assessment (Columbus County Health Department [CCHD], 2016).

The chosen theories and conceptual frameworks represent the best combination of current ideas applicable to the specified place, population, and topic of interest. Lincoln and Guba (1985) stated that generalization in naturalistic inquiry must be in the form of a working hypothesis based on the individual study and that transferability is impossible to establish because all individuals are in a state of constant interaction and change within their environment (Lincoln & Guba, 1985, p. 38). Transferability of data from this study is dependent on the context of future studies; however, the rich descriptions provided in the process, findings and conclusion of this study (Chapters 3, 4 & 5) will help health

practitioners, program designers, and future researchers determine the potential application of this study to their own location and population.

Limitations

A limitation of this study came from the self-reporting nature of data collection. It was explained to the participants that the information gathered was meant to represent each person's individual experience and should be as accurate and descriptive as possible (i.e. honesty is encouraged as there is no "right" answer).

I did not fit the inclusion criteria of the study and have never had children; therefore, the relevance of the topic to me was purely academic and developed from a sincere wish to address a global concern: the negative maternal and fetal health outcomes stemming from overweight and obesity at preconception. I was also working within my own county of residence because of the low public health quality that exists there and high proportion of overweight women of reproductive age who reside there. Researcher bias was addressed through critical self-reflection in my researcher journal. These reflexive notes were used to identify personal perspectives and limitations throughout the data collection and analysis process.

Significance

In my study I aimed to advance the research to improve preconception and maternal health and health behaviors by understanding how overweight women view the preconception period in their own lives. This information may prove useful toward the goal of reducing maternal and infant risks before, during, and after the pregnancy period.

My research design included a combination of theories and concepts that have not been used for this population in the existing literature. The combination of Bronfenbrenner's (2006) bioecological model with individuals' preconception beliefs and intentions provided the context for the experiences of overweight women and may support a more tailored approach to preconception health that has been called for but is thus far missing from the literature (Sui, Turnbull, & Dodd, 2012; Toivonen et al., 2016). Improved understanding of the complex needs of specific groups or economically challenged areas can only bring us closer to the Healthy People 2020 mandate to improve preconception, maternal, and infant health.

Summary

In this introduction, I have presented the rationale for the proposed study. I used qualitative phenomenology to explore and describe the preconception beliefs and intentions of overweight women living in an economically depressed area who were planning a future pregnancy. The elements of the lived environment that support and challenge the individual participants added to the complex biopsychosocial interactions that form the lived experience from which behaviors and beliefs are developed. The study also illuminated why intentions to engage in healthy behavior change do not manifest. Face-to-face interviews provided the data source from which themes emerged and were analyzed. The results of the study are presented from the verbatim perspectives of the participants as well as my interpretation of the data. A list of definitions has been presented so that key terms and concepts can be understood from the perspective of the

study context. Assumptions and limitations of the study have been addressed and biases have been presented.

The next chapter, I will describe the literature search strategy and detail the theoretical foundation as well as the conceptual frameworks touched on previously. An exhaustive literature review is presented, and key concepts are explained.

Chapter 2: Literature Review

Introduction

The transition period between receiving preconception health information and the subsequent adoption of preconception health behaviors is understudied, leaving a gap in understanding why overweight and obese women do not make the recommended behavior changes intended to reduce perinatal risk factors for themselves and their babies. Few studies have focused on the perspectives of women regarding their intentions and beliefs about how their actions before and during pregnancy affect the health and wellbeing of their offspring (Toivonen, Oinonen, & Duchene, 2016). Despite the number and variety of lifestyle programs and prenatal interventions present today few succeed in reducing gestational weight, improving women's decision to breastfeed for four months or more, and reducing alcohol and tobacco use during pregnancy (Hanson et al., 2012). Even programs where women at risk for gestational diabetes had access to home visits from midwives, there were instances of participants refusing to heed educational advice on nutrition and prenatal care (Persson, Hornsten, Winkvist, & Mogren, 2010).

Different populations and cultures may have different needs when presented with educational programs or prenatal interventions. It is important to understand what women believe to be true about their physiology and lifestyle and how that relates to their baby's future health. Interventions and programs are most beneficial when they respond to the needs of individuals or similar groups of individuals living in specific areas or cultures (Barona-Vilar et al., 2012). Program designers would benefit from an in-depth understanding of the lived experiences of this population.

Overweight and obesity are significant independent factors affecting maternal and fetal health outcomes with implications reaching well into the adulthood of the offspring as well as promoting a persistent intergenerational trend toward chronic disease (Barker, 2012; Szyf, 2015; World Health Organization [WHO], Geneva, SWITZERLAND, 2015). Many researchers have investigated independent behavioral factors such as folic acid use, a few have investigated some factors in combination such as preconception health knowledge, smoking, alcohol use and folic acid supplementation, but few have combined multiple factors such as the effects of stress and sleep on the adoption of specific behaviors such as exercise (Toivonen et al., 2016), and only one has specifically investigated the contextual factors involved in women's intentions to conceive and subsequent preconception behaviors (Borrero et al., 2015). Any element alone may not influence the development of obesity in an individual or across multiple generations; however, the combined effect of psychological and environmental influences creates a much more realistic view of the complex problem obesity brings to the health and wellness of individuals, their offspring, and the society in which they live. Seeking descriptive information from the individuals who are experiencing the challenges of being overweight or obese and planning to have children can illuminate and clarify what they need in order to support their own and their offspring's future health (Heslehurst et al., 2013).

The existing literature describes the challenges in designing preconception health education and intervention programs for overweight and obese women, not least because over half of the pregnancies in the United States are unplanned and therefore fall outside the preconception health-planning arena, but also because there is an intention-behavior

gap in this population for which there is insufficient literature. For this study, overweight women who were planning to become pregnant were invited to participate in semistructured interviews in order to understand their vision and intentions for a healthy pregnancy.

Purpose

The purpose of this study was to use Bronfenbrenner's (1977; 2005) bioecological model to gain a clearer understanding of how overweight women view a healthy pregnancy and how that view may change within the context of a low economic setting. My aim for the study was to discover the individual meaning of a healthy pregnancy through semistructured interviews with overweight women living in a rural, tier one (impoverished) county in North Carolina who intend to become pregnant in the near future. Women were invited to describe their own perceptions of what a healthy pregnancy meant to them, what kinds of challenges they see for their future pregnancy, and how their social networks and neighborhoods may influence their intentions to make lifestyle changes to support their image of a healthy pregnancy. This information may help inform future program design. The bioecological perspective may bring insights to why many women do not follow behavior change guidance for reducing maternal and fetal complications due to maternal obesity.

Synopsis of the Current Literature

Over the last decade, the Centers for Disease Control (CDC) have made preconception health and preconception health care a priority for improving maternal and infant health outcomes. The term *preconception*, as used in the literature, refers to the period during a woman's lifecourse when she is able to bear children as well as the ability

of the man to fertilize the egg (CDC, n.d.). *Preconception health*, therefore, is the health status of either parent at any time prior to conception and encompasses lifestyle behaviors. *Preconception health care* is the professional care designed to address the known avenues leading to healthy conception and birth outcomes for both mother and child and often requires behavior change (CDC, n.d.). These avenues include: (a) achieving appropriate weight before conception, (b) supplementing with folic acid (and other vitamins and micronutrients depending on nutritional needs), (c) being physically active most days of the week, (d) updating any vaccinations, (e) discontinuing the use of tobacco, alcohol, and street drug use, (f) making sure any existing prescriptions are appropriate, and (g) checking for any genetic problems that may present risks during pregnancy or to the child (CDC, n.d.). Although a lifecourse approach to health is important for both sexes, the terms preconception health and preconception health care will refer only to women for the purposes of this study.

Toivonen, Oinonen, and Duchene (2016) reviewed 94 studies on preconception health (PCH) examining the effects of knowledge, behavior, and attitudes on preconception intentions to engage in behavior change (Toivonen et al., 2016). Sixteen percent of the studies were on knowledge and attitudes, 18% looked at intervention aiming to improve behavior or educate, and over 70% of the studies investigated behavior alone. Other findings included preponderance of research focusing solely on folic acid (40%). Findings included the paucity of research on *specific behavioral intentions* to improve preconception health (Toivonen et al., 2016). Recommendations for future research included consideration of behavioral intentions as well as understanding the

relationships between preconception health behavior, knowledge, and intentions (Toivonen et al., 2016).

Perceptions of pregnancy planning (reproductive control) ranged from beliefs that getting pregnant was something that occurred or did not and that it was beyond the individual's control (Borrero et al., 2015) to cultural expectations of pregnancy after marriage which negated the perceived need for planning (Tuomainen, Cross-Bardell, Bhoday, Qureshi, & Kai, 2013). Perceived behavioral control in general was a significant predictor of preconception health behaviors with regard to supplementation with folic acid (Bodecs, Horvath, Szilagyi, Nemeth, & Sandor, 2011).

Few studies have focused on the perspectives of women regarding their intentions and beliefs about how their actions before and during pregnancy affect the health and wellbeing of their offspring. An exhaustive review of the literature revealed no qualitative studies using Bronfenbrenner's bioecological model as a framework for understanding how rural women view preconception health in their own lives influenced by their previous experiences, social networks, and the neighborhoods in which they live. The bioecological model, using the process-person-context-time framework of inquiry, could be used to understand how women frame themselves within the context of their lived experiences and how that context affects their values, beliefs, and intentions toward making healthy changes at the preconception stage of family building. If it is understood what women perceive to be within their power relative to their health and the health of their developing child, within the confines of their community, this information may support social change through the development of tailored preconception and prenatal education programs and interventions.

Preview of Chapter

Key concepts important to the discussion of preconception health, behavior change, and the intent to adopt specific preconception health care behaviors include the individual's beliefs and attitudes toward the behaviors, awareness of risk factors or benefits of lifestyle behaviors and maternal condition on the intended pregnancy, and perceived ability to perform the activities suggested by the health practitioner are presented. In this chapter, I review the scholarly literature on efforts to understand the persistence of obesity at the individual level as well as research discussing beliefs, attitudes, knowledge, and intentions to engage in the behavior changes recommended by medical institutions. Motivational theories important to the intention to engage in and the continuance of beneficial health behaviors including constructs from the theory of planned behavior (Ajzen, 1991) and self-determination theory (Deci & Ryan, 2000; Deci & Ryan, 2008), as well as elements from these theories that may help explain the intention-behavior disconnect described in many studies, are also discussed. Critical environmental issues within the literature such as rural versus urban sociodemographic challenges and availability of health care in rural areas will also be described. Conceptual frameworks of Bronfenbrenner's (1977; 1995; 2005) bioecological model, the use of the ecological perspective as presented by Bice-Wigington, Simmons, and Huddleston-Casas (2015) in their study of the health of rural and low-income mothers will inform the study. The intention-behavior gap will be reviewed and implicit processes as they influence behavior change will also be discussed.

Literature Search Strategy

I used several research strategies to understand the current information on the topics of preconception obesity and attitudes and beliefs of women planning a pregnancy. I searched multiple databases within the Walden Library System using key terms, singly and in combination, to discover as much relevant research as possible on the topics of interest. For example, a Thoreau multidatabase search using the key term *maternal obesity* resulted in 7,800 articles. Because many of these resources studied prenatal issues, and my study investigated the topic of preconception, the key term *preconception obesity* was added. This yielded 128 results. Adding the secondary term *attitudes* reduced the findings to two results. A new search was begun, again with the key term *preconception*. This produced 12, 374 results which fell to 697 results after entering the secondary term, *obesity* and fell to 18 results when a tertiary term, *attitudes* was entered. Finally, a fourth term, *qualitative*, was added to the search. The search continued by adding the following databases to the search list: American Doctoral Dissertations, Science Direct, psycINFO, psycARTICLES, Cochran Database of Systematic Reviews, SAGE Journal, CINAHL and MEDLINE Simultaneous Search. A list of key search terms included: maternal obesity, trans-generational obesity, intention, preconception, health, behavior, epigenetics, qualitative study, attitudes, Bronfenbrenner, Self-Determination Theory, theory of planned behavior, bioecological model, and lifestyle. When a relevant article was found, I then reviewed the key words list from that article to find other ways of searching for relevant information. A further search strategy included using the reference lists from key articles to find additional relevant resources. When full text articles were not available through the Walden Library, the digital object identifier (DOI) or the title of the article was entered into Google Scholar to search for access to the

resource. Finally, individual written requests were sent to the lead author of particularly relevant articles for copies of his or her work.

Theoretical Framework

Several psychosocial factors have emerged as significant in women who make healthy behavior changes during the preconception stage and maintain those lifestyle behaviors throughout their pregnancy and into the postnatal time period (Chuang, Velott, & Weisman, 2010; Massey et al., 2012). These factors include perceived control over health and health behavior change (control beliefs/autonomy) and personality characteristics such as self-concept as a mother/provider. Challenges include sociocultural factors such as personal beliefs about risks and subjective norms about pregnancy may result in ambivalence toward pregnancy planning (Van der Zee, De Beaufort, Steegers, & Denktas, 2012). Subjective norms about pregnancy include what important others (an individual's friends or family) may believe about preconception health and behaviors, or what the expectations are regarding preconception/pregnancy behaviors within the culture or community. For example, if an individual's mother or sisters did not engage in recommended preconception health behaviors and the resulting child(ren) developed normally, there may not be a perceived need to engage in preconception behaviors in order to have a successful and healthy birth. These elements reflect concepts from the established theories of Ajzen's (2002) theory of planned behavior (TBP) and Deci and Ryan's (2008) Self-Determination Theory (SDT) that are important to this study.

The theory of planned behavior (TPB) developed from the Theory of Reasoned Action (TRA; Godin & Kok, 1996; Madden, Ellen, & Ajzen, 1992) and is predicated on

three kinds of beliefs that drive behavior. The TRA established that behavioral beliefs and the potential consequences of performing a behavior were a precursor to behavioral intentions (Madden et al., 1992).

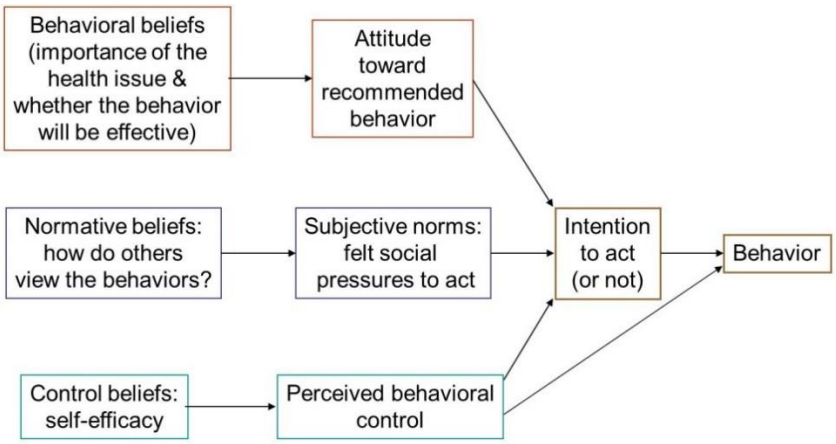

Figure 1. The theory of planned behavior as applied to health behaviors (Ajzen, 2002)

Behavioral beliefs were divided into two distinct concepts: individual beliefs about the behavior and normative beliefs of important others, or what society expects one to do in a given situation (social/subjective norms; Ajzen, 1991). Two types of social norms may affect intentions to engage in a particular behavior. *Injunctive norms* describe the individual's perception of what is approved or disapproved of within the social environment (e.g., women shouldn't smoke when pregnant). *Descriptive norms* represent what the individual perceives others are doing in the social environment (e.g., observation of women friends smoking even though they are pregnant). These two together represent what the theory of reasoned action calls a *perceived norm* and together with affective evaluation (fun/scary, pleasant/unpleasant) are what form an individual's attitude toward a behavior (Case, Sparks, & Pavey, 2016) and it is this attitude that predicts whether the behavior will be performed (Madden et al., 1992). Ajzen added a

third belief: the belief whether a given behavior can be *controlled* or achieved (Ajzen, 2002). This *perceived behavioral control* is described as a direct precursor to behavioral intent and is the discriminating factor between TRA and TPB (Madden et al., 1992). Ajzen (2002) suggested that an individual's attitude toward a particular action (i.e., *intention* to perform the action) and the *perceived control* over performing a behavior are strong predictors of behavior change, and as such provided important framework for this study.

Knowledge of an outcome, such as the benefits of folic acid on fetal developmental health, does not necessarily translate to personal importance on the individual level. Therefore, studying the intention to adopt specific preconception health behaviors or the lack of intention to perform certain preconception health behaviors, may add to the understanding of women's lived experiences and improve intervention designs geared toward preconception health (Toivonen et al., 2016). Similar concepts to perceived behavioral control exist in other psychological models or theories of health behavior such as Rotter's (1966, 1990) perceived locus of control and Bandura's (1977) self-efficacy theory. Ajzen (2002) distinguishes between these terms and his own construct by defining perceived behavioral control as "people's expectations regarding the degree to which they have the requisite resources and believe they can overcome whatever obstacles they may encounter" (Ajzen, 2002, p. 9). The theory of planned behavior concept of intent to engage in a behavior as a direct predictor of action toward that behavior seems to have been overlooked in much of the literature (Toivonen et al., 2016). Instead, the focus has been on research into knowledge, attitudes, or behaviors of

preconception health without taking the next step to understanding how these constructs affect the intention-behavior process.

Informed by TPB, Wright et al. (2013) designed an instrument to assess factors associated with gestational weight gain in a low-income cohort of women. The researchers found the TPB model useful in an urban, low-income, multi-ethnic population of postnatal women and showed that external influences were especially important in decision-making (Wright et al., 2013, p. 338). The survey study included a sample of overweight, low-income urban women who were part of a community home visitation model of education and care management for pregnant and post-partum women (2013). Measures included barriers to healthy eating, perinatal depression, nutrition knowledge, pregnancy intention, weight locus of control, and self-efficacy for healthy eating. Their findings supported the use of TPB as an explanatory model related to pregnancy weight behaviors in the study population. Elements of TPB related to internal perceptions of behavioral control, and the effect of social norms on the decision-making process were confirmed, indicating the negative influence of family and friends (i.e., to eat in unhealthy ways and reduce physical activity during pregnancy) was a challenge (Wright et al., 2013). The fact that 75% of the women in the study did not desire pregnancy may reflect the lived experiences of many low-income urban women. The current doctoral study investigated women who intended to become pregnant in the near future.

Borrero et al. (2015) used the theory of planned behavior in a qualitative study to inquire about pregnancy intentions and contraceptive use in low-income women and to discover any contextual pregnancy-related factors in intended versus unintended

pregnancy (i.e., social disadvantage, perceived norms about pregnancy, and idealized pregnancy planning conditions). Although this study was not specifically aimed toward overweight or obese populations it is one of the few that examined behavioral intentions. The study was grounded in a planned behavior framework as a developmental tool for the interviews and explored both predefined thematic categories, such as perceived behavioral control and attitudes toward pregnancy planning, as well as emergent themes that arose during the interviews, including the relationship of affect (happiness) and intention on an unintended pregnancy (Borrero et al., 2015). Since nearly none of the women in the study intended to become pregnant, the interplay of affect and intention was often conflicting, thus, post-conception assessments to continue with the pregnancy or not were the norm rather than preconception planning (2015).

The methodology of the Borrero et al. study is similar to the current study in that it utilizes existing theory and grounded theory together to develop a clearer understanding of the problem. Findings revealed a lack of pregnancy intention for two distinct reasons: (a) low reproductive control and (b) lack of inherent value in pregnancy planning. Low reproductive control fell into two sub-categories: perceptions of personal pregnancy risk (i.e., low fecundity) and male-partner reproductive coercion, such as the finding and disposal of birth control products or verbal pressure to become pregnant (Borrero et al., 2015). This belief of low reproductive control led many of the participants to accept the idea that pregnancy "just happens" and that it is the will of a higher power (Borrero et al., 2015, p. 152). Strong social ideals of marriage and financial security before planning to have children were consistent among the participants. While there was a consensus on the benefits of preconception planning, these social ideals were noted as unattainable goals at

the time of the interviews for most of the study participants and was linked to reasons why pregnancy planning was often not evident for many of the low-income women interviewed (Borrero et al., 2015). The theme of low reproductive control is consistent with the theory of planned behavior's *perceived behavioral control* and self-determination theory's concept of *competence* while male partner reproductive coercion falls under concepts of *subjective norms* (i.e., will of important others) *autonomy* and *relatedness*. The strong attitude toward the timing of a pregnancy and the perceptions of pregnancy risk falls well within the attitudes and beliefs category of the theory of planned behavior and seemed to predict pregnancy intention and therefore preconception behaviors. Although the use of the theory of planned behavior in this study turned out to be inappropriate due to the lack of a relationship between pregnancy planning and pregnancy desire or intention, Borrero et al. (2015) discovered that many women were influenced by their perceived control over becoming pregnant and by external influences (i.e., male partner reproductive coercion, and ideal circumstances for pregnancy; Borrero et al., 2015). The study is also important in that it illustrates how theoretical concepts may overlap within a particular investigation.

Van der Zee, De Beaufort, Steegers, and Denktas (2012) qualitative research into perceptions of preconception care revealed a contradiction between the attitude toward preconception health and healthcare in general and the way women perceived the idea of preconception health and health care for themselves (Van der Zee et al., 2012). In-depth, semistructured interviews were conducted in-person with women who were planning a pregnancy. The participants were invited to describe their thoughts about their own pregnancy intentions and about pre-pregnancy consultation. The interviewers explored

the two key questions until they reached data saturation for each participant (approx. 45-90 mins.), and an open-coding, thematic approach was used to analyze the information. The theory of planned behavior guided the categorization of themes into *attitudes* when responses indicated a belief that preconception care was useful, and *subjective norms* which included responses that indicated a woman's own personal beliefs. Van der Zee et al. stated that women possess strong preferences for how they become pregnant and these encompass personal feelings about obligatory or moral reasons to behave in a certain way (Van der Zee et al., 2012). The study did not include the perceived norms of important others. The four sub-themes reflecting women's attitudes toward preconception care were: pregnancy planning, publicity, information on fertility, and the artificial nature of pregnancy planning (Van der Zee et al., 2012, p. 343).

Overall, results indicated that women were generally supportive of preconception care but that they did not consider themselves part of the population who needed the service. Some felt they already possessed the relevant information or did not perceive they were at risk of negative pregnancy outcomes. Others felt they were already successful mothers and did not need further consultations. A misunderstanding that preconception counseling is intended only for those with fertility issues was also evident during the interviews. Responses related to the four sub-categories suggested the conflicting nature of decision-making among this population of women. The participants agreed on the benefits of planning a pregnancy but were unsure of when to move from contraceptive use to actively trying to become pregnant. Secondly, many participants did not want publicity surrounding their pregnancy decisions. They desired their pregnancies to be a 'secret pact' between themselves and their partners, indicating that changing their

lifestyle or visiting a preconception clinic would open the door to unwanted curiosity from others (Van der Zee et al., 2012). Next, fertility held more importance for many of the women in the study than maternal or child health when referring to preconception care. Women expressed concern about not being able to conceive and some were disappointed in their gynecologist for not giving information about being overweight and infertility. Finally, the idea that a pregnancy should be a natural occurrence and the magic or romance of becoming pregnant would be diminished by going to a preconception clinic was explored. This sub-category also provided evidence of conflicting beliefs. Women who expressed a desire for the naturalness or romance of becoming pregnant were also utilizing ovulation tests. Others valued the natural ideal of pregnancy without specifically describing a preconception clinic as unnatural (Van der Zee et al., 2012).

The conclusion of the study indicated two key results: (a) perceptions of need for preconception care on a personal level were lacking even as the attitude toward preconception care in general was high, and (b) the romantic ideals women have toward their pregnancy experience conflicted with the way medical practice presents preconception care. This study, conducted in the Netherlands, may represent different cultural perceptions and attitudes than would the same study conducted in the United States (US), not least because the planned pregnancy rate in the Netherlands is 85% compared with less than 50% in the US, but also because some perceptions may not apply in other countries (Van der Zee et al., 2012). The use of the theory of planned behavior in this study suggested its useful application in the current study because of the strong attitudes and beliefs women may hold about preconception behaviors. Although the Van der Zee study did not include the normative beliefs of others, the value of those

beliefs proved to be important to my study. The analysis techniques (open coding and subsequent theoretical framework application) used by Van der Zee, informed the methods used in the current study.

Women's perceptions (mental models) of their susceptibility to poor pregnancy outcomes may greatly determine their health behavior between and during pregnancy (Fulford, Macklon, & Boivin, 2014). Fulford et al. (2014) studied these mental models as they specifically related to folic acid supplementation with participants from four European countries who were either planning a pregnancy or were less than halfway through a current pregnancy. Low risk perceptions were seen in women living in adverse health environments who felt they were generally healthy and perceived others living in the same environment to be healthy. Therefore, their pregnancies were believed to be invulnerable to adverse health outcomes (Fulford et al., 2014). This belief in an invulnerable pregnancy despite engaging in unhealthy behaviors may reflect perceived social norms and may directly affect the adoption of folic acid use (2014). Although Fulford et al. used quantitative methods (logistic regression) and drew insights from the Health Belief Model, this study informed my study by supporting the concept of perceived beliefs (attitudes) having a direct effect on intended behavior change as described in the theory of planned behavior. My study built on the idea of perceived social norms, the normative beliefs of important others, and environmental influences shaping preconception intentions and health behaviors. The conceptual framework of the bioecological theory of human development developed by Bronfenbrenner (1977, 2005) supported the combination of these complex influences affecting intentions and behaviors. The following Conceptual Framework section describes these influences.

Self-determination theory (SDT) is a complex theory of human motivation that takes into consideration the multiple factors that affect motivation, intention, and action including but not limited to culture, social environment, nonconscious processes, universal psychological needs, and self-regulation (Deci & Ryan, 2008). SDT presents the view that motivations are not dichotomous but exist on a continuum from completely autonomous to completely controlled, including amotivation (feelings of helplessness or incompetence; Deci & Ryan, 1985) and ambivalence (indecision as a result of interplay between controlled and autonomous motivations), and many complex combinations in-between (see Fig.2). The theory provides an integrative description of the interaction between the intrinsic or essential nature of human development and the social contexts the individual lives within (Deci & Ryan, 1985).

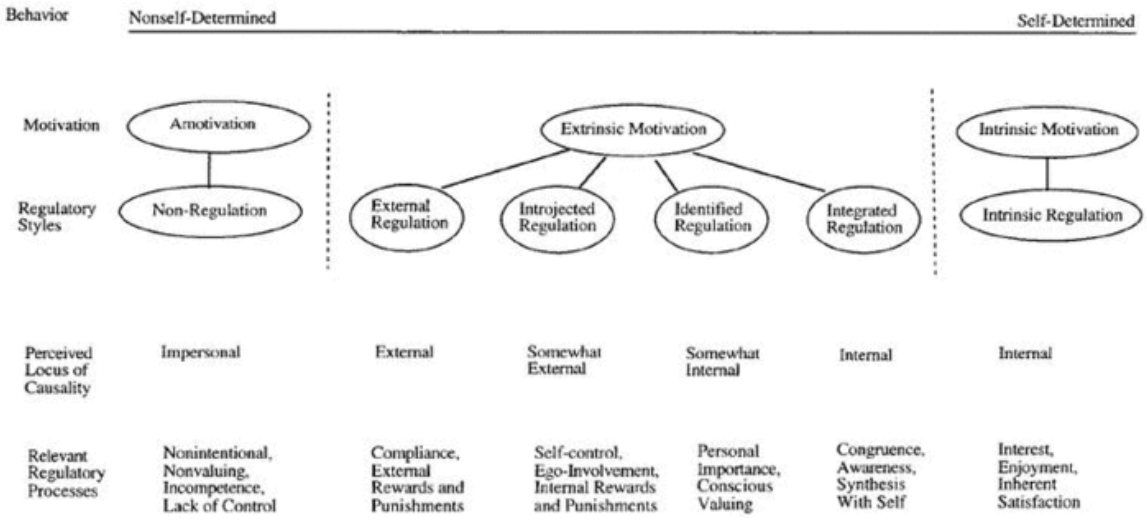

Figure 2. The continuum of motivation and regulation within the theory of Self-Determination. Adopted from Deci and Ryan (2008).

Self-determination theory emphasizes the intrinsic nature of goal pursuit and the satisfaction of the basic universal psychological needs of autonomy, competence, and

relatedness as important elements in successful attainment of psychological health and well-being and behavioral self-regulation (Ryan & Deci, 2000; Deci & Ryan, 2008). *Autonomy* is described by Deci and Ryan as the innate psychological need of an individual to pursue experiences and behave in ways that are intrinsic to his or her own personal nature and desires (Deci & Ryan, 2000). *Competence* is the perceived ability to pursue goals and activities in an effective and capable manner. *Relatedness* is an innate need "to love and care, and to be loved and cared for" (Deci & Ryan, 2000, p. 231). The satisfaction or thwarting of these three universal psychological needs determines an individual's pursuit of, and success with, a variety of life goals, interpersonal interactions, and the development of psychological outcomes, both positive and negative (Deci & Ryan, 2000).

A pivotal concept within self-determination is the contrast between autonomous (self-determined) and controlled (non-self-determined) motivations. Controlled motivations create social pressure within the individual to behave in a certain way (*also described as injunctive social norms*) and this reduces the sense of *autonomy* the individual feels (Deci & Ryan, 2008). Controlled motivations can be seen in health behavior change messages given to women in preconception and prenatal education sessions and may cause defensive reactions to the given information (Pavey & Sparks, 2008), especially in some overweight or obese women (Chuang et al., 2010). The perceived threat to autonomy may be a factor in the inconsistencies between intention and action during the preconception as well as the prenatal stage (Pavey & Sparks, 2008).

Several spheres are described within the theory. Motivation is divided into three main areas: *amotivation, extrinsic motivation*, and *intrinsic motivation*. *Amotivation* is the

lack of intention to perform a given behavior. *Extrinsic motivation* refers to behaviors that are determined from external sources (i.e., societal values or external expectations within institutions such as school or work) and is further divided into four subcategories of regulation: external, introjected, identified, and integrated. These range from the self-motivated (*intrinsic*) end of the spectrum wherein *identified* and *integrated* motivations are internalized and endorsed by the individual as important to personal values, to the externally driven (*controlled*) behaviors that are determined by threat of punishments or rewards and are not considered to be self-determined (Deci & Ryan, 1985, 2000). *Perceived locus of causality* is an important area within self-determination and is related to an individual's personality. Perceived locus of causality differs from Rotter's (1966, 1990) locus of control. Locus of control is the perception of outcome controllability whereas locus of causality is the point of origin of the behavior (i.e., external, internal, impersonal; Deci & Ryan, 1985). Causality orientations are not single characteristics within an individual but are expressed in varying levels dependent on the particular situation. Those who view externally derived motivators as information to base their own choices from are said to be autonomy oriented and self-determined. Autonomous behavior is associated with long-term engagement of health-related behaviors and more positive psychological outcomes (Ryan, Patrick, Deci, & Williams, 2008). Those who perceive their behavior to originate from controlling events may express sentiments of fatalism toward goals or behaviors, exhibit type-A behaviors (i.e., anxiety and tension), or experience contingent self-esteem and self-consciousness (Deci & Ryan, 1985). Impersonal causality is the farthest from the idea of self-determination because the individual has no perceived control over the directed behavior and does not value the

behavior. This level of causality is related to low self-esteem, social anxiety, and depression (Deci & Ryan, 1985).

While self-determination theory has been utilized across multiple life domains to assess associations between need satisfaction, well-being, and autonomous motivation (Milyavskaya & Koestner, 2011), to this researcher's knowledge there are no studies specifically using SDT to inquire into intentional health behaviors during the preconception period. Several studies inquired into the feasibility of SDT to: (a) address exercise behaviors with overweight, sedentary women (Hsu, Buckworth, Focht, & O'Connell, 2013); (b) assess changes in diet and exercise intentions and behaviors using an integrated model (SDT & TPB; Jacobs, Hagger, Streukens, De Bourdeaudhuij, & Claes, 2011); and (c) develop a SDT-based intervention to support weight loss among Latina immigrants using constructs of autonomy, relatedness, and competence (Cherrington et al., 2015). Although Cherrington's study did not specifically involve preconception health or health care, it did concern overweight and obese minority women within a behavior change context and was the only one that used a qualitative approach. As such, it was useful to this study and is reviewed here. Other studies have examined elements associated with SDT and will be discussed in the Key Concepts section to follow.

Using self-determination theory, Cherrington et al. (2015) designed an intervention for immigrant Latinas. The community-based program facilitated weight loss by incorporating peer support and family involvement, culturally relevant nutrition and lifestyle suggestions, and by enhancing a sense of autonomy and competence. During the formulation of the pilot study, focus groups aided in the discovery of needs related to the

community who would use the developing program, and an advisory board guided the overall process. The outcome of the study showed promise for the use of SDT in community-based health interventions, as many of the participants made significant progress toward their goals (Cherrington et al., 2015). SDT informed my study by providing a broad theory of motivation that is applicable across the spectrum of life pursuits.

Conceptual Framework

The bioecological theory of human development

Bronfenbrenner's ecology of human development (also known as Ecological Systems Theory and the Bioecological Model) describes the scientific study of the interconnected nature of the lived environment and the developing person throughout the lifecourse (Bronfenbrenner, 2005). The variety of attitudes and behaviors resulting from the constantly changing and adapting interplay between an individual and his or her immediate environment create a dynamic experience that affects how a person chooses to think about and navigate life. (Figure 3; Bronfenbrenner, 1977; Bronfenbrenner & Ceci, 1994; Bronfenbrenner, 1995; Bronfenbrenner, 2005). Bronfenbrenner's (1977) focus of study was the developing human child. His work described how children develop socially and psychologically depending on their interactions within their various environments. This interconnectedness includes proximal processes, stability over time, environmental contexts wherein the processes take place, individual characteristics, and the nature of the intended outcome. These processes may present pivotal points during the lifecourse where an individual may change or adapt his or her behavior dependent on place or circumstance. Examples include changing schools, gaining a new job, getting married,

having children, moving to a new location, retirement, etc. These major life stages all require adapting to new ways of thinking and experiencing people, places, and objects. Understanding an individual's behaviors and intentions requires an understanding of the context within which the individual lives.

The relationship of the individual to his or her immediate environment refers to *proximal processes*, which lie at the heart of the bioecological model. The *ecological environment* is a nested complex of five systems. These systems include: the immediate setting the individual engages with (microsystem); the interconnected microsystems of home, school, and peer groups (mesosystem); the outside formal or informal social environments that influence the individual including work, community, mass media, government, social networks, etc. (exosystem); and culminates in the overall culture or sub-culture within which the other three systems are a part (macrosystem; Bronfenbrenner, 1977). These systems all occur within the context of the fifth system, time (chronosystem), wherein changes may occur in one or more of the systems which then changes the way the individual interacts with the system (Bronfenbrenner, 1995).

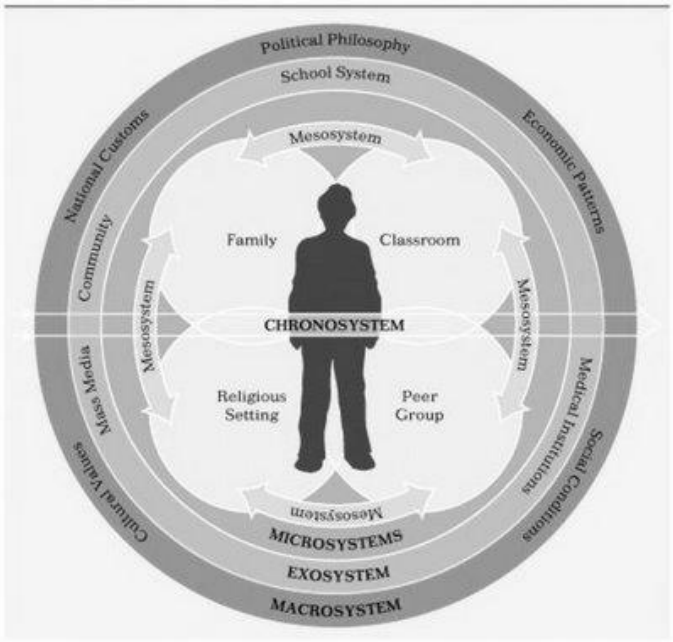

Figure 3. Bioecological model – five systems.

The microsystem and mesosystem form the immediate context in which an individual experiences his or her developmental journey through life. These are areas of socialization where patterns of belief and behavior are passed from one generation to the next and include the influence of family, teachers, church, and work places (Bronfenbrenner, 2005, p. 150). Interactions between the individual and the characteristics of that environment (people, objects, cultural expectations, etc.) that occur on a consistent basis and become progressively more intricate are termed *proximal processes* and it is these patterns of interaction that influence behavior, intentions, and attitudes (Bronfenbrenner & Ceci, 1994). The microsystem includes interactions between parent and child, children with each other, and the learning and discovery of new skills. As these dynamic interactions occur, the individual selectively begins to build and influence his or her world based on these experiences (Bronfenbrenner & Ceci, 1994). The exosystem and macrosystem are an indirect influence on the individual during his or

her lifecourse through the contexts of culture, socioeconomics, and built environments. However, these systems may have an effect on the implicit or non-conscious processes that affect decision-making at various levels. Implicit processes are described as a default mode for behaviors based on past experiences and affective attitudes that can work for or against behavior change intentions (St. Quinton & Brunton, 2017).

The *process-person-context-time* model (PPCT; Bronfenbrenner, 1995; Bronfenbrenner, 2005) is a way of investigating how *proximal processes* combined with individual *personal characteristics* in relationship to the effects of the environmental conditions (*context*) determine behaviors over a designated period (*time*). The current study used the process-person-context-time model as a guide to formulate the interview questions. These questions sought to discover how facets such as social support, access/interactions with health providers, and lifestyle choices combine with individuals' characteristics, such as age, behavioral intentions and beliefs, and personal values as experienced within a rural, low-economic setting, influence preconception health behaviors.

Combining various levels of influence into a process-person-context-time model may allow a new perspective on the previously identified strengths and challenges rural women may experience when deciding to engage in health behavior change (Bice-Wigington, Simmons, & Huddleston-Casas, 2015). Traditional research techniques often use single factor health indicators, such as whether a participant is single or married, employed or not, has health insurance coverage, or what level of education has been attained, to gauge health-related outcomes or to develop programs for a particular

segment of the population. Socioeconomic factors viewed in concert produce different effects than when viewed independently (Bice-Wigington et al., 2015).

Traditionally, education has been viewed as a buffer and is predicted to improve health behaviors due to increased knowledge and health literacy, as well as improved financial stability gained from better employment options. However, counter to traditional outcomes, in rural or low-income communities job opportunities are generally part-time or hourly work which does not provide the financial stability or the option for health insurance that would be available in an urban or higher economic area (Bice-Wigington et al., 2015).The lack of improved job opportunities in these rural areas may lead to depression in those who have attained higher levels of education when compared to those who have not, and this may affect health-related behaviors (Bice-Wigington et al., 2015). Future research suggestions included looking beyond traditional indicators of health and behaviors to investigate the complexity of individual and contextual interactions in order to tease out the healthcare needs and experiences of rural low-income women (Bice-Wigington et al., 2015). The current study aimed to move in this direction by asking participants to describe how their upbringing, social context, and the county in which they live have influenced their preconception beliefs and intentions. This information combined with questions about whether there are any key personal, social, or societal changes that would encourage or support them in adopting healthier behaviors, may inform the development of programs to better serve this population and the future generations to come.

Preconception Health - The Importance of Maternal Health for the Future Generations

The challenge in addressing the growing global obesity epidemic is fueled by the lack of clarity in the root causes for the more than 23 billion adults across the world classified as overweight (BMI >26), a number that has doubled since the 1980s (Jenkins & Campbell, 2014; World Health Organization [WHO], 2014). An additional 35 million children globally are overweight or obese (Santoro, 2013) rising to a projected 70 million children under the age of five by 2025 (WHO, 2015). The upward trend of obesity exists in industrialized countries as well as developing nations and affects all socioeconomic levels (Poston et al., 2016; WHO, 2015). The implications for obesity at preconception, and leading through to the perinatal period, include a higher risk for the mother of gestational diabetes, preeclampsia, complicated labor potentially leading to cesarean delivery, and intrapartum weight retention which may perpetuate risk factors to future pregnancies (Baptiste-Roberts, 2014; Nicholson, 2014; Poston et al., 2016). Maternal obesity increases the incidence of stillbirth, premature birth, fetal macrosomia, and possibly to long-lasting developmental programming effects for the child (Baptiste-Roberts, 2014).

Over the last decade, the Centers for Disease Control (CDC) have made preconception health and preconception health care a priority for improving maternal and infant health outcomes. Preconception health is also a central concern within the Healthy People 2020 campaign (Centers for Disease Control and Prevention [CDC], 2006; Office of Disease Prevention and Health Promotion [ODPHP], 2014). This new emphasis came about as a response to the faltering perinatal health outcomes emerging from the previous decades implementing the prenatal care paradigm (Waggoner, 2013). Prenatal care was theorized to reduce the infant and maternal mortality rate by creating guidelines and

increasing services for prenatal health. Toward those ends, Medicaid coverage for low-income populations was increased and research into diseases affecting mother and child was undertaken (Waggoner, 2013). However, infant mortality rates and preterm births have continued to rise well above the international comparison data (MacDorman, Mathews, Mohangoo, & Zeitlin, 2014). The United States was ranked 26th in infant mortality out of 29 countries in 2010 (MacDorman et al., 2014) with the top four causes of infant mortality listed as birth defects, pre-term birth, sudden infant death syndrome (SIDS), and maternal complications (MacDorman, Hoyert, & Mathews, 2013).

Alongside the complexity in determining the causes of the obesity pandemic, a majority of the public health initiatives produced from the lifestyle research to date have shown very little long-term effectiveness in reducing obesity rates in the population (Inskip et al., 2009; Jenkins & Campbell, 2014). The developmental origins of health and disease (DOHaD; Barker, 1990) theory suggests that the epigenetic transfer of information during critical in utero developmental periods, and its effect on subsequent life outside the womb, is largely determined by the physical and nutritional foundation of both parents with slightly more emphasis on the mother at preconception and prenatally (Barker, 2012; El-Heis & Godfrey, 2015; Nicholson, 2014). Epigenetic alterations in the germ line and in utero may lead to increased risk of certain non-communicable diseases later in life (Baird et al., 2017). These alterations begin with the health of the parents before conception occurs. As such, these epigenetic alterations play an increased role when present in a modern obesogenic environment. The WHO (2015) commissioned report on ending childhood obesity placed critical emphasis on addressing the cycle of transgenerational obesity noting that biological processes such as appetite regulation and

food preferences are developed in early life and may contribute to the long-term challenges for later lifestyle change (WHO, 2015). Toivonen, Oinonen, and Duchene (2016) noted little knowledge at the public level of these epigenetic influences.

There seems to be a trend within the research literature suggesting that preconception health interventions and conversations should be initiated at opportune times throughout a woman's reproductive years (i.e., a lifecourse approach). These conversations could occur during routine health screening (i.e., cervical or pap screenings), or when women come in for contraception or fertility advice, in order to give relevant information ahead of time to all women (Backhausen et al., 2014; Barker, 2012; Barrett et al., 2015; Oza-Frank et al., 2015; Van der Zee et al., 2012; Waring, Simas, Rosal, & Pagoto, 2015). While the consensus of women participating in these studies was positive toward the idea of preconception care, they did not necessarily feel it was relevant to their own experience. Some women have expressed displeasure at the imposition of preconception care information during primary care visits because it assumes that all women desire children, which is not the case (Barrett et al., 2015). It is important to understand the sociocultural background of women when discovering how and by what design to initiate health interventions. Inskip et al. (2009) also note that no amount of preconception planning information will be useful for women who do not *intend* to become pregnant (Inskip et al., 2009). Key concepts addressed by my study are: biopsychosocial issues related to individuals' concepts (*beliefs*) of health and susceptibility to illness, as well as the health and susceptibility of the fetus; perceived need or ability (*attitudes*) to make physician recommended changes to lifestyle before conception; and the perceived importance of making changes when they themselves (or

similar others) have had healthy children (*experiences*) regardless of personal health conditions.

Literature Review Related to Key Concepts

Beliefs, Attitudes, and Experiences as Pathways to Intentions

It is important to understand the attitudes and beliefs of the population that the information and programs are meant to serve to determine how best to inform or assist those at highest risk of harmful outcomes (Heslehurst et al., 2013; Lavender & Smith, 2015; Steel et al., 2015). Chuang, Velott, and Weisman (2010) utilized focus group interviews consisting of non-pregnant women with various chronic conditions to determine pregnancy intentions, perceived risk of negative outcomes, contraception beliefs, and preconception health behaviors. The aim of the study was to understand how women with chronic conditions (i.e., obesity, diabetes, and hypertension) make health decisions and perceive their risks of negative health outcomes in pregnancy. Four overarching themes were discovered. First, there was little knowledge about complications specific to the various conditions experienced by the women in the study. Second, intentions toward pregnancy were affected by diabetes and hypertension (i.e., less intention) but not by overweight or obesity. Next, there was a lack of knowledge about pregnancy-related risks associated with chronic conditions and little to no intent to engage in preconception health behaviors or preconception planning. Finally, there was a perceived lack of control over contraception with a consensus among the focus groups that pregnancy was mostly determined by fate (Chuang et al., 2010). Chuang and associates (2010) concluded that among the obese women in their study, there was no

perception of risk for themselves or for their fetus because of their weight nor did their weight influence their intentions to become pregnant (Chuang et al., 2010).

Bödecs, Horvath, Szilágyi, Nemeth, and Sandor (2011) investigated the concepts of controllability factors on a woman's preconception or prenatal efforts to engage in prenatal supplementation of folic acid. Findings included that women who felt personal behavioral control were more likely to supplement than those with an external (fate) locus of control (Bodecs, Horvath, Szilagyi, Nemeth, & Sandor, 2011). Although this study used quantitative methodologies (i.e., survey questionnaire, factor analysis, and multivariate logistic regression analysis) the associations between health beliefs and the health behaviors studied is important to my study. Another important difference in the Bödecs et al. study and the current study is the demographic make-up of the participants. The Bödecs (2011) study included a homogeneous sample of women who were from similar educational and economic backgrounds, nearly three-quarters (73%) of whom were described as prepared for pregnancy, and not representative of the population as a whole. The strength of the current study lies in the inclusion of a heterogeneous sampling of women from a low-income North Carolina county, which may achieve representational status. Because the current study took place in an area that is one of the poorest in the state, and consistently at or near the bottom of the list for the state's health rankings, this heterogeneous sampling reflected the overall perspective from the population of interest within an area-level socioeconomic measure rather than an individual-level socioeconomic background.

Several preconception health studies focused on discovering the attitudes and beliefs of a purposive sample of ethnically diverse and socially disadvantaged women

(Barrett et al., 2015; Devlieger et al., 2016; Tuomainen, Cross-Bardell, Bhoday, Qureshi, & Kai, 2013; Lavender & Smith, 2015). Tuomainen and colleagues (2013) discovered in their qualitative study, and as other studies have also concluded (Backhausen et al., 2014; Toivonen, Oinonen, & Duchene, 2016; Van der Zee, De Beaufort, Steegers, & Denktas, 2012), positive attitudes in favor of proactive preconception health behaviors or proposed interventions do not necessarily produce the engagement necessary for change (Tuomainen, Cross-Bardell, Bhoday, Qureshi, & Kai, 2013). Using focus groups and semistructured interviews, Tuomainen et al. (2013) explored perceptions about preconception health among minority women from disadvantaged communities in the United Kingdom (UK). The aim of the study was to inform preconception care development within the primary care system (Tuomainen et al., 2013). Community-based focus groups were comprised of women who shared similar social groups such as faith-based, work, or parent-toddler groups with the assumption that more open discussions may occur among women who were familiar with each other (Tuomainen et al., 2013). The information gathered during the focus group discussions was grouped into thematic content and revisited during the follow-up, one-to-one phone interviews. These interviews allowed women who participated in the focus groups but were not willing to express their own opinion within the context of the group setting for various reasons to contribute to the study.

Findings included a lack of culture or conventions (social norms) relative to preparation for pregnancy with perceptions of risk only coming into play *during* pregnancy. This belief system allows for missed opportunities for proper preconception micronutrient supplementation (i.e., folic acid) and preventive visits to assess for

immunization needs, infectious diseases, or family history (Tuomainen et al., 2013). The cultural expectations of many of the ethnically diverse women suggested that with marriage naturally comes pregnancy, so there is no need to plan as much as there is an expectation to have children. Alongside the expectation of childbearing, there is also the stigma of infertility whereby women from the cultures reflected in the study do not generally announce intentions to become pregnant to outsiders and particularly not to men, physicians, or otherwise (Tuomainen et al., 2013). These beliefs and attitudes can complicate intervention designs as well as preconception planning discussions during a clinical visit. This study benefits my study by offering the views of culturally diverse women from challenging socioeconomic backgrounds.

Another study described risk perceptions of obese women during pregnancy as normalized due to the lack of provider recommendations to manage prenatal weight during health checks (Lavender & Smith, 2015). Women expressed disappointment in this perceived lack of interest by their health professionals despite their readiness to make lifestyle changes for healthier pregnancies. These participants also believed that accomplishing small changes in their health behaviors would support further attempts at behavior change. This study was part of a larger feasibility study for program development. The authors aimed to answer two questions related to women with a body mass index (BMI) of 30 or more: (a) what are the pregnancy experiences of these women and (b) what are their experiences of being a part of a lifestyle program tailored to this specific group? Ten focus groups and nine interviews were conducted retrospectively after participation in the 10-week program and at 4-6 weeks post-partum. Although the framework for the study utilized Bandura's (1977) social cognitive theory, the results fit

well with constructs of both self-determination theory and the theory of planned behavior. The importance of connecting with others who are similar to themselves supported the need for relatedness as described by self-determination theory. Learning in an autonomous environment which the participants described as "empowering" was also consistent with self-determination theory. The concept that women's perceptions either challenge or support their intention to engage in specific behaviors, regardless of whether the perceptions are true or not, fits into the paradigm of the theory of planned behavior. Both are important revelations from the Lavender and Smith (2015) study. The retrospective design, as mentioned in other studies, may result in recall bias. This study adds validity to the use of constructs from both self-determination theory and the theory of planned behavior in my study.

Kominiarek (2014) discussed findings from her survey of low-income minority women and suggested that the level of lifestyle change women were willing to attempt depended on their weight and ethnicity. Women with higher body mass indices (BMIs), and those who were non-Hispanic Black, were less likely to achieve appropriate exercise levels and improved nutrition than Hispanics or Whites, leading the author to suggest future research investigate potential barriers encountered by obese minority women (Kominiarek, 2014). This survey study gave interesting generalizable results related to low-income, minority women and indicated that obese minority women may need a different intervention design than others in this demographic. There is a need for more in-depth inquiry into the psychosocial aspects of why this might be so.

Oza-Frank, Kachoria, Keim, and Klebanoff (2015) surveyed women on their receipt of specific preconception care messages and any subsequent maternal behavior

change engendered by those messages. Findings indicated that there was no association with preconception care messages of dietary change, weight loss, exercise, or abstinence from alcohol and smoking regardless of pregnancy intention (2015). The only preconception care message incorporated more often, regardless of pregnancy intent, was adoption of vitamin supplementation and is similar to findings by Bödecs and colleagues (Bödecs et al., 2011). The outcomes of this retrospective survey suggest pregnancy intention does not correlate with preconception care messages or behavior change (Oza-Frank et al., 2015). This adds to the question of an intention-behavior discrepancy at a time when women may be most amenable to behavior change.

Barrett et al. (2015) found that beliefs in the controllability of becoming pregnant and the level of preconception knowledge was a determining factor of preconception care. The authors described three levels of preparedness in the women who participated in the qualitative interviews: prepared, poor knowledge, and absent pre-pregnancy. These three levels reflect the need for a varied approach to preconception care education and interventions (Barrett et al., 2015) and supports the importance of understanding the preconception beliefs, attitudes, and experiences of all women in relation to intention, especially women in vulnerable populations such as low-income women and those who have chronic health issues related to and including overweight and obesity. Again, this study was undertaken with women who were pregnant during the study or recently pregnant and lends itself to recall and social desirability biases. The importance of attitudes and intentions were highlighted. The various levels of preparedness show the need for deeper understanding of women's beliefs, attitudes, and intentions in developing

interventions for the future. The methods and design of this study provided a partial framework for my study.

Intention-Behavior Gap

Many studies have pointed to an intention-behavior disconnect and remark that neither education nor intention on the individual level produces the behavior change necessary to improve preconception or maternal health and reduce the risk factors associated with maternal overweight and obesity (Bodecs, Horvath, Szilagyi, Nemeth, & Sandor, 2011; Borrero et al., 2015; Chuang, Velott, & Weisman, 2010; Fulford, Macklon, & Boivin, 2014; Inskip et al., 2009; Oza-Frank, Kachoria, Keim, & Klebanoff, 2015; Van der Zee, De Beaufort, Steegers, & Denktas, 2012). This intention-behavior disconnect has been described in several studies as: (a) the lack of perceived risk an individual may feel related to her own situation (Chuang, Velott, & Weisman, 2010; Fulford, Macklon, & Boivin, 2014; Van der Zee et al., 2012), (b) perceptions of reproductive control related to a woman's own health as well as that of her fetus (Bodecs, Horvath, Szilagyi, Nemeth, & Sandor, 2011; Borrero et al., 2015; Chuang, Velott, & Weisman, 2010; Tuomainen, Cross-Bardell, Bhoday, Qureshi, & Kai, 2013), and (c) the challenge of engaging in lifestyle change behavior for an event that is not guaranteed (Inskip et al., 2009).

Lack of perceived risk was evident in interviews with women who were overweight or obese and had additional chronic conditions such as type-2 diabetes or hypertension who were not aware of any potential risk factors associated with their health and becoming pregnant (Chuang et al., 2010). Women who perceived themselves as healthy despite living in adverse health environments (i.e., low socioeconomic settings) were less likely to engage in recommended preconception health behaviors (Fulford,

Macklon, & Boivin, 2014). Receipt of preconception health information did not lead to behavior change in diet, exercise, or the use of alcohol or tobacco (Oza-Frank, Kachoria, Keim, & Klebanoff, 2015). Some women also felt they knew the potential risks for themselves, had done the appropriate research for themselves (on-line or in books) and had concluded they could manage their own risk factors or that they were not part of the preconception health target group (Van der Zee, De Beaufort, Steegers, & Denktas, 2012).

Several psychosocial factors have emerged as significant in women who do make healthy behavior changes during the preconception stage and maintain those lifestyle behaviors throughout their pregnancy and into the postnatal time period (Chuang, Velott, & Weisman, 2010; Massey et al., 2012). These factors include perceived control over health and health behavior change (control beliefs/autonomy) and personality characteristics such as self-concept as a mother/provider. Challenges include sociocultural factors such as personal beliefs about risks and subjective norms about pregnancy that may result in ambivalence toward pregnancy planning (Van der Zee, De Beaufort, Steegers, & Denktas, 2012). Subjective norms about pregnancy include what important others (an individual's friends or family) may believe about preconception health and behaviors, or what the expectations are regarding preconception/pregnancy behaviors within the culture or community. For example, if an individual's mother or sisters did not engage in recommended preconception health behaviors and the resulting child(ren) developed normally, there may not be a perceived need to engage in preconception behaviors in order to have a healthy birth.

Bronfenbrenner (2005) viewed the microsystem of family interactions as proximal processes that help shape the person as she grows and explores within the parameters of family, home, and outward to interpersonal interactions with others over time. These early influences, which may endure throughout the lifecourse, lay the foundation for beliefs and actions as the individual moves through her lifetime. Individual traits such as perceived ability and self-concept combined with expectations of significant others and social advantage or disadvantage create the contextual atmosphere for how decisions are made and what actions are taken or not (Bronfenbrenner & Morris, 2006). Hypothetically, within Bronfenbrenner's theory, a woman raised in a family social structure where overweight is normal, fast food is the conventional meal, and the neighborhood environment involves potential threats to outdoor exercise or play, the meaning of a healthy pregnancy would be very different from someone in a different microsystem environment. Family interactions such as advice-giving, moral support, and expected behaviors may have strong influence on individuals, especially during life stage transitions such as starting a family of one's own and may create a generational pattern of behaviors within a family's culture. Lack of negative outcomes from previous pregnancy experience, whether the individual's or a close relative or friend's experience, may influence the perceived effect physical health has on pregnancy outcomes.

From a bioecological perspective, day-to-day living in an environment with others whose health behaviors are potentially risky, but who suffer no obvious signs of harm, would lend itself to the belief in an impervious pregnancy thereby reducing the perceived need for supplementation. Questions about whether increasing awareness of susceptibility to health risks would improve folic acid use or reduce alcohol and tobacco use during

pregnancy remain. The current study addressed the questions of social norms and lack of perceived risk by investigating how the participants' own upbringing, social and ecological contexts, and trusted sources of information may have influenced their health belief systems.

Area-level socioeconomic effects on intention-behavior gap

Many of the reviewed studies have included participants from economically challenged backgrounds because it has been shown that individuals living below the poverty line are disproportionately more overweight, less educated, engage more often in risky health-related behaviors (e.g., smoking, excess alcohol consumption), and have a greater number of chronic diseases than those from higher socioeconomic backgrounds (Schuz, 2017). Two measures of socioeconomic status are most often used in research, individual-level and area-level. These differences may affect health-related behaviors in different ways and socioeconomic criteria rarely distinguishes between the two. Vasiljevic, Ng, Griffin, Sutton, and Marteau (2015) discussed the added layers of complexity that consideration of the lived environment brings to the behavior-intention gap. The current study drew participants from an economically challenged community (area-level socioeconomic status) that has consistently remained at or near the least healthy status for the state of North Carolina for five years or more.

Conflicting research results leave the question of whether socioeconomic status is a moderating factor on the level of the behavior-intention disconnect (Vasiljevic et al., 2015). Vasiljevic et al. (2015) found potential arguments in studies outside their own for individual-level socioeconomic indices and intention-behavior gaps in personal health behaviors such as oral hygiene. Their own study, however, only found moderate

associations between perceived behavioral control and area-level socioeconomic measure and none in individual-level socioeconomic measures. This suggested that socioeconomic status as a homogeneous measure may not affect the intention-behavior gap, yet area-level socioeconomic challenges may affect those health behaviors that are dependent on the area people live (i.e., exercise, food availability, safety). Area-level socioeconomic indices may have an effect on affective psychological indicators of success such as perceived behavioral control and intentions toward adopting healthy behaviors (Vasiljevic et al., 2015). Other effects of area-level socioeconomic status on behavior control processes may involve non-conscious processes and executive functions. These may include (contextual influences) behavioral cues persistent in the environment such as neighborhood areas that are unsafe for exercise or the ubiquitous nature of fast food restaurants in an area (Hollands, Marteau, & Fletcher, 2016).

Implicit or non-conscious processes

Implicit processes, also referred to as non-conscious processes, are those cognitive processes that operate below the level of reflective, conscious thought and are generally described as quick and automatic (St. Quinton & Brunton, 2017). These non-conscious processes may have an effect on the intention-behavior gap as a result of their influence on an individual's ability to self-regulate and put behavioral intentions into action (St. Quinton & Brunton, 2017). Implicit processes function as habitual actions developed over time as a product of experience and encountering contextual cues for a particular behavior. This habitual (nonconscious) action often overrules intentional (conscious) actions (Sheeran & Webb, 2016). These non-conscious processes make up a large portion of an individual's behaviors, play a moderating role in the intention-

behavior gap, and explain some of the shortcomings present in cognitive behavioral models of behavior and behavior change (Sheeran, Gollwitzer, & Bargh, 2013; Sheeran & Webb, 2016). Implicit processes support the complex interaction of the individual in developmental concert with the lived environment presented in the bioecological model.

Summary and Conclusions

Although several studies have focused a qualitative lens on the complex factors that comprise beliefs, attitudes, and lived experiences of overweight and obese women (Backhausen et al., 2014; Fulford, Macklon, & Boivin, 2014; Kominiarek, 2014), there are still many questions about the transition period from preconception health knowledge to the adoption of recommended healthy behavior change presented by the CDC. This *intention-behavior disconnect* represents a gap in the literature that the current study has attempted to address by probing the meaning of preconception health (Backhausen et al., 2014; Toivonen, Oinonen, & Duchene, 2016; Witkop, 2014). Bronfenbrenner's (Bronfenbrenner, 1977; Bronfenbrenner & Ceci, 1994) bioecological model informed the study through the process-person-context-time model. Findings of studies conducted to date suggest: (a) women under-estimate their risk factors and do not see themselves as belonging to the group for which the information is intended; (b) women's perceptions of how they become pregnant (i.e., the romance of pregnancy) and the way health practitioners view preconception/prenatal health (i.e., clinical) is discordant for some; and (c) some women do not feel a sense of reproductive control, that pregnancy just happens or doesn't and it is out of their hands. Understanding the attitudes, intentions, and psychosocial factors influencing overweight and obese women to engage or not in preconception health behaviors is important to the development of programs aimed at

reducing perinatal risk factors to mother and child and long-term health of the offspring. Because attitudes and beliefs are an important part of making an intention to behave in certain ways, these concepts were investigated using elements of both the theory of planned behavior (TPB; Ajzen, 2002), including attitudes toward preconception behaviors and perceived control, and self-determination theory (SDT; Deci & Ryan, 2008), including autonomous and controlled motivators (specifically perceived threats to autonomy).

Also, the socioeconomic level of an area in which people live is a significant factor in how individuals view their ability to change and adopt new health-related behaviors (self-efficacy or competence; Vasiljevic et al., 2015). This social patterning of health behaviors through non-conscious processes created by the environment may inform the intention-behavior gap. My qualitative study used semistructured interviews to investigate the lived experiences, attitudes, and beliefs of overweight women intending to become pregnant in the future in order to discover the meaning of a healthy pregnancy and the preconception behavior-change intentions they may hold. The methodological design of the proposed study is detailed in chapter 3.

Chapter 3: Methodology

Introduction

The purpose of this phenomenological study was to understand (a) how women who are planning a pregnancy describe their perspectives, intentions, and beliefs about healthy conception and pregnancy, (b) what the subjective norms are related to pregnancy in their sociocultural environment, (c) and how the ecological conditions women live within impact their intentions to engage in any recommended preconception behaviors.

In this chapter I discuss the qualitative methodology used in this study, the research design and rationale behind the choice, and describes the way in which participants were identified, recruited, and treated in the process of data collection. Concepts central to the study, potential biases, issues of trustworthiness, and ethical procedures are also presented.

Research Design and Rationale

Research Questions

1. Research Question 1 (RQ1) –What combination of bioecological factors do over-weight or obese women experience when thinking about a future pregnancy?
    - RQ1 subquestion 1: How do individual beliefs and attitudes toward pregnancy affect intentions toward preconception behavior change?
    - RQ1 subquestion 2: How does the individual's own upbringing and social context affect preconception beliefs and intentions?

- RQ1 subquestion 3: How does the area the individual lives in affect preconception beliefs and intentions?

2. Research Question 2 (RQ2) –What information do OW/OB women receive about preconception health and how do they receive it?
3. Research Question 3 (RQ3) –Where do women turn for trusted information?
4. Research Question 4 (RQ4) –What key personal, social, or societal elements would encourage OW/OB women to make critical changes to their lifestyle during preconception planning?

Central Concepts of Interest

The central concepts of interest important to my study are the ways in which overweight women describe their perspectives of preconception health and healthy pregnancy. Of particular importance are descriptions of the biological, social, and ecological experiences that have led them to believe that way.

Bioecological model. One cannot simply look at an individual's beliefs or actions without considering the interconnected bioecological networks within which individuals are nested, which are altered by and may alter the experiences and attitudes of the individuals who spend all or part of their lives there. Bronfenbrenner's (1977, 2005) bioecological model using the process-person-context-time method of investigation was well-suited to explain the transition from receiving preconception health information and subsequent adoption of preconception health behaviors. The strength of using an ecological model to investigate a complex subject such as preconception health is its

focus on multiple levels of influence and the long-term potential for sustained change (Sallis, Owen, & Fisher, 2008). Other researchers have suggested that by improving environments and policies that influence diet and exercise behaviors, ecological models may reverse the obesity epidemic much in the same way these models reversed tobacco use (Sallis et al., 2008). In order for ecological models to be effective, however, investigations must be clear about the influences on, and specifics of, the behavior in question.

Nonconscious processes. Another important concept that runs parallel to the bioecological model is the idea of nonconscious processes. Much of human behavior is initiated below the level of conscious thought. Environmental cues, emotional reactions to social interactions, and habitual actions learned during developmental periods and life transitions all influence behaviors in ways most people do not realize (Sheeran, Gollwitzer, & Bargh, 2013). These nonconscious processes may add to the challenge of resolving an intention-behavior gap in preconception health for several reasons.

Sheeran and Webb (2016) described the conflict between cognitive attitudes and affective attitudes in following through on intentions. Affective attitudes more often predicted the performance of a behavior than did cognitive attitudes, which Sheeran et al. (2013) described as nonconscious, impulsive, and associative processes. Habit is also a strong determinant of behavior and relies on nonconscious processing determined by contextual cues (time, place, social interactions), which often override intentional control through conscious, reflective processes (Sheeran & Webb, 2016). In other words, women may not understand why they feel the way they do about certain behaviors and find great challenge in making complex changes to prepare for an event in the unknown future.

Research Tradition

I used a phenomenological realism approach for this study. Maxwell (2012) described the core foundation of realism as accepting that all knowledge is incomplete and there is no one complete understanding of natural phenomena without involving subjective interpretation (Maxwell, 2012). Realism combines *epistemological relativism*, i.e., the nature of knowledge is based in our experience, and *ontological realism*, i.e., the nature of being is independent of theories and constructs and embraces the idea that "there are different valid perspectives on reality" (Maxwell, 2012, p. 9). Patton (2015) explained that realist qualitative inquiry is designed to move beyond describing a phenomenon to explaining how an effect is produced within a specific context. How an individual personally describes her understanding of a situation and her actions based on that understanding, whether accurate or not, may reveal a strong mechanism of action that needs to be understood (Patton, 2015, p. 112). Realism provided a way of inquiring into the relationships between social structures and human agency compatible with the purpose of this study, which is to gain a clearer understanding of the reasons why overweight and obese women who intend to become pregnant do not follow behavior change recommendations that are designed to reduce risk factors to mother and child related to this chronic condition.

To gain a clearer understanding of how women interpret preconception health information and create meanings about a healthy pregnancy, in-depth semistructured interviews, and one or more typical-case descriptions were used. I designed the interview questions (see Appendix A) based on themes from the theoretical and conceptual frameworks this study is based on. Chuang and colleagues (2010) used focus groups to

understand intent to engage in preconception health behavior change. Question topics included future pregnancy intentions, optimizing preconception health, perception of adverse pregnancy outcome risk, and use of contraception (Chuang et al., 2010). Van der Zee et al. (2012) used in-depth, semistructured, face-to-face interviews and analyzed the responses using elements from the theory of planned behavior (Van der Zee et al., 2012). Similarly, interview questions for this study included questions related to attitudes toward preconception information and risk factors, ability to control outcomes related to risk factors, and challenges of changing behaviors at the preconception stage. The in-depth questions asked during the semistructured interviews explored the elements of Bronfenbrenner's bioecological model (1977, 2005) in relationship to the challenges and motivations for preconception planning and behavior change. The typical-case description completed the design by giving a detailed example of the average beliefs and experiences of the study participants. Combining semistructured interviews and using a typical-case description created the potential to generate a more focused and deeper understanding of the perceptions and intentions toward preconception behaviors of the chosen population.

Research Rationale

Qualitative phenomenological research was the best choice for my study because this type of methodology allowed me to investigate the phenomenon from the perspective of the individual's experience with it. Detailed, rich descriptions of lived experiences help to paint a picture from the particular viewpoint of each person interviewed or observed. These descriptions may help preconception health researchers and program

developers understand the problem from another perspective and create a tailored approach to solving a specific problem in a particular place.

Role of the Researcher

The role of the researcher in qualitative research is to act as the key instrument of data collection (Creswell, 2013). The qualitative researcher uses multiple sources for data collection including but not limited to: observation, reflexive journal writing, interviews, voice and video recordings, and examining documents (Creswell, 2013).

The potential for researcher/participant relationship overlaps existed within my study because of my involvement in the community as an adjunct instructor at the local community college and as a yoga teacher; however, I had no prior relationships with any of the participants in this study. Incentives for participation included a $10 gift card as a thank you gift in appreciation for time and effort. There were no other ethical issues specific to researcher/participant relationships.

Methodology

Participant Selection Logic

The study included adult, overweight or obese women living in an impoverished county in North Carolina who intended to become pregnant in the future. My study drew from a heterogeneous population within the confines of an overall impoverished county. Although the individuals may have had varying resource potential, the availability of services and community culture were similar for everyone living in the county.

I used purposive sampling for this study. Purposive sampling is used when insights and in-depth understanding of a particular issue is sought (Patton, 2015). Combined purposeful sampling allowed for greater richness in the data collection process

and may better address the complexity of the study, which included participants of various ages, experiences, and locations within the county of interest and addressed various levels of bioecological influence. Participants included adult women ages 18 and older who were overweight or obese as defined by a BMI >25 and intend to become pregnant in the future. Participants were able to read and understand English and were healthy within the parameters of the study without active, uncontrolled illness or experiencing complications from pregnancy or other limiting factors.

My aim was to include as many individuals as needed to achieve maximum variation which was determined using the census as a guide to the demographics of the county. Maximum variation sampling is used when there is considerable variety in the population of interest and the researcher wishes to identify any themes that are shared (Patton, 2015). My study sought to understand any encompassing ecological influences that may have been present across a spectrum of individual socioeconomic levels. The individual interviews were held in two centrally located sites that were conveniently accessible by the participants. These interviews were scheduled for the convenience of the participants.

Sampling for the study came from three strategies: heterogeneous, or maximum variation, to illustrate the diversity of the population experiencing the phenomenon; homogeneous sampling to discover any thematic variations that may arise; and typical case description to describe what is normal for the phenomenon (Patton, 2015). Typical case description is not meant to generalize across a population but instead to give a description of what is average and what it is that makes the group or setting average (Patton, 2015).

According to Miles, Hubberman, and Saldana (2014) sample size is dependent on purpose, and for my study, the number of participants would need to be representative of the demographic. The needs of this inquiry required input from a variety of women encompassing age, race, culture, and socioeconomic condition. The community of interest, Columbus County, is composed of 64% White, 30.5% Black, 4.7% Hispanic, 3.5% American Indian, and 0.5% Asian with 50.5% of the population being female as detailed in the 2014 census data for the area. Twenty-five percent live below the poverty line and 14,500 are between the ages of 20 and 39 years of age (US Census Bureau, https://www.census.gov/quickfacts/fact/table/ columbuscountynorthcarolina# viewtop).

Basic information about my study and the opportunity to participate were advertised by poster/flyer in local health departments, clinics, churches, newspapers, community centers. Study description included interest in experiences, perceptions, and beliefs about pregnancy planning and having a healthy baby. The main participant pool was self-selected through the use of poster/flyers in various locations around the county (see Appendix B). The flyers gave a brief description of the study and an invitation to participate. A phone number and an email address were included for those who wanted to participate or wished more information on the study. Those who were interested in participating were asked some brief demographic questions including height, weight, and intention to become pregnant in the future (see Appendix C). The informed consent information for the study was described prior to the face-to-face interview process.

Patton (2015) indicated that there are no hard and fast rules for determining qualitative sample size and described the number of participants needed for saturation in qualitative research as dependent on the purpose, credibility, time and resource

availability, and whether the information sought is to determine the breadth of the phenomenon or to describe the problem in detail (i.e., emergent and flexible). Data saturation was the aim of the sampling strategy for my study and as stated by Patton (2015), could potentially be achieved at any point with any number of participants depending on the questions asked and the information sought. Proposed sample sizes for a qualitative study have been described as emergent and flexible in design (Patton, 2015). My study reached data saturation after seven interviews, but I included data from all nine participants who self-select into the study through the use of poster/flyers. In addition to the above strategy, I compiled a typical case description from the interview data. The representative samples were determined after the semistructured interviews had been analyzed for thematic content and those whose responses were most similar informed the descriptive case example. Together, these strategies created a layered approach that, to some extent, met the five goals for purposive selection as described by Maxwell (pgs. 98-99, 2013).

Instrumentation

I was the sole data collection instrument with the aid of a digital audio recorder used during the interviews. The generalized questions used for the interview sessions were drawn from topics in the literature and were related to challenges of preconception health and behaviors. These topics included various areas of direct and indirect influence. A few of the general questions included: Describe what a healthy conception/pregnancy experience would be like. What do you think are the most important preparations to make, physically and/or mentally, before you become pregnant? Do you feel you have all the support you need to have a healthy pregnancy? Whom do you go to for advice about a

healthy pregnancy? After each general question is asked, follow-up questions were added to gain more descriptive information (can you tell me more about that?) or to encourage conversation (does anyone else you know feel that way/differently?). Key themes from the literature were identified and translated into open-ended interview questions. An iterative process was utilized, and questions were adapted as the interviews continued. The semistructured interviews were audio recorded to assure accurate transcription.

Content Validity

Maxwell (2013) explained the different meanings of validity within quantitative and qualitative methodology by stating that measurable objective truth, an important concept in quantitative research, is less important in qualitative methods than the ability to discern credible accounts from non-credible (Maxwell, 2013). The ability to discern credible from non-credible, or uncovering ways the researcher may be wrong in her interpretations of the data, is described as threats to validity. Threats to validity in qualitative research include cases where participants are not presenting their actual perspectives on the topics in question, or that the information is inaccurately translated, analyzed, or even ignored because it did not fall into a desired theoretical or conceptual category (Maxwell, 2013). Brod, Tesler, and Christensen (2009) described the most effective ways of achieving content validity in qualitative research as reaching data saturation through interviews and focus groups, capturing the essence of each individual's perspective on the topic of interest, and providing documentable and accurate analysis of the information (Brod, Tesler, & Christensen, 2009).

Creswell (2013) stated that triangulation involves using multiple methods and resources (i.e., thick, rich descriptions, researcher bias, member checking, and peer

review) to confirm and validate data. This study used thick, rich descriptions of the study phenomenon and research process to assist the reader in making assessments on whether the findings are transferable. These descriptions should be in such detail that they completely encapsulate what is being experienced and are usually presented as verbatim portions of interview or focus group transcripts (Maxwell, 2013). Using detailed descriptions and the participants' own words helps to counter biases about what the researcher perceives to be important, as well as the possibility of biased responses from participants in order to represent themselves and their responses in a socially acceptable light (social desirability bias; Maxwell, 2013). Researcher bias was recorded through the use of a researcher's reflexive journal throughout the investigative process and noted any biases, perspectives, or past experiences that may have had an effect on the interpretation of the data. A reflexive journal helps to expose and describe any existing or developing theories, beliefs, or expectations present within the researcher's own world view during the research process. Keeping preconceived notions and expectations in plain view would help address unintended bias on the part of the researcher (Maxwell, 2013).

Member checking was built into the semistructured interviews in order to guarantee the information was interpreted correctly. Participants were asked a few questions at the end of the sessions (cognitive debriefing) in order to receive feedback on the ease or difficulty in interpreting the questions and whether the questioning missed any important areas of concern related to the topic (Brod et al., 2009). Interview participants were asked if they would be willing to review the researcher's thematic interpretation of their interview responses to ensure the themes were captured accurately. Brod et al. (2009) suggested the following questions be included in participant feedback interviews:

- Were the questions worded in a way that made sense to you?
- Did the questions reflect something that was important to you?
- How did you decide on your answer to the questions?
- When the interview was completed, do you think you were able to give accurate and complete answers to all the questions?
- Was there anything else that could have been asked about the topic?

The final step of peer review was enacted throughout the data gathering and analyses process. I developed a codebook as I transcribed the data and read the transcripts for content and themes. I performed the process of coding and analysis myself; a trusted second party reviewed the de-identified codes and gave feedback; and the final product was reviewed by my dissertation committee.

Procedures for Recruitment, Participation and Data Collection

Individuals were assigned a project identification code at the beginning of the study for any written/digital documentation to help protect their identity (e.g., P1 = Participant 1). Initial information (i.e., demographic, biometric, and intent to become pregnant in the near future) was gathered during the initial contact in person. The information gathered from the initial contact determined who was eligible for the study. The demographic questions determined whether the person lived within the county of interest along with her age and socioeconomic status, the biometric information was used to calculate the individual's body mass index and determined if she was overweight or obese, and the question of intent to become pregnant determined if the individual was appropriate for the study.

The general questions presented to the participants helped to determine how the women interpreted the meaning of a healthy conception/pregnancy and what challenges they may be facing (and where these challenges came from) while attempting to achieve this goal. Each interview session was scheduled for 60-90 minutes to allow ample time to share descriptive information related to the questions presented, time to build rapport between interviewer and participant, and for the participants to ask any closing questions of the researcher before leaving the interview. Individuals who participated in the semistructured interviews were given time at the end of the process to review their answers, clarify any responses, and ask any questions they wished. All interviews were completed within the 60-minute time-frame.

Data Analysis Plan

Interview transcripts were organized, read, and coded for themes. Coding was based on both predetermined themes from the bioecological model, theory of planned behavior, and self-determination theory, as well as emergent ones. ATLAS.ti 8, Survey Monkey, Dropbox, Evernote, and Microsoft Word and Excel, formed the foundation of the analysis tools used for my study. I followed the standard recommendations of frequent backups and utilization of flash drives when working with the precious data from interviews and other irreplaceable sources, especially if the products used were cloud-based such as Dropbox, Evernote, and Survey Monkey.

Evernote is useful for managing articles, notes, clippings, and graphics. Searches can be made for key words or phrases, so articles can be easily found and organized for literature reviews, or key words can be checked for thematic repetition within transcripts. Evernote is a free product with options for purchasing greater productivity space and is a

cloud-based service for ease of use between devices such as laptops, phones, and tablets whether at home or in the field. A caveat that must be considered here is that the product is a cloud-based design. This means that if the server supplying the product fails, all information may be lost.

ATLAS.ti is advertised as an intuitive qualitative analysis software program that can assist with collecting, organizing and analyzing multiple forms of data including, documents, videos, graphics, Google Earth documents, notes and memos simultaneously (ATLAS.ti, n.d.). It can be used for qualitative and mixed-methods research and can be used by an individual researcher or within a team format. This product is similar to NVivo and shares many of the same features. Both NVivo and ATLAS.ti allow for the design of visual materials such as word clouds, charts, and other creative tools to allow for multiple ways to create and express the data for the researcher, the team, or for the consumer of the study. Just as no one theory can encompass human psychology, no single data management tool can do everything a researcher needs it to perfectly (Miles, Huberman, & Saldana, 2014). I used a combination of organizational tools to work through the research process.

Issues of Trustworthiness

The qualitative design is by definition inductive and emergent which can call into question the methodological soundness due to researcher bias. Any researcher bias was reflexively noted in the researcher's journal as the study. The experience gleaned from field testing similar interview questions and looking into the methods of coding as part of an earlier feasibility study, gave me insights into some of the issues with research quality.

Respondent validation (or member checking) and triangulation was used as ways of assuring the quality of the data (Maxwell, 2013). Respondent validation involves requesting feedback from the participants who gave the data by inviting them to read their own quotes and the researcher's thematic interpretation of the responses to be sure their statements were captured correctly, to receive feedback on how the questions were understood (whether the questions were clear or confusing), and after the data has been analyzed, to receive feedback on causal inferences and interpretations of findings (Miles, Huberman, & Saldana, 2014). Participants were invited to comment on the questions at the end of the interviews. No changes were suggested by the participants. The final transcripts and thematic codes were reviewed for feedback on interpretation by those who participated.

Threats to quality relate to perceptions of researcher bias due to the inductive nature of qualitative inquiry and the interpretive skills needed to produce a compelling final description of the findings (Patton, 2015). Drawing from suggestions described by Patton (2015), I engaged in systematic, rigorous analysis designed to paint an accurate portrait of common features and connections within the data; created accurate transcripts from which to draw themes and codes; performed conscientious analysis of the various data within the study seeking various themes and patterns in order to reduce perceptions of bias; and provided a description of a clear phenomenon. The use of rich data to reveal a detailed and varied picture of what the participants are experiencing (Maxwell, 2013, p. 126) added to the quality of the descriptions and help to counter any potential bias on my part. As an example of potential bias, during an earlier academic study, I recognized a tendency at the beginning of the initial coding process to try to fit the words and phrases

of others into the pre-coding structures that had been outlined as a guide. I soon understood that this was not only frustrating but was forcing a desire to use theoretical ideas as a box into which words could be organized. Bias can also take the form of researcher's worldview and previous experiences (Maxwell, 2013) as well as the effect the researcher has on the site and participants (Miles, Huberman, & Saldana, 2014). The use of a reflexive journal was useful in keeping any bias transparent. I utilized open coding and thematic analysis on the collected data as suggested by Maxwell (2013). Lavender and Smith (2015) described their process for analyzing similar research through utilizing familiarization, coding, searching for themes, reviewing themes, defining and naming, and reporting (Lavender & Smith, 2015, p. 224).

Ethical Procedures

I collected permissions from each location in which the recruitment posters/flyers were posted. These documents were included as part of the Institutional Review Board (IRB) application. I discussed informed consent at the onset of the interview process, and each participant was assigned a code to be used as her identifier within the study. This code consisted of the initial P, for participant, and a number such as P1 or P2. A full explanation of the need for the recording procedures was given orally to each individual interviewee. Consent for the semistructured interviews was in writing and verbally recorded with a full explanation of how the data will be treated and kept safe.

All data was kept in a securely stored environment (locked file cabinet in my office), whether in electronic form or as tangible data, and all identifying information was removed from the data to be used so participants can be assured of their anonymity. IRB approval number for this study is 04-26-18-0343601.

Summary

This qualitative phenomenological study is intended to describe the individual meanings of health at preconception as presented by overweight and obese women living in a rural, economically impoverished county in North Carolina. Bronfenbrenner's (1977, 2005) bioecological model formed the lens through which this study viewed the experiences of these women in order to understand the complex influences at work that may challenge the intention-behavior dynamic many may face when deciding to make healthier choices in their lives. The semistructured interview questions were designed based on the bioecological model and the most influential studies used in this investigation. The bioecological model, as well as an open coding system, was used to guide the data analysis of the transcripts to identify themes that emerge from the semistructured interviews. The in-depth questions asked during the interviews explored the challenges and motivations for preconception planning and behavior change. These interviews provided further details on if and how the individual meaning of a healthy pregnancy reflected an intention to engage in preconception health behaviors and reasons for or against those behaviors. Suggestions for future generations were invited at the end of the interviews (i.e., What advice would you give your daughter about preconception health?). A final phase of the study included one or more typical case descriptions. My intended outcome of combining individual semistructured interviews, and typical case descriptions was to generate a more focused and deeper understanding of the perceptions, experiences, and intentions of the chosen population. Details of the methodology, including recruitment, data analysis, ethical procedures, and issues of trustworthiness have been presented.

The upcoming Chapter 4 will describe the participants, data collection and analysis process, and results of the study. The semistructured interviews, and case descriptions will be discussed.

Chapter 4: Results

Introduction

The purpose of this study was to understand how overweight, adult women who were planning a pregnancy described their perspectives, intentions, and beliefs about healthy conception and pregnancy. Also important to the study were the subjective norms related to pregnancy in their sociocultural environment and how the ecological conditions women lived in impacted their intentions to engage in any recommended preconception behaviors. In this chapter I will discuss the study setting and participant demographics, data collection and analysis, trustworthiness of the design, and the results.

Setting

The location of the study was an impoverished North Carolina county and the interviews were conducted in the local county health department and a preschool day care facility centrally located within the county. A local Native American community was also invited to participate. Individuals recruited from the daycare center were employees or former employees of the facility. They did not report any organizational conditions that would have influenced their experience with the interviews.

Demographics

The population of interest for the study consisted of adult women aged 18 and older who were overweight with the intention of becoming pregnant in the future. The participants were coded to assure confidentiality. Final coding consisted of a sequential letter/number identifier (i.e., P1= Participant 1).

P1 was a young Black woman in the 18–20 year old age range who identified with multiple races. She was currently employed, living in the area of interest and was classified as overweight when calculating her BMI (27.5) with her self-reported height and weight. She wanted to be a mother but was not sure when.

P2 was a White woman in 21–29 year old age range. She was currently employed and living in the area of interest. She was classified as obese with a BMI of 33.5 and was not sure if she would have children in the near future.

P3 was a young Black woman in the 18–20 year old age range who was currently unemployed and attending college away from home. She was home for summer break. She was classified as obese with a BMI of 30.0 and intended to become pregnant in the future. This woman was nulliparous at the time of the interview.

P4 was a young Black woman in the 21–29 year old age range who was currently employed full time. She was classified as obese with a BMI of 43.4 and she intended to have a child in the future.

P5 was a young Black woman in the 21–29 year old age range who was currently employed full time. She was classified as obese with a BMI of 33.5 using self-reported measures of height and weight. She had one child and wanted to have another but was unsure when.

P6 was a Black woman in the 30–39 year old age range who was currently employed full time in the county of interest. She was classified as overweight with a BMI of 26.9. This participant had two children and was not currently planning to have more.

P7 was a young Black woman in the 21–29 year old age range who was currently employed full time. She was classified as overweight with a BMI of 27.5. She had one child and was open to the possibility of having more children in the future.

P8 was a young Mexican-American woman in the 21–29 year old age range who was unemployed but looking for work. She was classified as obese with a BMI of 34.3. She already had four children but wanted to have another baby.

P9 was a Mexican woman in the 30–39 year old age category who was currently employed. She was classified as overweight with a BMI of 29.6. She had two teenage daughters and was deciding if she wanted another child.

Data Collection

Nine participants were recruited for the study using posters/flyers placed throughout the county. Data collection instruments consisted of a digital recording device for the face-to-face interviews and a standard demographic (paper) form that was filled out by the participants prior to each interview. I identified several locations for potential recruitment: a) a well-established daycare center, (b) a Native American community, (c) the county health department, and (d) various physicians' practices throughout the area.

Three locations (a-c) were chosen initially from which the interviews would be collected. I visited each of the three locations several times over a period of 1 month to schedule and collect interviews with prospective participants. The Native American community was not used because none of the community members self-selected into the study. The interviews were conducted in private rooms away from public view. Each interview lasted from 20–45 minutes and was recorded on a digital recording device. I

transcribed the interviews verbatim into separate Word documents which I then copied into the qualitative software (ATLAS.ti 8.0) used to organize and process the data.

Changes to the initial recruitment strategy. Some changes were necessary and were approved prior to implementation by Walden University's Institutional Review Board (IRB) on two separate occasions. Variations in data collection from those proposed in Chapter 3 included changes in the data collection strategy. *Time-location sampling* was added to the data collection strategy. Each participant was recruited in person at one of the three data collection sites mentioned above. *Snowball sampling* was also utilized, and each person interviewed was invited to give a flier describing the research to someone who she thought would be appropriate for the study. The potential participant was to contact me directly if she was interested in participating.

Unusual circumstances encountered. The initial recruitment was challenging for several reasons. First and foremost, few women in the area of interest have full intentions to plan their pregnancy. Many of the interviewees were on birth control and had intentions of conceiving in the future but had not decided when to transition to the conception process. Second, the health status of the county of interest is at the lowest end of the scale for the state, which reflects the lack of health knowledge and salience of health status to the general population of the county. Third, the combination of lack of planning and general lack of interest in healthy behavior change, together with the disinterest in participating in a research project, made recruitment a slow process. After repeated conversations with various gatekeepers of the population of interest, and a few

changes in procedures through the University IRB process, a recruitment strategy was developed that allowed for success in recruiting and interviewing nine individuals.

Data Analysis

I conducted my analysis using various methods. Interviews were conducted, recorded, and transcribed verbatim by me. As each interview was completed, the transcriptions were initially read for content and openly coded. Then I read the interviews again and coded them for themes related to the theoretical and conceptual frameworks. The codes were organized into groups for clarity and associations. These codes were then organized into main themes and sub-themes and analyzed for meanings. The student version of ATLAS.ti 8 (https://atlasti.com/product/v8-windows/) was used to organize the analysis process.

Codes, categories, and themes. I transcribed the recorded interviews into a word document and saved each document to a folder labeled *Transcripts* on an encrypted home office computer. This action was performed by listening to the recordings one sentence at a time while typing onto the document and replaying the recording as many times as needed to be assured that the transcription was as accurate as possible. Each of the nine transcription documents were then uploaded into the student version of ATLAS.ti 8, which allowed for open coding, list coding, or coding in vivo (coding derived directly from the actual spoken word of the participants) while moving through the transcriptions. Initial coding was completed using both the descriptive coding and in vivo coding styles described in Saldana (2013). Figure 4. (see Appendix D) displays code groups, codes, and definitions. Each transcript was read through and words or short phrases that

represented a key response to the interview question were pulled out. These can be found under the Code portion of Figure 4. These codes went through a second coding cycle and were then defined and grouped by similarity as represented in the Definition and Code Group portions of Figure 4. The group codes represented key elements from the theoretical and conceptual frameworks informing the study as well as general categories of health or health-related knowledge. Items such as *Environment*, *Communication*, and *Resources*, for example, were drawn from Bronfenbrenner's (2005) bioecological model and highlighted the influence a participant's lived environment may have on her experiences and beliefs as she spends time in that area. Codes under the grouping *Competence* reflected concepts within the theory of planned behavior (Ajzen, 2002; as represented by the TPB term perceived behavioral control) and self-determination theory (Deci & Ryan, 2000; as represented by the SDT term competence) that are instrumental in forming and carrying through with intentions. The grouping *Individual* represented the individual participant's beliefs, attitudes, or lifestyle that may play a part in intentions toward preconception health and behaviors.

Second-cycle coding included using code/quotation diagrams. The qualitative data analysis software ATLAS.ti 8 has features that allowed me to connect a code to the quotation it represents and create visual representations of the data so that I could see the data from different perspectives. These concept maps were used to visualize the quotations associated with codes and code groups. Developing Figure 4. allowed me to begin seeing emergent patterns and themes. Afterward, various concept charts with combinations of codes and associated themes were generated which allowed for a deeper

understanding of how the complexities of the lived experience influences intentions and behaviors within the preconception stage of family building. An example of the variety of responses connected to the group code *Environment* included phrases such as "...No, I think we get used to what we have where we live (P9); "When I went to school and stopped all that stuff, and I started looking around, like, I didn't have these extra thighs! (P3)"; "There's not much here, um, I see, well, I'm not sure if they offer any, kinda like, parenting classes…(P6)."

Finally, the interview questions and quotations were grouped below headings that represented each research question. This process tied the data to the study questions and formed the structure from which the meanings and outcomes could be presented in the Results section to follow.

Evidence of Trustworthiness

Credibility

Respondent validation, or member checking, is a trustworthiness technique to ensure that confidence can be placed in the veritas of research findings within qualitative studies and aligns with internal validity in quantitative research (Korstjens & Moser, 2018). Respondent validation was used to assure accuracy of data collected from the participants in the current study. At the end of each interview, the participants were asked a series of questions to determine if any clarifications needed to be made prior to any subsequent interviews. These feedback questions included:

- Were the questions worded in a way that made sense to you?
- Did the questions reflect something that was important to you?

- How did you decide on your answer to the questions?
- When the interview was completed, do you think you were able to give accurate and complete answers to all the questions?
- Was there anything else that could have been asked about the topic?

All respondents indicated that the interview questions made sense to them, that the topic was important to them, and that they gave accurate and complete answers during the interview. Most of the participants stated they decided on the answers to the questions while participating in the interview. One participant had been thinking about the process of family building, was going to school for pre-medical training, and therefore had thought previously about preconception health and the behavior changes required to have a healthy pregnancy. None of the participants had any additional questions to add to the interview process.

During the data analysis process, each participant was invited to read the quotations and themes drawn from the transcription of her interview. Any information that was not translated as the participant intended would be changed to reflect her true intention. No changes were required.

Transferability

Generalization in naturalistic inquiry must be based on the individual study and that transferability is impossible to establish because all individuals are in a state of constant interaction and change within their environment (Lincoln & Guba, 1985, p. 38). Transferability of data from this study is dependent on the context of future studies; however, the rich descriptions provided will help health practitioners, program designers,

and future researchers determine the potential application of this study to their own location and population. This particular study investigated the preconception health beliefs and intentions of women who were overweight or obese. These women resided in an area of North Carolina where there is a lack of active health culture, where fast food is ubiquitous, and consuming greasy foods is a normal way of life. The economy of the area is persistently poor which may contribute to the poor dietary choices leading to overweight and obesity in the greater population as well as adding to the challenge of improving healthy behaviors prior to conception. Similar areas may present similar outcomes as were found in my study, but the reader is tasked with making the connection between this study and his or her own area of interest (Korstjens & Moser, 2018).

Dependability

I analyzed the data using processes outlined in Miles, Huberman, and Saldana, (2014) and the qualitative software ATLAS.ti 8 (https://atlasti.com/product/v8-windows/). Reasonable care was taken during each step of the research process. The research questions were clear and aligned with the study design. My role as a student researcher working on a doctoral study was clearly advertised and addressed with each of the participants in the study as well as with the site directors. The connection of the study to the theoretical and conceptual frameworks have been described and multiple sites were used to collect data as suggested by Miles, Huberman, and Saldana, (2014).

Confirmability

Participants were invited to review their own specific quotations and the themes and descriptions solicited from them during the interviews. This process created a

foundation of reliability between what the participant intended to say and what the researcher interpreted the data to mean.

Reflexivity is a form of objectivity in a qualitative study that requires the researcher to look to one's own conceptual lens, preconceptions and assumptions, as well as personal or societal values he or she may hold true in order to keep the research process and resulting data from falling prey to researcher bias (Korstjens & Moser, 2018). This worldview may permeate the research process from start to finish and must be made transparent for the reader to understand the perspective from which the study is written (Miles, Huberman, & Saldana, 2014). Because of my professional roles as an adjunct instructor, a health coach, and yoga instructor, any judgment that may have surfaced during the interview process regarding what the participants should or should not be doing to prepare for conception or ways they might have changed their health behaviors for the better were kept an open awareness. Open-ended questions were used to understand what each participant believed and intended to do regarding preconception health to assure the questions were not leading in any way. I engaged in reflexivity during the transcription as I moved through the verbatim process to make sure I did not summarize and add my own interpretation at this point in the analysis. Finally, the interpretation of the study results was kept grounded in the data without extrapolating in ways unwarranted by the data (Korstjens & Moser, 2018).

Results

Research Questions:

1. Research Question 1 (RQ1) –What combination of bioecological factors do over-weight or obese women experience when thinking about a future pregnancy?
    - RQ1 subquestion 1: How do individual beliefs and attitudes toward pregnancy affect intentions toward preconception behavior change?
    - RQ1 subquestion 2: How does the individual's own upbringing and social context affect preconception beliefs and intentions?
    - RQ1 subquestion 3: How does the area the individual lives in affect preconception beliefs and intentions?
2. Research Question 2 (RQ2) –What information do OW/OB women receive about preconception health and how do they receive it?
3. Research Question 3 (RQ3) –Where do women turn for trusted information?
4. Research Question 4 (RQ4) –What key personal, social, or societal elements would encourage OW/OB women to make critical changes to their lifestyle during preconception planning?

The following section describes the interview questions and quotations pertaining to the above research questions. The chosen quotations reflect both the general view of the participants as a whole as well as the independent views expressed by each woman as they pertain to her experiences and beliefs.

Bioecological factors when thinking about a future pregnancy:

Many factors were brought out during the conversation about healthy preconception beliefs and pregnancy intentions. Words such as ‘suitable’ and ‘happy, not stressed out’ were used to describe what a healthy preconception would be like. The realization that ‘carrying a baby is hard’ and making sure one was ‘able to move around to take care of a child’ were responses to what participants thought about the importance of being healthy and how their own health would impact their future pregnancy.

P1- “I guess it’s, making sure your body is right. Like… (long pause) so, making sure your body is in good condition to proceed with your pregnancy… just in case something might happen… stress free.”

> P4- To me being healthy would be like not being stressed out, making sure you’re happy, eating some right, healthy foods. The main thing would be to make you’re happy, I mean, not stressed out, doing what you enjoy. I mean, what makes you feel comfortable.
>
> P5- Um, say how important it is? Um, it’s very important, because you wouldn’t want to be unhealthy and have a child or you wouldn’t want to be… like something is going on and you have a child and it might be odds or ends of, you know, the risk of the child being…

Many of the participants spoke about health in a general way and normalized their own weight as something they have lived with for a long time and, that while things could be better, they could also be worse.

> P1- Um… kind of. (kind of?) Yeah. I’d like to lose some weight… I’ve been tired a lot lately.

P2- Um, no it doesn't affect it. It doesn't help it either (laughter). It doesn't, um, some days I have a little bit more energy than others, but, for the most part, I mean, if I want to do it, I can. It's just a matter of mind over matter sometimes, but, (laughter)

P3- Um, I would say, sometimes. Um, definitely not as bad as it could be… but, particularly for me, I'm a very active person. And I've always been lucky, so I've always had really great endurance, so, I can see, I mean, it's not too bad, not too bad, but it could definitely be better… um, especially at my age…

P4- Um, it affects my health by being obese but doing daily activities, no ma'am. I can get around by myself.

P7: No. I just gotta get over it and do it (laughter).

R: Ok. So, when you say just get over it and do it, what do you need to do?

P7: Just staying moving. I gotta keep myself busy. Staying active.

When asked if the individual's current weight affected her health or her ability to do daily activities, one participant (BMI 34) who intended to have another child stated:

P8- Not really. To me I feel normal. I feel my weight is ok. But some… they say I have to lose more weight, but I don't know if that, sometimes I have problems breathing, but to me I still go on (ok) so…I've been like that with all my four kids. To me I don't know why they say I have to lose weight.

Financial stability and feeling competent as a parent were themes that most of the women interviewed spoke about when asked about important thoughts when considering becoming pregnant. A stable home and peaceful environment were also important considerations.

> P2- Um…making sure I have enough money to cover the cost of the baby… my health, the child's health… make sure I was able to support it solely just in case the father was not involved, or, you know, something happened.
>
> P8- Well, to me, it's like, trying to you know, I got my own place. My house, uh, you don't have to think about paying rent or think about paying other stuff that you need to pay, because you've got your own house, your own spot, your own place to build up, you know, if you decide to have a baby and all, to me that's, at least you've got your own spot (right) your own place. Not to worry about if their gonna kick you out of that house, or, you know…
>
> P9- Well, first I think of the baby, to be healthy for the baby to be healthy.
>
> R- So there's that connection between your health and the baby's health.
>
> P9- … and the baby's health, yeah, um, have a house with peace in the house, I mean, I have two girls, teenagers already, and I think communication will make it important too.

Ideas of how things should be when considering becoming pregnant were also described:

> P2- I would like to think I would want to plan it, but, I mean, if I became pregnant it would be something that, you know, you just deal with, I'm… or not deal with, but you know, you accept, and you welcome it with open arms. But I would like to think I would plan it… I would like to be married and all that so... I mean I have my own house, but, yeah, I would like for, the proper ducks in a row, or what I was taught to, as a child, to be in a row.

Concerns about becoming pregnant again after having children before included weight gain and the length of time between pregnancies:

> P6- The gain of weight. (yeah) I gained almost … I went from 185 to 244 with her [second child], I gained 25 pounds with my first child. It's been hard trying to lose this time. I finally got down to 198 and she just turned one.
>
> P9- Being pregnant… my age [P9 is over the age of 30]. Yeah, I mean, like, I'm not at the edge yet… but… Or the time that has been passed since my last… (Your last pregnancy?) Yeah. (Why) 'Cause I heard so many women say that if I wait that long it's gonna be like the beginning again, it's gonna hurt, it's gonna be… I'm gonna be tired all the time of the pregnancy. That's a concern (yeah, ok). It makes me tired, my hands are swollen… I'm gonna be older! (laughter).

Overall, participants were aware of the importance of preconception and prenatal health but only one woman was aware of how one's own health may impact the health of the child.

P3- And it is incredibly important. Your health definitely impacts your child's health. If you're not your best shape, if you're not your best health as a person, it just makes it harder for your child. If your eating habits are not up to par you're already affecting your child before they even come out of you, before they ever make their first couple of steps. So, and even, like, goes down to, even, substance abuse. If you're using or you're drinking while being pregnant, that becomes an utmost problem even more so for your child when it hits finally the earth. So, its little things like that, so I would definitely agree your health as to be at its utmost best...

An individual's upbringing, family food habits, and early introduction to structured activity may play a role in how women think about health and what habits they pass on to the next generation. Many women spoke of home-cooked meals and reflected on how they feel about their present lifestyle away from home.

P2- I mean, like I said, there was a lot of home-cooked meals, a lot of country cooking, stuff, during this time of the year, summer-time, fresh out of the garden, stuff that was put up through the summer, out of the freezer, stuff like that… so, now, it's kinda… it's not depressing, I don't want it to be like I'm sad when I have to cook for myself, but I don't cook a full course meal. I try to eat a little healthy… or eat healthier, so I have some tuna, or I'll have some chicken or something like that.

P3- Ok… um. Growing up we were incredibly active! Um, even down to every one of my… we… I have three other siblings, and my parents, of

> course, and when I say everyone in the household had something. ...but I will say they always made sure we always had our vegetables, we always had fruit in the house – which was, you know, a luxury that a lot of people did not have. And I can say it really did… little things like that, in me being able to be active really changed a lot in my life. Because I was able to make connections that way. I was able to stay active and stay healthy. I felt I was really lucky in that department cause my parents were able to allow us to be active.

The socioecological environment an individual engages with over time both presents challenges and provides resources which may influence decision-making and health behaviors.

> P3- ...but now that I actually went out into the world, like, small things are changing, and it makes me reconsider, like, hey, do I really want to bring a child into this world? And, of course, I mean I've came to the decision, like, I do want to be a mother one day, so, then it comes to play in like, what kind of neighborhood do I want my child to live in? Do I want them to be able to walk to school or do I want them to have to catch the bus? Just small things like that come into play, cause little things like that I've noticed, even when I was younger, I look back to my childhood, made differences in my life.

When asked about the benefits and challenges to living in the city or county, answers ranged from knowledge of many resources for family planning or pregnancy services to perceptions of no benefits other than family:

> P2- Umm, I think with Columbus County and the amount of resources that we have, um, cause you know you have the Plan (sic) of Hope (Living Hope Pregnancy Center), the Health Department actually does a lot, as far as being able to help you plan for things – even when you're pregnant- being able, you know, to have things in place to help you with different things. I know there are a couple of places that are for courses, like, if you go and take so many classes you get x amount of dollars or x amount of gifts that are given to you. I think (garbled) that's a wonderful thing.
>
> R- And can you think of any benefits to living in Whiteville, living in CC [drops head, covers face with hands and shakes head no- none] Is that a no (laughter)? P6- Nothing. Just family.

One participant expressed the potential for there to be programs and resources available to those who may benefit from them, but some women are not willing to reach out to others and learn about the resources.

> P5- Mmm, no, well there might be… if you reach out to somebody I feel like, yeah, there probably is, but if you like me, you don't want to reach out to nobody, you're scared to ask this and ask that cause you want to try and figure it out on your own, go to Google… That's something I did. But it probably… you know we got the health department, so I know we have a lot of resources around here that, you know, help out talking about pregnancy, you know, be able to get into different programs to help you, far

as, providing for the child, make sure you and your baby is doing ok, and you're not at high risk of anything, so I think its…

R- So there's a lot of helpful things out there for people to look (yeah) after.

Information overweight women receive about preconception health and how they receive it:

Some of the participants described encounters with healthcare professionals (HCPs) as general health encounters while others described specific preconception discussions with the HCPs. Sometimes the information was misleading, interpreted incorrectly, or misremembered as coming from an HCP when it may have been heard from another source.

R- …so, if you were to go to your doctor and say I'm thinking about becoming pregnant, or whatever, what kind of advice would they give you?

P5- Um, they would probably ask me if I'm ready. Am I, have I sat down and talked about a plan? Am I in a stable area? Um, do I have a stable job? Um…

R- Have you had discussions with your provider (umhum) like that?

P5- Do I think… is my health ok? Um, I'm not in, you know, an abusive relationship or anything like that. Uh, I'm not around negativity that would cause me distress to lose my child. Um… that's pretty much…

R- Did they talk to you at all about your weight or any medical issues or anything like that?

> P5- Yeah, cause I have asthma and, and at the time, my asthma was kinda cutting up, you know, a little bit so making sure that, you know, ask me questions like, uh, am I scared that it will affect my baby, or, do I feel like, you know, my, uh, …there was something that I can't… I'm trying to think of it… uh, I know there was, uh, one of them, it was about, uh, cause diabetic runs real in my family, high blood pressure and stuff like that, so, uh, they were more concerned about, um, did I feel like, you know, would that affect the baby or would that affect me to have, cause whatever, I stressed about stuff like that, that could still have an impact on the baby, and stuff. So, I didn't want to harm my baby or nothin' like that. That's pretty much it.

This same participant also recalled the following information as received from an HCP and was not aware it was incorrect information.

> P5- Couldn't eat after 12 o'clock. Take that sugar test. That was hard. Um, not lifting your arms up…not doing too much, cause I was always working out, so it was kinda hard not to do some of my workout routines dealing with my arms going up, because they said the umbilical cord could get wrapped around the baby's neck, and stuff like that, so it was kinda hard. They didn't want me to stop exercising but some of the exercises I was doing, they wanted me to kinda slow it down (mhum).

Where women turn for trusted information:

All of the women interviewed stated their main sources for advice about preconception and prenatal information were their close female relatives, some friends, and the occasional HCP.

> P3- Most definitely! My mother for instance. She has always been very open with us about, um, pregnancy, always has been. I mean, of course, she always gives me the good and the bad. I mean, it's an amazing experience but it's not always gonna be the best. You're gonna get sick sometimes… Um, she even told me about giving birth, how it felt for her, um… I was able to talk to my Aunt that's up front – she owns this facility, and, I mean, I was able to have that conversation with her. And I was able to actually able to work here and I got a taste of dealing with the newborns and the toddlers, and different forms of children. And I've been able to have that. And, I mean, even down to, I know people at the health department I can go and talk to about this and I know that they will give me a different insight. So, I was very blessed to have so many different perspectives.

When asked what made friends easy to talk to, one participant expressed the ability to be wholly honest with them.

> P7- Cause they understand, and I can tell them, I mean, I can tell my family member easier too, it's just… it's just a different place when you're talking to your friends cause you can be your actual self and tell them

> exactly what's really going on, but you can also do that with your family too, it just depends on your relationship with them.

When asked if there were important people from whom they would not seek preconception advice many participants quickly mentioned the opposite gender but then amended their response by saying there was value to the experience and opinion of men on the subject.

> P2- Probably some of my male (laughter)… Just the fact that they're male and they don't think like I do... I mean some females don't think like I do either, so… but, you know. For the most part it's mainly because they're a male. But then sometimes, you know, that aspect is what you need too… to kinda understand why it may or may not be for you too, so…

Only one woman (P9) mentioned her husband as a source of advice, "My husband and… I also have my mom, that she gives me some tips (yeah, advice). Yeah, and I have an aunt. (an aunt, yeah). That's it – three people."

The difference in generations and the way sex education is taught and discussed was expressed by one of the participants this way:

> P3- Sex is going to be talked about… people get pregnant, it is what it is. And, I can say, it's getting easier, but for people in older generations, they're still not, like, we don't talk about this… we don't talk about… abstinence. We're doing abstinence, we're doing nothing. We're not talking about, oh, if you're going to have sex, we're doing this, this and this. These are contraceptives, these are this. I mean, this is not a

> conversation that is sometimes held in a lot of households. And I mean, I can say that sometimes I do have difficult times talking to people in older generations about things like this because they are very closed minded, and it nothing against, like, I mean it's just the way they were raised.

Key personal, social, or societal elements encouraging change:

Participants were asked what advice they would give to women who were overweight and wanted to become pregnant and also what advice they would give to HCPs serving overweight women seeking a pregnancy. Advice to other women ranged from taking matters into your own hands to the belief that ultimately the outcome is in the hands of God.

> P9- To try to eat a little bit healthy, (ok) healthy food. Um, ones that I don't do, exercise (laughter) again. Uh, but to be comfortable with her body, with herself, with her health before getting pregnant. Cause if she knows it's gonna be worse, that's not good for her, not good for the baby. Try to be the best that she can before getting pregnant.
>
> P2- In God's timing it will work. Whether it does, you know, correctly or not. The way you want it to or not, you know. I mean there are people who are overweight every day, you know, that have children, healthy children. I'm not saying it does or it doesn't deter, but um, I mean, there are people that are at the correct weight and still can't get pregnant so, I mean, I don't feel like that, I know that sometimes it does determine, you know, high

> risk or not, but I feel like that, you know, when what God wants, God gives, so…

One participant indicated that she would take the advice of an HCP if offered but would not change anything on her own.

> P1- I wouldn't let it stop me. I would just, let's see what the doctor says.
>
> R- So would you seek advice?
>
> P1- Yeah.
>
> R- Or would you just wait and see what the doctor says?
>
> P1- Mm… I would wait to see what the doctor says…
>
> R- And if he doesn't mention anything then…
>
> P1- I would just go on…

There were some inconsistencies with advice to other women and the participant's own behaviors. One participant whose BMI classified her as obese did not think she needed to lose weight but gave advice to other women on losing weight before getting pregnant

> P8- Well, to me, first thing is try to lose weight if you think… as that makes you difficult, you know on life, that you, seeing that's a problem to you, to lose weight, and then drink your vitamins every day, and then, you know, that helps with the baby in you… inside. It helps with all the stuff in you (ok) that's why you should drink vitamins every day (ok).

Advice to HCPs were unanimous, consisting of being encouraging and understanding of each individual's life and struggle and could be summed up with one simple quotation: "Don't give them the 'No'."

> P8- Well, ok, um. Try to understand them, because sometimes you don't… she can't help it or, sometimes when she is down or depressed or stuff like that. Sometimes the weight goes up, it doesn't matter… you know, they should understand the patient first, to me, then you decide what you have to tell them because you never know what's going on with their life. You never know if they have difficults (sic) or if they have problems, or probably they need somebody to talk to (mhum).
>
> P7: I would say, don't give up.
>
> R: Don't give up.
>
> P7: Not, especially if this is something they really want. I feel like they should at least try to find a solution to help that particular person in to becoming pregnant. Or at least try.
>
> R: So, don't just mark them off…
>
> P7: Don't give them the No.

One participant suggested she could not give advice to HCPs because each woman is an individual with different needs and conditions.

> P9- Mmmm. I don't have an answer to that question. Cause on my part they do their job, I think, um, good.

R- Ok. So, they pay attention to you, they listen to you (yes), they give you advice, they tell you why…

P9- They treat me good and I don't know, if it's something else that needs to be… advice to that girl then I don't know. I mean, 'cause I think they're not talking to them the same way they're talking to me (ok). I mean on the other part, that if they know that I'm on, I'm gonna say, on a healthy weight, they're not gonna talk to them on the same way, 'cause they're gonna give different advices that way (ok).

Summary

This study summarized the perspectives, intentions, and beliefs of a group of women living in a rural area in the southeastern United States. This chapter presented the process and results of the data collection and analysis portion of the study. The nine women in this study were asked a series of interview questions relating to the four main research questions.

The first research question was to understand what bioecological factors were relevant to overweight women who were contemplating a future pregnancy. Women were generally aware that preconception health was an important part of a healthy pregnancy with statements such as, “being happy, not stressed out”, “making sure your health is suitable” and “carrying a baby is hard”, but also normalized their own weight with phrases such as “not as bad as it could be” and that “there are people who are overweight every day and…still have healthy children.” Financial security, a stable home, and weight gain were concerns when thinking about having a baby in the future. When asked about how their upbringing influenced their attitudes about nutrition and exercise most of the women spoke about home-cooked meals and an active childhood. One participant spoke about the luxury of having fruits and vegetables growing up and felt lucky that her parents could afford to place her in activities as a child. Environmental concerns were reflected in statements about living in the study area. When planning for the future of a child, the choice of what neighborhood the child will grow up in was summed up by the statement, “But the house your parents are living in could cost you so much.” One woman determined that if the area were not suitable she would “go ahead and move

somewhere else" while another participant spoke of the most challenging part of living in a small town is that "crimes are everywhere" and while she wouldn't want her child exposed to a negative environment "its life, you know." The final question reflecting the bioecological factors of planning a pregnancy was about the benefits of living in the area of interest. A few women knew about the many resources available to those who were in the planning stages of family building and for those who were already pregnant, but many were not aware of the availability of these services.

The second research question aimed to determine what information women received about preconception health and how they received the information. When asked about the kinds of information they received about preconception health, and in some cases health in general, and how they were able to implement the HCP's advice, many women spoke about changes in nutrition and lifestyle. Reducing the amount of junk food and increasing healthy foods, taking prenatal vitamins, exercise, and drinking plenty of water were the top responses. Not all women recalled being given preconception advice and some women were not advised about weight loss at all. Challenges included not understanding how to implement nutritional suggestions and recalling difficulty changing exercise routines because of HCP advice, "Um, not lifting your arms up… so it was kinda hard not to do some of my workout routines dealing with my arms going up, because they said the umbilical cord could get wrapped around the baby's neck, and stuff like that, so it was kinda hard." Two women spoke about changing their schedules to accommodate their health behavior change as well as making room for a new baby. One woman stated, "Yeah, it's very complicated. You have to plan out your days, and do different things,

and stuff like that." Another was concerned about pulling back from her volunteer efforts with others, "Umm… pretty much time management cause I stay so busy. I would have to give up a lot of things I do now as far as like, even volunteer things that I do… I would have to slow down a lot of things."

When asked where they turn for advice on preconception planning or prenatal concerns all of the women turned to mothers, sisters, and grandmothers. Most also turned to friends citing that, "it's just a different place when you're talking to your friends 'cause you can be your actual self and tell them exactly what's really going on." Many mentioned not feeling as comfortable talking with male family members or friends but conceded that "for the most part it's mainly because they're a male. But then sometimes, you know, that aspect is what you need too."

The final research question aimed to understand the key elements that would encourage overweight women to make critical lifestyle changes during the preconception planning stage. This was achieved by asking women to give advice to other women who were thinking about a future pregnancy as well as advice to HCPs who serve overweight women in the reproductive phase of life. Responses ranged from the process being in the control of a higher power regardless of what an individual plans or does, "I know that sometimes it [weight] does determine, you know, high risk or not, but I feel like that, you know, when what God wants, God gives, so…" to being comfortable with one's own health and deciding what it is that the individual wants, "I mean, you should love yourself first, and accept who you are first, then if there's something, you know, you feel like… you should move forward to, then I would move forward." Advice to HCPs were

unanimous, “I would say be encouraging to them. Don’t try to discourage them” and “Try to understand them, because sometimes you don’t… she can’t help it or, sometimes when she is down or depressed or stuff like that. Sometimes the weight goes up, it doesn’t matter….” This advice to HCPs could be summed up simply by the statement of one woman, “Don't give them the no.”

In Chapter 5 I will present an interpretation of the study results and relate them to the existing literature. Theoretical and conceptual frameworks used as the foundations for this study will be discussed. The strengths and limitations of the study will be reviewed and recommendations for future research delineated. The chapter will close with the potential impact of this study for positive social change at various levels.

Chapter 5: Discussion

Introduction

The ways in which women described a healthy preconception and their socioecological experiences, including the challenges and benefits leading to the development of those views throughout their lifecourse, provided important insights for shaping preconception programs for women who are overweight prior to conception. In this chapter I will discuss the interpretation of the findings, limitations of the study, recommendations for further research, and study implications.

The transition from receiving preconception health information to recommended behavior change is a significant challenge particularly for those women who are overweight or obese and living in an economically challenged environment (Heslehurst et al., 2013). My choice to use qualitative phenomenology came from the desire to understand this complex problem from the perspectives of those women who were at higher risk of reproductive complications due to overweight or obesity. The preconception stage of family building is a critical point for health behavior change (CDC, n.d.; Hanson et al., 2017) and it is from this point the perspectives, beliefs, and experiences of these women were solicited. I used Bronfenbrenner's bioecological model to frame the study.

Summary of Key Findings

The current state of health for most of the women was seen as non-problematic, although most participants stated they did want to lose some weight. The simplest and easiest recommendation to adopt was taking a multivitamin. The biggest challenge

mentioned by most of the participants was incorporating their intended behaviors into their current lifestyle. Financial stability was the top concern when thinking about a future pregnancy. All of the participants sought preconception or prenatal advice from close family and friends; mothers and sisters were always mentioned.

The women's experiences varied when discussing their visits to healthcare practitioners. Some participants were frustrated because they did not see the same practitioner at each visit. Few said they had received unsolicited advice on preconception health or weight loss. The main advice to healthcare practitioners was the importance of building trust with their patients and not to be discouraging. The main advice to other overweight women about preconception health was once again general and a little vague. Being happy and stress-free were important as were exercising and eating better. The idea that a woman has to be comfortable with her own health and accept herself before deciding on making changes was voiced by a few. Several women spoke about the uncertainty of setting intentions, citing the intervention of a higher power or fate by saying, "in God's timing, it will work."

Interpretation of the Findings

In this section I will present the interpretation of findings, first as they relate to the research questions and then within the context of the theoretical and conceptual frameworks used to guide my study.

Research Question 1

Key bioecological factors affecting intention-behavior relationships included beliefs and attitudes toward health and preconception planning, upbringing and social

context, and ecological influences of the area in which the participants lived were investigated. The very general view of preconception health was clearly represented by all of the participants regardless of sociodemographic factors or preconception intentions. Similar results were described by Sui, Turnbull, and Dodd (2012). Many women remarked that they did have health issues such as diabetes, asthma, or cardiovascular problems but did not feel that these would have bearing on the health of a future pregnancy other than to cause some anxiety during pregnancy. This finding is similar to Chuang et al. (2010) and seems to have some relationship to social norms and previous experiences.

The social context within which the participants were raised seemed to influence how they provided meals and activities to their own children currently. While they seemed nostalgic talking about how things were when they were children it also brought out the complexity of living away from home. Those participants who grew up in a household where meals were provided and prepared at home and where exercise (sports, dance, etc.) was encouraged had more practice preparing meals at home and thought exercise was important to be healthy. Those who experienced home-cooked meals but were not strongly encouraged to exercise felt that both were important, but that nutrition was more important than exercise for keeping weight stable. Some women who felt that nutrition and exercise were important things to consider before becoming pregnant also stated that their current lifestyle led them to eat more fast food than they did when they were growing up because it was more economical and easier than cooking for themselves alone.

Financial stability was a priority for many of the women interviewed as was stability in the home. This was more important to some than having a partner with whom to raise a child. A majority of the participants felt they were not ideally prepared for pregnancy and therefore were not actively planning a pregnancy, however, they still wanted to become pregnant in the future. P2 stated, “I mean, I have my own house, but, yeah, I would like for the proper ducks in a row, or what I was taught to, as a child, to be in a row.” This perspective has been found in other research (Borrero et al., 2015; Tuomainen, et al., 2013; Van der Zee et al., 2013) and suggests that preconception information and activities are not considered relevant to the individual’s current situation.

Ecological influencers when thinking about a future pregnancy included factors related to safety and the ability to give the child everything it may need to be successful growing up. Crime in the area led more participants to want to live in the country to raise children rather than in town. Appropriate childcare and social interactions for the child were viewed as less than ideal in the area from which the sample was drawn and a lack of activities (i.e., movies, bowling, non-sport activities) available were generally acknowledged. Many women were not aware that there were many preconception and prenatal education programs available in the area. This may be because they were not actively seeking the information or because the programs are not widely advertised.

Research Question 2

Key preconception health information reported by the participants that was readily accepted included taking multivitamins on a regular basis, which paralleled findings by (Bödecs, Horvath, Szilágyi, Nemeth, & Sandor, 2011), and developing a

healthier lifestyle. Lifestyle change was challenging to most of the women in this study, because they were unsure of how best to work the suggestions into their daily routines and struggled with the details of portioning the macronutrients (fats, proteins, and carbohydrates) or adding exercise in a way appropriate for them. Difficulties were mainly described in terms of life transitions. Going away to university, taking care of children, and working one or more jobs were determinants of how challenging the behavior changes were perceived. One participant (P3) described fitting a workout into her schedule after long days at university and homework in the evening saying "…it's just not in the puzzle for that day. It's just not!"

Many of the participants did not receive specific preconception information because they were not actively planning a pregnancy at the time of the interviews. This was also seen in findings by Chuang, Velott, and Weisman (2010). Some of the women stated they did not receive information about their weight when visiting a healthcare practitioner and a few did not visit a healthcare provider regularly. This was also found in the work of Barrett et al. (2015) and Inskip et al. (2009), where prenatal advice is more commonly provided than is preconception advice.

Research Question 3

Key advice seeking included family and friends, healthcare providers, and significant others within the community. All of the women interviewed sought their main advice from family and friends, citing ease of communication and trust as important contributors to advice seeking. P7 described talking with friends as a different place, that "you can be your actual self and tell them exactly what's really going on." Many women

were disheartened by the way their healthcare practitioner gave or did not give information to them. Some were frustrated because they did not see the same practitioner at each visit.

Research Question 4

Key elements encouraging change included advice to women who may want to have a child in the future as well as advice to healthcare practitioners who serve overweight or obese women in the reproductive stage of life. Advice to women challenged by their weight included the perpetuation of ideas that despite best intentions, outcomes result from fate or a higher power: "In God's timing it will work." and that women should be comfortable with their own health and accept themselves first before deciding on making changes, and eating better and exercising were important if the woman thought she needed to in order not to make matters worse when she did become pregnant. Advice to healthcare practitioners offered by all participants focused on listening, understanding, and being encouraging to women who were challenged by their weight and not "giving them the 'No'."

Theoretical and Conceptual Frameworks

Self-determination theory (Deci & Ryan, 2008) describes autonomy, competence, and relatedness as the key interrelated factors in the success or thwarting of goal pursuits. Autonomy, or the freedom from external control, was represented in this study by statements such as "if I want to do it, I can" or, "I don't know why they say I have to lose weight." Threats to autonomy are often met with defensive responses and controlled motivations are often short lived and are not integrated into the individual's personal

belief system (Pavey & Sparks, 2008). When asked to give advice to an overweight woman who wanted to have a baby in the future, one participant (P5) advised about behavior change, “Don’t do it ‘cause somebody else do it. Do it ‘cause you want to do it.” Themes of competence were reflected in the desire to have a stable income and a secure home in which to raise a child, to be able to care for and keep up with a baby physically and emotionally, and the ability to provide for the physical and intellectual needs of the child as it grows. A few participants in the study spoke about seeing various practitioners when they went for health checkups and never seeing the same person twice. This experience left them wanting more personal interactions within the healthcare system. This fits the psychological need for relatedness described in self-determination theory.

Elements of the theory of planned behavior (TPB) (Ajzen, 2002) were used to explain how an individual’s beliefs and affective evaluation formed their preconception attitudes, intentions, and behaviors. Attitudes toward preconception planning and health behaviors formulated over the lifecourse seemed to form the basis of intention building and follow-through in this study. Preconception intentions are by definition something that is projected into the future and the future is uncertain and nebulous. This uncertainty may lead some women to place the outcomes of individual behaviors at the will of a higher power which may reduce the anxiety that may be ubiquitous when thinking about having children. Affective influences may be a significant determinant of perceptions of self-efficacy in making behavior changes (Vasiljevic, Ng, Griffin, Sutton, & Marteau, 2016).

Social norms may add to the development of particular attitudes and perpetuate to others though communication of beliefs and ideals when asking or giving advice. Much of the mindset from the women who participated in this study seemed to reflect a laissez faire attitude toward preconception health behaviors and pregnancy outcomes. It is this attitude of letting things take their own course that may make the promotion of healthy changes during preconception a challenge for healthcare practitioners. P2 stated,

> In God's timing it will work. Whether it does, you know, correctly or not. The way you want it to or not, you know. I mean there are people who are overweight every day, you know, that have children, healthy children. I'm not saying it does or it doesn't deter, but um, I mean, there are people that are at the correct weight and still can't get pregnant so, I mean, I don't feel like that, I know that sometimes it does determine, you know, high risk or not, but I feel like that, you know, when what God wants, God gives, so…

This quote seemed to summarize the overall attitude from the participants who expressed a hopeful view, rather than resigned fatalism, yet put the forth the belief that the outcomes of becoming pregnant and the pregnancy itself were outside a person's direct control. This type of attitude has been explored in other studies (Barrett et al., 2015; Chuang, Velott, & Weisman, 2010; Fulford, Macklon, & Boivin, 2014) in which socio-environmental norms contribute to the attitudes and belief systems of women.

The bioecological model (Bronfenbrenner, 1977, 2005) describes the complex interactions between an individual and her environment (i.e., proximal processes) that result in behavioral choices and the ways in which those choices are determined

throughout the lifecourse (Bronfenbrenner, 2005). This interconnected network of interactions and experiences creates a unique perspective from which individuals make decisions and create their world. The proximal processes may change dramatically over the lifecourse and invite opportunities to revise one's beliefs and behaviors accordingly (Bronfenbrenner & Ceci, 1994). This bioecological model is an important perspective from which to view preconception health and behavior change because of the interdependent nature of person and place. One of the challenges when developing a study based on a complex model of interaction like the bioecological model is that the investigation must be clear about the influences and specifics of the behaviors and influences in question (Sallis, Owen & Fisher, 2008). To my knowledge, this is the first application of Bronfenbrenner's bioecological model to preconception health and behavior.

The research questions investigated the bioecological factors present in the participants' lives as they moved toward motherhood, either for the first time or again after one or more children. The process-person-context-time method of investigation aimed to discover what behaviors, experiences, and influences throughout each of the participant's lives led her to the beliefs and attitudes she held at the time of the interview. Major themes developed from the interview transcripts suggested that personal meanings of a healthy preconception, family building intentions, and interpretation of risks were influenced by social norms, perceptions of socio-environmental support, and past experience with pregnancy. This is similar to the findings presented by Vrazel, Saunders,

and Wilcox, (2008) on the influence of the social environment on women's physical activity behaviors.

A complex web of influences emerged that were both similar among and unique to the individuals who participated in the study. Biological factors (age, experiences, personality, and current life stage), together with close social interactions (family and friends) within the individual's socio-environmental networks (i.e., neighborhood, work, school) connected with the soft infrastructure of an area (i.e., specialized services of education, healthcare, and financial systems) coalesced across the lifespan. Together these created the beliefs, experiences, and attitudes individuals held toward preconception health and healthcare behaviors as well as the utilization of health and social programs.

Socioeconomically speaking, the more educated the woman was the more she understood the importance of preconception health, yet the intention to lose weight and develop better eating habits now in preparation for future family building was not stronger than in those women who were less well educated in preconception health. Themes of area-level and individual level socioeconomic challenges included concerns about crime in the area, health culture among the community population, and lack of knowledge about programs available to them in the area. P3 expressed her internal conflict toward motherhood by explaining "now that I actually went out into the world (away to college) small things are changing and it makes me reconsider, like, hey, do I really want to bring a child into this world?" She went on to say that she does want to be a mother in the future and now must decide "…what kind of neighborhood do I want my child to live in?" Another participant (P5) expressed a similar view by saying, "I'm

guessing you just gotta… go out and seek and find things and get to know better about things around to actually feel like its ok for your child to be in that environment…." Health culture was summed up by P2,

> But, I mean, we're from the South. We bread a lot of things. You know, typically your meal starts out with the protein or the meat, and then you build it with the carb, then you might add a vegetable in or a fruit in, so I mean, you know, that's just how it was." General knowledge about preconception programs, or even prenatal programs available in the area, was minimal and expressed in this way: "There's not much here, um, I see, well, I'm not sure if they offer any, kinda like, parenting classes, or something like that… but you don't hear them talk about it much. It's not advertised or anything like that. I don't know.

These ecological challenges have been shown to influence self-efficacy as reflected in the work of Carlton and Simmons (2011) and Schuz (2017).

Themes related to communication showed how social influences such as family and friends, social groups, and interactions with health care professionals shape an individual's beliefs, attitudes, and intentions toward a specific goal or behaviors. The women in this study utilized family and friends as the main source of knowledge and advice when seeking information about preconception health and behavior. One participant (P5) put it this way:

> So, it was just one of those days where, when I found out I was pregnant I would just cry, cry, cry. I didn't know who to go to, and she come into the

> room and said – I already knew – and she just, from that day forward I just started talking with my sister.

Another woman (P7) spoke about the freedom of talking with friends: "…it's just a different place when you're talking to your friends cause you can be your actual self and tell them exactly what's really going on…." Some participants were able to communicate effectively with their healthcare provider to achieve their goals. P2 stated,

> I went to my doctor and talked to her about it and she actually advised me that for the insurance that I have, it would be cheaper for me to go to the health department and apply for the birth control… And I actually got a letter in the mail stating that, you know, I was approved, and that I didn't have to pay anything. So, I felt like me and my doctor were on the same…. same plan as far as me not getting pregnant and her wanting it to be, you know, more cost efficient for me.

One woman (P8) was unsure why her healthcare provider was insistent about her weight loss before her next pregnancy: "I've been like that with all my four kids… to me I don't know why they say I have to lose weight."

Non-Conscious Processes: Non-conscious, or implicit processes are important factors to incorporate into any study of the behavior-intention gap. Non-conscious processes are those processes that operate below the level of conscious awareness, are described as automatic, and may significantly affect the ability to self-regulate which is an important factor in an individual's ability to move forward with goal-directed behavior such as preparatory behaviors and overcoming obstacles (St. Quinton & Brunton, 2017).

One of the women (P6) expressed the challenge of losing weight by saying, “Cause you can cut back the eating, but then you feel like your starving… you exercise but it still don’t seem like it’s going nowhere. And then when you try and put on clothes, that just make it even worse (laughter).” Environmental cues trigger affective associations formed by previous experiences which have been found to be predictive of short-term behavioral choices (2017). P4 spoke of her intentions to walk and go to the gym:

> I walk… if I was to go walking, I would feel comfortable walking, either downtown Main Street, or in the country near my mom’s house, but in the country you have animals that are out… big dogs and stuff. I’m scared of dogs. Other people’s dogs, so um, and now, I was going to the gym, but I ended up quitting, though I intend to go back. I have intensions on all that.

An important facet of non-conscious processes is the tendency for implicit attitudes to override reflective processes and become a default behavior guide when individuals are mentally or emotionally stressed (St. Quinton & Brunton, 2017). These are critical influencers in both the theory of planned behavior (Ajzen, 2002) and self-determination theory (Deci & Ryan, 2000). The emotional nature of preconception planning and pregnancy may be a large determinant of the intention-behavior gap (Sheeran & Webb, 2016). Hollands, Marteau, and Fletcher (2016) submit that many socially patterned behaviors, including the over-consumption of alcohol, tobacco, and food as well as sedentary tendencies, are more common in those who live in areas of social deprivation. P2 stated,

> Sometimes it kinda outweighs, versus cooking for myself, it's just as cheap for me to go out and get something to eat really quick like through the drive through, or even if it is, you know, a kinda healthy, you know, Subway, or something like that, sometimes is just as cheap for me to go and get… especially for me, myself…

One woman (P3) spoke about the convenience food options saying, "Um, most definitely, we could shy away from having anymore fast food restaurants here… ever. Ever, ever. We could try to find healthier options to bring into CC. I mean, I can say that when I'm in Greenville, I do have that option." These patterns and are very challenging to change, especially for the long-term. Due to the complex interactions of reflective and implicit processes, it is also very difficult to determine cause and effect (Hollands, Marteau, & Fletcher, 2016). Participants in the study used phrases such as "it just depends", and emotionally charged statements such as being happy, stress-free, be comfortable with your health, and advice-seeking determinants such as trust and faith may represent implicit processes that influence the intention-behavior gap.

The study's findings suggest that the preconception stage of life in general prompts women to seek advice and pay attention to health soon after conception rather than before. P4 spoke about her health issues:

> I have a touch of sugar so that would be something I have to watch whenever I was to… if I'm, you know, my health, I know I have that and I have high cholesterol so that's some stuff that I would have to be worried about my health whenever it's time for me to have my baby so it won't

> carry down… I'll know what my medical issues, how far they are so that I'll know that I have a touch of sugar that if I was to become pregnant that would be a health issue for me to make sure that I won't have to, you know, I would have to check my sugar every day or however that is.

Intentions to conceive and/or plan a pregnancy were expressed less frequently among the study participants and, therefore, preconception education was not sought. One woman (P2) expressed her thoughts on preconception planning as:

> I would like to think I would want to plan it, but, I mean, if I became pregnant it would be something that, you know, you just deal with, I'm… or not deal with, but you know, you accept, and you welcome it with open arms. But I would like to think I would plan it.

P5 spoke about not seeking preconception or prenatal advice from others:

> Mmm, no, well there might be… if you reach out to somebody I feel like, yeah, there probably is, but if you like me, you don't want to reach out to nobody, you're scared to ask this and ask that cause you want to try and figure it out on your own, go to Google… That's something I did. But it probably… you know we got the health department, so I know we have a lot of resources around here that, you know, help out talking about pregnancy, you know, be able to get into different programs to help you, far as, providing for the child, make sure you and your baby is doing ok, and you're not at high risk of anything…

When advice was given by healthcare professionals it was received in a general way and was sometimes incorrect or misinterpreted. P5 stated,

> Couldn't eat after 12 o'clock. Take that sugar test. That was hard. Um, not lifting your arms up…not doing too much, cause I was always working out, so it was kinda hard not to do some of my workout routines dealing with my arms going up, because they said the umbilical cord could get wrapped around the baby's neck, and stuff like that, so it was kinda hard.

Those participants who already had one or more children felt they had experience and knew what they should do. P8 explained,

> For me it's like, I learned 'cause I have my own kids - that's how I'm learning… Yes, I learned this as experience because I… how you say it… I had my baby, my first child, I have it, since I was 19 years old… So, to me, I think more – why I didn't do this, why I didn't do that…

Specifically, in this group of participants, the laissez faire attitude seems to be influenced by the ubiquitous nature of overweight and obesity in the county population and belief that conception and pregnancy outcomes are outside of an individual's complete control. P4 stated, "… well, um, my belief is if the good Lord wants you to have a happy healthy baby, He will. If He sees unfit then, you know, other things… that's just my belief." The lack of preconception information presented within the community was expressed by P3 this way:

> …the patient to physician relationship has to be…. It has to be everything… another thing that has to come in, is doctors need to become more aware of

making sure all of their patients know the resources available in Columbus County. If they don't know about it (laughter) how are they supposed to go get them?

Limitations of the Study

Credibility

Korstjens and Moser (2018) discussed the credibility, or truth-value, of qualitative research as a way of ensuring that the information collected for the study comes from the participants' original data and has been interpreted correctly. Suggested strategies for ensuring credibility include prolonged engagement, persistent observation, triangulation, and member checking.

Prolonged engagement was accomplished by visiting the data collection sites and interacting with the participants on more than one occasion, engaging in the semistructured interviews for longer than 30 minutes with each participant, and asking several questions pertaining to each of the research questions. Persistent observation was achieved as I interacted with each participant's data, reading, rereading, coding, analyzing, and forming themes until the data were fully assessed and understood. Triangulation was achieved by using various sampling strategies to gain participants and gathering data from different locations and at different times. Member checking was utilized to assure the data from each individual were transcribed and interpreted as the participants intended their voices to be heard. Each individual was given a copy of her transcript and shown the codes and themes gleaned from each question. I asked each

participant to comment on their own answers and if I had captured what they meant to say.

The original design of the study was to interview women who intended to become pregnant in the near future and who had received preconception information from one or more healthcare practitioners. The reality within the geographic area of interest is that few women plan their pregnancies, rather they make decisions on the acceptability of the pregnancy after the fact. Many of the perspectives from the participants in this study stemmed from past personal experience or family-building intention for an unknown time in the future. Therefore, the information received from this group of participants may be different from responses gained from women who would have been actively planning a pregnancy.

Transferability

This study was qualitative where a large volume of complex data was transcribed, processed, and analyzed. The participants' beliefs and opinions were unique to these individuals and, therefore, the outcomes of this study cannot be generalized to the larger population; however, the information gleaned from the participants has important bearing on how to improve preconception programs for future mothers (Korstjens & Moser, 2018). Through the use of a thick, rich description of the research process, the reader can assess whether the results are applicable to his or her own setting and whether replication using another participant group is possible (Korstjens & Moser, 2018).

Dependability

Dependability is shown through consistency and the use of accepted standards as they relate to design and analysis (Korstjens & Moser, 2018). The use of a qualitative software analysis program (ATLAS.ti 8) allowed me to organize the large quantity of data in a systematic way. The program also allowed me to view the data from a variety of perspectives including transcripts, various tree lists, code associations, and word clouds in order to better understand the associations between the codes and themes in relationship to the research questions.

Confirmability

Confirmability allows the researcher to maintain neutrality when working with the data (Korstjens & Moser, 2018). The use of participant review added to the confirmability of this study because the women were invited to read their own transcripts and view the themes drawn from their interviews. This allowed for any clarification the women wanted to make about their attitudes and beliefs and kept any of my own personal biases in check during the interpretation of the results. Use of an audit trail ensures both dependability and confirmability. An audit trail was achieved by participating in reviews with the dissertation committee members and using reflexive research notes describing the process, challenges, and decisions made along the way. Direct quotations from the participants were used throughout to ensure the results remained grounded in the data.

Recommendations

Creating a more tailored investigation using Bronfenbrenner's bioecological model and delving more deeply into the non-conscious and affective elements that co-create the laissez faire attitude to preconception planning and health behaviors in

overweight and obese women is an important continuation of this study. Future research in this area is warranted in order to understand which proximal processes are key to developing a stronger intention-behavior bond between information about preconception health knowledge and intended behavior change. It is important to note that in other studies the idea of adopting recommended healthy preconception behaviors is complicated by the "right" time to begin the planning process which may contribute to the perspective that preconception healthcare behaviors are important for *other* women to do, but generally does not apply to the participants own situation or lifestyle (Borrero et al., 2015; Chuang et al., 2010; Tuomainen, Cross-Bardell, Bhoday, Qureshi, & Kai, 2013; Van der Zee, De Beaufort, Steegers, & Denktas, 2012). The laissez faire attitude may be countered by changing preconception terminology from "planning" to being ready for anything (Borrero et al., 2015). Understanding what separates the participant's lived experiences from those of *other* women can provide key information for creating more compelling educational information or programs and for closing the intention-behavior gap.

Encouraging the sharing of good health habits from mother to child, educating children (boys and girls) to think about being healthy for their own future as well as for their future family, and finding ways for healthcare practitioners to create a united front in addressing preconception care for everyone in a way that respects the reality of the individual being seen may begin to foster a culture of preconception health throughout the lifecourse. This fits squarely within the recommendations for the prevention of maternal obesity suggested by Hanson et al. (2017).

Implications

Positive social change can arise from understanding the behavior change intentions of women who plan to become pregnant sometime in the future but do not necessarily engage in preconception planning, per se. The findings from my study may shed light on the complex challenges that create the intention-behavior gap and inform future program design, primary care protocols, and educational materials aimed toward improving preconception health in overweight or obese women. This study contributes to the growing body of knowledge on preconception intentions, attitudes, and beliefs and the environmental influences throughout the lifecourse leading women to these ways of thinking. The cultivation of a new culture of health at the preconception stage of life may reap benefits for future generations and begin to reduce obesity's negative health outcomes for mother and child as well as the socioecological community.

This new culture would begin the health education shift toward a grassroots lifecourse movement rather than from a crisis perspective. An open view may help foster better communication between healthcare practitioners and their patients by allowing the patients to express their struggles and desires without being thwarted by blanket health statements or frightening medical facts. Previous studies have suggested the incorporation of a health coaching option in addition to the usual healthcare format so the information from practitioner to patient can be individualized and made more personal and achievable (Hanson et al., 2017).

One of the strengths of this study is the complex view through the lens of Bronfenbrenner's bioecological model. This is the first study to incorporate

Bronfenbrenner's bioecological model to the investigation of preconception intentions, behaviors, and attitudes of overweight women. The use of several theories and concepts helped to present the investigation from a complex, real life perspective and embraced the nonconscious elements affecting attitudes and beliefs leading to intentions.

The biggest implication for local social change that may develop from the completion this study as it is disseminated to the community is the opportunity for conversation on the topic of preconception health and behavior across a broad segment of the population. These conversations may bring the importance of individual health, preconception planning, and community health education to the forefront as ways to improve the health of the next generation and thereby the bioecological health of the community.

Recommendations for healthcare practice include the suggestions to healthcare practitioners' responses from this study's participants: Understand that individuals live complex lives and that recommendations should be clear and invite questions, and that women do not want to hear the 'no' from their healthcare providers as this leads to reducing communication rather than fostering it. Speaking to the individual rather than generalizing may help with integration of information.

Conclusion

The findings from this study support the literature that an individual's lived experiences and engagement within her complex socio-environmental community creates the foundation for intentions and behaviors over the lifecourse (Heslehurst et al., 2013). Increasing the proportion of women who receive preconception care and who practice

key recommended behaviors would go a long way toward meeting the goals of Healthy People 2020 (healthypeople.gov); to that end, it is important to consider the individual's beliefs, attitudes, and environment when designing preconception programs (Hanson et al., 2017; Steel et al., 2015). Information alone does not improve the intention-behavior gap in most people; more emphasis should be placed on the influence of non-conscious processes on intentions within the bioecological framework. Aligning with Bronfenbrenner's view, complex lives require complex study to fully understand how to motivate and support behavior change at the individual level.

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Appendix A: Interview Guide

Q. What does a healthy preconception mean to you?

How did you come to think this way?

Q. What are some important thoughts that come to mind when considering becoming pregnant?

Please describe what makes these things important for you?

Q. How important is your own health in the process of becoming pregnant and having a healthy baby?

Q. How has your upbringing affected the way you think about what being healthy means? (i.e., thinking back to when you were growing up, what do you remember about the importance of food or exercise in your family's lifestyle?)

Q. What are some of the things that concern you most about becoming/being pregnant?

Can you tell me more about…?

Do you think other women have these same concerns?

Q. What are some of the things your health care provider has advised that you were able to follow or incorporate into your life?

How difficult/easy was/is this to achieve?

Q. What are some of the things your health care provider has advised that you struggle to follow or choose not to follow?

Why is it important to you to follow/not follow this advice?

Q. Do you have important people in your life you can talk to about your questions or decisions about becoming pregnant or the pregnancy process?

What is their relationship to you (no names necessary)?

What qualities make these people easy to talk to about your thoughts or concerns about conception or pregnancy?

Q. Are there important people in your life you would not seek this kind of advice from?

What qualities make these people challenging to talk to about your thoughts or concerns about conception or pregnancy?

Q. Describe some of the potential challenges of living in CC / Whiteville and planning for a baby.

What are some of the benefits?

Q. Does your weight affect your health or your ability to do your daily activities?

[*If yes*] please describe how your weight challenges you.

Q. What advice would you give to women who are challenged by their weight and who want to have children in the future?

Q. What advice would you give to health care practitioners who council/care for women who may be challenged in their pregnancy because of their weight?

Q. Is there anything else you wish to say about your feelings or beliefs about becoming pregnant or having a healthy baby?

Closing remarks:

I will transcribe this conversation word-for-word and when I collect the themes and meanings from the data, I would like to send you your results so that you can review them and tell me if I interpreted your information correctly. Would you be willing to review the information and give me feedback? **Thank you for the privilege of your time.**

Participant feedback:

- Were the questions worded in a way that made sense to you?
- Did the questions reflect something that was important to you?
- How did you decide on your answer to the questions?

- When the interview was completed, do you think you were able to give accurate and complete answers to all the questions?
- Was there anything else that could have been asked about the topic?

Appendix B: Research Study Flyer/Poster

Meanings of Preconception Health to Overweight Women Living in an Economically Depressed County

VOLUNTEERS NEEDED FOR A RESEARCH PROJECT!

WHAT DOES IT MEAN TO PREPARE FOR A HEALTHY PREGNANCY?

INFORMATION ABOUT THE PROJECT

Researcher: Valeria Balogh, PhD Candidate

I am working on completing my final research project so that I may receive my PhD.

This project is about discovering how overweight, adult women 18 and older who live in Columbus County plan for a pregnancy, and what they believe is important to do to have a healthy pregnancy.

This information will represent the pre-pregnancy experiences women have in their own words so that other researchers can understand the information I collect on a holistic level.

This information could help those who develop health programs for women interested in family planning.

WHAT DOES PREPARING FOR A HEALTHY PREGNANCY MEAN TO YOU?

If you are planning a pregnancy and would be willing to talk privately with me, answering some questions about how you are planning your pregnancy and telling your story, I would love to hear from you.

If you are willing to participate in this research project and would like detailed information about the study, please contact me at: (910) 234-0613. You may also contact me by email at: valeria.balogh@waldenu.edu

HOW YOU CAN HELP

***Call the number at the bottom of the flyer and answer a few questions to see if you qualify for the study.**

***If you participate in the study, you will receive a $10 Walmart or Visa gift card as a thank you gift.**

***All information collected will be completely confidential and your participation is completely voluntary. You are free to leave the study at any time.**

Contact number: 910.234.0613 Email address: valeria.balogh@waldenu.edu

Appendix C: Demographic Questionnaire

1. Which category below includes your age?
    a. 17 or younger
    b. 18-20
    c. 21-29
    d. 30-39
2. What is the highest level of school you have completed or the highest degree you have received?
    a. Less than high school degree
    b. High school or equivalent
    c. Some college but no degree
    d. Associate degree
    e. Bachelor's degree
    f. Graduate degree
3. Which of the following best describes your employment status?
    a. Employed, working 40 or more hours per week
    b. Employed, working 1-39 hours per week
    c. Not employed, looking for work
    d. Not employed, NOT looking for work
    e. Retired
    f. Disabled, not able to work

4. How much total combined money did all members of your HOUSEHOLD earn last year?
    a. $0 - $9,999
    b. $10,000- $24,000
    c. $25,000-$49,999
    d. $50,000 - $74,999
    e. $75,000 - $99,999
    f. $100,000 or above
    g. Prefer not to answer
5. Are you White, Black or African-American, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, or some other race?
    a. White
    b. Black or African-American
    c. American Indian or Alaskan Native

        If yes, what tribe? _____
    d. Asian
    e. Native Hawaiian or other Pacific Islander
    f. From multiple races
    g. Some other race (please specify) _____
6. Are you Mexican, Mexican-American, Chicano, Puerto Rican, Cuban-American, or some other Spanish, Hispanic, or Latin group?
    a. I am not Spanish, Hispanic, or Latino

b. Mexican

c. Mexican-American

d. Chicano

e. Puerto Rican

f. Cuban

g. Cuban-American

h. Some other Spanish, Hispanic, or Latino group

i. From multiple Spanish, Hispanic, or Latino groups

7. Do you reside in Columbus County?

    a. Yes

    b. No

8. Please enter your height _____

9. Please enter your current weight _____

10. Are you thinking about or planning to have a baby in the future?

    a. Yes

    b. No

    c. Maybe

Appendix D: Code Report

Figure 1. Code Report: All (42) Codes			
Code Group	**Code**	**Definition**	
○ **COMMUNICATION**: includes all forms of personal interactions. These can include interactions with HCPs, social groups, family, etc.	● **Advice-seeking**	This is an action by the individual to gain information about questions or concerns related to preconception health or general health. This information could be sought from family and friends, healthcare practitioners, through the internet, etc. Also includes those important people from whom advice is not sought.	
	● **HCP advice**	Healthcare provider (HCP) advice is information the	

		individual has received from her HCP regarding her health or what she should consider before conceiving.	
	○ **Trust**	Important element in seeking advice	
○ **COMPETENCE:** includes feelings or beliefs the individual can or cannot accomplish the task ahead.	● **Birth control**	Currently using birth control method.	
	● **Experience**	The code Experience means that the individual bases her intentions/behaviors on what she has learned through trial-and-error over time.	

	○ **Faith**	Faith code describes comments related to a belief that a higher power is in control of events or outcomes.	
	● **Financial**	Financial is a code that represents an individual's statement about money.	
	● **Stability-financial**	Financial stability includes a steady job, regular income, stable home, and similar security items.	
○ **ENVIRONMENT:** This group refers to the area the individual lives in. This includes neighborhoods, communities, city, and county, as well as built	● **Negative healthcare exp.**	Personal challenges with navigating the healthcare system, or negative experiences/interactions with HCPs. This code may also include experiences	

social environs such as parks, community centers, access to healthcare and childcare facilities, and the availability of supportive health and child related programs. The impressions that these areas give, such as safety, convenience, and inclusion are also important.		family members may have had.	
	• **Non-supportive environment**	Non-supportive environment includes built environs such as home, neighborhood, community that pose challenges to the individual.	
	• **Positive health care exp.**	Positive healthcare experiences include the feelings of being attended to, ease of communication	

		with HCPs, access to programs or materials directed toward the individual's need, etc.	
	● **Supportive environment**	Supportive environment includes a variety of programs for women in the family-building stage, prenatal, and post-natal, as well as for young children. This may also include safe environs for exercise and extra-curricular possibilities for parents and children that does not require individual financial investment.	
○ **HEALTH:** represents any comment about health.	● **Challenged by weight**	Whether the individual is challenged by her weight in daily activities or not.	

	• **Health affected by weight**	Individual has stated that her weight affects her ability to be as active as she wants to be, or has caused medical issues (i.e., diabetes, high blood pressure, high cholesterol, etc.).	
	• **Healthy eating**	These are statements about healthy eating or challenges to eating healthy.	
	• **Importance of health**	These include belief statements about why health is important during conception, prenatally, and for the future health of the child and mother.	

	• **Meaning of health**	This is the individual's definition of health.	
○ **INDIVIDUAL:** encompasses any statements from the individual's perspective or related specifically to the individual.	• **Conflicting statements**	Conflicting statements code describes statements that contradict the individual's personal behavior or attitudes about a subject.	
	• **Emotional**	Emotional refers to comments where emotions play a part in the decision or outcomes. This is by definition subjective and may reflect non-conscious behaviors.	
	• **Future advice to HCPs**	Any comments directed to healthcare practitioners. These may stem either	

		from personal experiences or impressions from others, such as friends or family members, and are intended to improve the HCPs relationship with the patients they see.	
	• **Future advice to women**	These comments are based in the individual's personal experience or from the experience of a family member. The intension is to give preconception health advice to those who wish to have a baby in the future and who are overweight or obese.	
	• **Lifestyle**	Lifestyle refers to anything personal including home, school, and work	

		schedules, diet, exercise, family routines, etc.	
	● **Normalized**	Belief that others also share the same thoughts or experiences. Also refers to the feelings that everyone else in the community or family unit is similar to the individual and that makes an unhealthy situation or condition seem normal.	
	● **Personal Beliefs**	Personal beliefs/attitudes important to the individual.	
	● **Weight loss**	The individual is aware she is overweight and is consciously intending to improve her physical health in some way.	
○ **INFORMATION:** represents any information the	● **HCP information on PCC**	This is specific information on preconception care given	

individual receives from any source.		by a healthcare practitioner.	
○ **KNOWLEDGE:** encompasses anything the individual has incorporated into her understanding. This can be empirical information from professional interactions or gained through informal social contacts. This heading also includes a lack of understanding or incorrect information accumulated throughout life and incorporated into the belief system.	● **Does not understand PCC**	Statements of beliefs suggesting the individual does not understand the relationships between, or does not have knowledge of, health behaviors and outcomes related to preconception health information.	

	• **PCC concerns**	Preconception care concerns dealing with health issues.	
	• **PCP concerns**	Preconception planning concerns, beliefs, or intentions dealing with things other than health.	
	• **Understands PCC**	Indicates a good understanding of how nutrition and exercise, micronutrients, regular visits with a healthcare provider, and maintaining a normal weight before, during, and after pregnancy supports both mother and child health. Also understands that consumption of drugs and alcohol negatively impacts preconception, pregnancy, and fetal health.	

○ **RESOURCES:** includes access to HCPs; informational pamphlets, flyers, websites related to health or preconception; specialized clinics for preconception health or family planning; access to childcare; and other similar resources.			
○ **SOCIAL:** encompasses anything in the social sphere of the individual's life.			
	• **Social support**	Individual feels supported by her family and close	

		friends, as well as her healthcare practitioners.	
	• **Stability-social**	Social stability includes the support of a partner during the preconception planning stage as well as throughout the pregnancy process. Also includes home-building activities.	
	• **Upbringing influenced**	The influence of upbringing refers to the way the individual was raised with regards to exercise and food traditions within the family. This early association with food and movement may affect the adult individual's tendencies with food and	

		exercise and how they may relay this to their own children.	