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Ghanaian Immigrant Women in The United States Beliefs About Maternal Nutrition and Fetal Development

Yassi Azhdari
Walden University

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Walden University

College of Social and Behavioral Sciences

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Yassman Azhdari

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Walden University
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Abstract

Ghanaian Immigrant Women in The United States Beliefs About Maternal Nutrition and

Fetal Development

by

Yassman Azhdari

MPhil, Walden University, 2019

MEd, Tennessee State University, 2002

BS, Tennessee State University, 1999

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

In Psychology

Walden University

August 2021

Abstract

Ghanaian women, in their native country, experience a high rate of anemia, malaria, and malnutrition while pregnant. Poor health outcomes for mother and child are caused by a lack of protein in their diet, food taboos, consumption of nutrient-poor foods, and infections. These conditions may cause pregnancy complications such as premature birth, or maternal or fetal death. There is little known about, the differences between the Ghanaian and U.S. birth experience, and foods used by Ghanaian immigrant women while pregnant. The biopsychosocial model was used in this descriptive qualitative study to examine how Ghanaian immigrant women are impacted by pregnancy in the United States. Participants were 25 Ghanaian immigrant women who self-reported having been pregnant in the United States. They were interviewed about their beliefs and experiences concerning the effects of food taboos on maternal nutrition and fetal development. These interviews were recorded, transcribed, coded, and developed into themes. The results showed traumatic experience in Ghana giving birth while having an easier time in the United States. They perceived their ethnic food to be healthier than American food. In Ghana, cash was required to get medical care while in the United States they had health insurance. In Ghana, they had more family support while pregnant while in the United States they were mainly supported by their husbands. The results of the current study may be used for positive social change by helping U.S. healthcare practitioners understand the needs of their Ghanaian pregnant patients.

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Dedication

I dedicate my dissertation to the three most important people in my life. My father, mother, and my sister. Each one has played a central role in my life and development as a person. My parents instilled in my sister and me the love of learning and the importance of earning an education. My father Cyrus Azhdari passed away in 2009 a year before I started my Ph.D. journey. I miss him and love him very much. My mother Dr. Shahla Azhdari who has taught me the importance and value of getting an education. My mother told me “Honey no one can ever take your education away from you, you can use it to make a difference in the lives of all the people that cross your path.” My sister Bahar Azhdari, Esq, who supported me in her own way in this journey of earning my PhD, taught me the other meaning of what the letters PhD stand for: “Perseverance, Hard work and Dedication”. All three of you hold a special place in my heart and I love you very much! Thank you!

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Chapter 1: Introduction to the Study

Introduction

A well-balanced diet is not always accessible to women around the world. Many women become malnourished and anemic; anemia has been a significant health issue in pregnant Ghanaian women in their home country (Nonterah et al., 2019). They tend to lack the appropriate nutrients such as proteins, fats, carbohydrates, vegetables, fruits, and lipids in their diets to be healthy before pregnancy (Mousa et al., 2019). Pregnancy does not change the nutritional status of many of these malnourished women (Dadi & Desyibelew, 2019). Being pregnant does not give them any special privileges in their society to increase the amount and type of food they consume.

In some cases, nutrition gets worse for Ghanaian pregnant women with the practice of food taboos that are culturally traditional (Tibambuya et al., 2019). From a very young age, Ghanaian women are taught the food they may eat, the foods they must avoid, and the role girls and women have in the family (e.g., cooking and feeding the men first; Ene-Obong et al., 2017). However, their practices upon immigration to the United States are not known and are the subject of the current study.

Reasons Study Needs to Be Conducted

African immigrants and Black people in general in the United States tend to deal with racial prejudice, whereas native Africans deal with racial and gender bias (Orchid & Price, 2017; Rockers & McDonnell, 2017). Young girls and women are treated poorly in many parts of the world (e.g., Ghana and Malawi; Warri, 2018). In a review article, Warri (2018) explained that Malawi girls undergo sexual cleaning (i.e., an African

cultural tradition where a girl expects to have sex after her first period). The male semen is believed to cleanse a girl's body. There is also a similar ritual for widowed women to cleanse their bodies and get them ready for another marriage. When a woman experiences a loss of her fetus (i.e., miscarriage) to cleanse her of the evil that caused her to miscarry the embryo or fetus, the woman must have sex with a man. These practices significantly affect the physical, psychological, and social aspects of women's lives (Oram et al., 2016). Women in Malawi are not allowed to express their views in all aspects of their lives, especially regarding their sexuality and pregnancy (Warria, 2018). One reason is that these women have been controlled by male-controlled societies who believe they own a women's body (e.g., sexual desires, conceiving a child, and the food they eat; Chinyoka & Ganga, 2017). These practices are due to religious, cultural, and tribal beliefs. Therefore, African societies such as those in Ghana and Malawi have created rules for women to follow.

In addition to controlling women's sexual desire, these rules in several African cultures are set in place to ensure women can successfully conceive a child (Chinyoka & Ganga, 2017). Conceiving a child in Africa (e.g., Ghana) is a vital part of a couple's relationship. African parents will go to great lengths to make sure a healthy baby is born, including the use of food taboos (Chinyoka & Ganga, 2017). If the couple does not conceive a child, it is considered bad luck (Chinyoka & Ganga, 2017). Women are typically blamed in these cultures because they believe that the woman did not follow the laws of the tribe when it comes to food taboos (Chinyoka & Ganga, 2017). Therefore, if women do not adhere to these rules, they may face dire consequences from their parents,

in-laws, husbands, and elders in their tribe (Lennox et al., 2017). The health of a fetus depends on the health of the mother. Maternal nutrition before and during pregnancy plays an imperative role in the next generation's lives; genetics and nutrition are two factors that affect the quality of life in the offspring (Baleanu et al., 2018; Lee, 2015). Depending on the mother's cultural beliefs, the food that she consumes varies and affects how the fetus develops in the womb (Kavle & Landry, 2018). Nutrition sets the stage for the health of a fetus from conception until adulthood (Kavle & Landry, 2018). In the United States, maternal nutrition is something that many women take for granted. In contrast, in maternal nutrition in a third-world country like Ghana, the people have been controlled by a patriarchal society (Nana & Zema, 2018).

Birth Weight in All of Africa

Many studies have been conducted on the effects of maternal nutrition on the baby's weight at birth (Tela et al., 2019; Rosy et al., 2018; Quansah & Boateng et al., 2020). In a prospective study, Verma and Shirvastava (2016) stated that the mother's nutrition played a significant role in the weight of her offspring after birth; the mothers in this study showed a high number of low-birth-weight offspring. Therefore, malnourished mothers delivered lower in weight than those who were well fed (Verma & Shirvastava, 2016). Many factors contributed to the high rate of low-birth-weight babies in Tanzania (Kamala et al., 2018). According to a retrospective study, these factors include the age of the mother at conception, the number of multiple births (e.g., twins), the educational level of the mother when she gets pregnant, and if the mother visits a doctor while pregnant.

All these factors can contribute to complications for the mother during pregnancy (Kamala et al., 2018).

Stress of Immigrating to Another Country

The added stress of relocating to another country can affect a person's health in a significant way. This migration can be compounded for immigrant women who are already malnourished, suffer from hidden hunger (micronutrient deficiency), and are anemic (Quintanilha et al., 2016). They come from countries with specific gender expectations to a country where women are not suppressed in the same way. These laws cause some women to question (Lennox et al., 2017; Nikolova & Graham, 2015) the rules they grew up within their home country and the laws in the host country to which they migrate (Bertoli & Marchetta, 2015). In this study, I examined whether Ghanaian immigrant women who became pregnant within several years of immigrating continue to practice the food taboos they practiced in their home country or whether they adopt the eating habits of the people who live in the United States.

Implications for Social Change

The results of this study might educate the healthcare professionals and health brokers who are interested in the effect of nutrition and the well-being of Ghanaian immigrants during their pregnancy (Van Rinsum et al., 2017). This education can, in turn, help healthcare workers not only in the United States but also in Africa to reduce the rate of maternal and prenatal anemia, malnutrition, hidden hunger, and maternal and infant mortality. The results of my study may help increase the life expectancy of Ghanaian immigrant women during pregnancy, labor, and the life of their fetus in utero by

educating women about the role that nutrition plays in their bodies during every stage of fetal development.

In Chapter 1, I will provide the background of the study, the problem statement, purpose of the study, the research question, the theoretical framework, the nature of the study, definitions, assumptions, scope and delimitations, limitations of the study, significance, summary of the chapter, and transition to Chapter 2.

Literature Related to the Topic

Background

A woman may become pregnant during the 3rd week of her menstrual cycle if she has sex when the sperm and egg form a zygote (contains the building blocks of life). By the 5th week of gestation, the zygote has developed into an embryo (essential systems and structures develop). This first of the three trimesters is critical in the development of this new life. At this stage, the embryo's development is highly vulnerable to things disrupting its healthy growth, which can cause congenital disabilities or illnesses in later life.

If the mother lacks nourishment, it may affect the development of her fetus (Che et al., 2017). The fetus depends on three different elements to grow in the womb such as environmental, genetic, and epigenetic factors (e.g., environmental toxins, nutrition, and psychological and physical stress of the mother); these all work together in the development of a new life (Lee, 2015). This new life depends entirely on its mother for its development in the womb and after birth. Not only is nutrition necessary for the growth of the fetus, it is also essential in the maturity of the maternal tissues that support

the fetus during development (Nigatu et al., 2018). Therefore, when a mother lacks the nutrients, she needs due to malnutrition or anemia, the fetus reacts to this stress. Thus, its ability to develop and digest the nutrients it needs to grow becomes restricted, which may cause a baby to have congenital disabilities or be small for gestational age (Nana & Zema, 2018).

Gap in Literature

It is known that pregnant Ghanaian women suffer from anemia, malaria, and malnutrition (Kushitor et al., 2020); however, it is not known whether and how their beliefs about food taboos are changed upon immigration to the United States. In a qualitative study conducted by Teitler et al. (2017), the data showed that the longer refugees from any country live in the United States, their physical and mental health starts to decline when the refugees leave home and settle in their new country. Further, these immigrants are more likely to adopt the harmful activities of the country to which they move (e.g., unhealthy dietary patterns, alcohol abuse, and smoking cigarettes; Teitler et al., 2017). I examined the beliefs of Ghanaian immigrant women who have been pregnant since they immigrated to the United States. I assessed Ghanaian women's beliefs to understand if they follow their native diet while pregnant or adopt the American diet.

Reason the Study is Needed

This study is needed because, in the United States, African immigrants make up 2.1 million people (0.6% of the total population; Anderson, 2017). After they immigrate to the United States, simple things such as health care become a challenge because they

may not find a health care professional from the same tribe or city as them. This mistrust could create distrust between them and the health care professionals from whom they seek medical advice (Arnett et al., 2016). One common issue is pregnancy and the foods these Ghanaian women eat or do not eat during pregnancy. The standards for healthy fetal development and fertility in Ghana are much different from the rules in the United States due to Ghanaians' tribal, ethnic, and cultural beliefs. Suppose the practitioner is not aware of these cultural beliefs. In that case, they may be perceived by these Ghanaian immigrant women as being disrespectful and insensitive to their needs, which can cause mistrust between immigrant Ghanaian women and the health care providers they choose to see (Arnett et al., 2016).

My goal for the present descriptive qualitative study was to examine immigrant Ghanaian women's beliefs about maternal nutrition and fetal development after the women have immigrated to the United States. The central goal of the study was to see if their views have stayed the same or have changed to educate health care professionals to conduct culturally relevant services to their patients from Ghana.

Problem Statement

The Research Problem

Ghanaian women suffer from prenatal and maternal anemia at an alarmingly high rate due to severe malnutrition back home in Ghana (Kushitor et al., 2020). Malnutrition in Ghana is mainly due to poverty, which causes a lack of a balanced diet incorporating micronutrients, vitamins, and proteins. When Ghanaian immigrant women migrate to the

United States, they are already malnourished because of the food restrictions (e.g., food taboos) set up for women and girls in the country.

The resulting malnutrition and anemia may cause difficulties with conception and carrying the baby term and can lead to maternal or perinatal death. In Ghana, there is a high rate of stillbirth, obstructed labor, and uterine rupture. Consequently, the citizens of Ghana have one of the world's highest infant and maternal mortality rates (Annan & Asiedu, 2018; Dartey et al., 2020).

According to a longitudinal study, maternal mortality is the leading cause of death and disability for adult women worldwide (Afaya et al., 2020; Moucheraud et al., 2015). The infant mortality rate in the United States is a vital indicator of general health (Matoba et al., 2017). These deaths are largely preventable with the proper nutrition and labor and delivery care for women and girls (Moucheraud et al., 2015). Sadly, when a mother dies, it profoundly affects the offspring (MacDonald et al., 2018; Geller et al., 2018). Limiting the nutritional intake of women, especially during pregnancy, will affect the health of their offspring from the moment of conception and throughout their life. Various vital health concerns of the mother and fetus are influenced by ethnic, spiritual, or ancestral practices (Moucheraud et al., 2015).

Evidence Problem is Relevant

Immigrants are moving to the United States at a high rate from economically developing countries and lack the health resources needed to guarantee a healthy pregnancy. Many of these immigrants are therefore searching for better health care. Not all immigrants to the United States are healthy enough to deliver a baby that will survive

past their first birthday. Many practical and health challenges face African immigrants who are pregnant women daily. Being Black in America leads to worse pregnancy outcomes, including fetal mortality for Black Americans and Africans (Burriss & Hacker, 2017) compared with other groups. Upon arriving in United States, women may be malnourished and anemic due to the restriction of nourishing foods they endure before and during pregnancy. Consequently, the complications during childbirth on poorly nourished pregnant women may end up to either a premature or even stillbirth newborn. Sometimes, the mother might lose her own life along with the life of the baby.

In Ghana, women are expected to adhere to the dietary restrictions imposed upon them by food taboos when they are pregnant. There is a related gap in the literature, leading to the research question: Do Ghanaian immigrant women living in the United States observe those same dietary restrictions from food taboos, or do they assimilate to the people's eating habits in their host country? I sought to address this gap in the literature by examining the beliefs of Ghanaian immigrant women living in the United States about nutrition during pregnancy through descriptive qualitative interviews.

People who travel to another country to start a new life tend to be healthier than those who do not move (Miller et al., 2016). Thus, the health of individuals who immigrate to another country (e.g., United States) declines the longer they reside in that country (Markides & Rote, 2019). Immigrants tend to adopt the unhealthy routines (e.g., eating habits and lifestyles) of the citizens already living in the new country (Brown et al., 2018). According to this *negative acculturation effect*, they discard the cultural practices and ethnic eating patterns of their home countries and start to consume diets that

are higher in fat, foods made from animal parts, and processed junk foods (Alcalá & Sharif, 2017; Zhang et al., 2019).

However, a secondary analysis of birth records (quantitative study) showed that the health of these settlers is dependent on the amount of financial stability of the destination country compared to their nation of origin (Miller et al., 2016). For example, Miller et al.'s (2016) quantitative study showed that babies born to mothers born outside the United States (e.g., foreign-born) had a higher likelihood of being delivered prematurely than babies born to mothers born in the United States.

Purpose of the Study

African women in general struggle with anemia, hidden hunger (micro- and macronutritional deficiency, and malnutrition), and malaria, leading to a high rate of illness and death rate among African women and their fetuses (Fondjo et al., 2020). Nearly half of African women suffering from these conditions are in Ghana (Fondjo et al., 2020). In a multicenter cross-sectional study by Fondjo et al. (2020), the authors found that malaria in gestation still is a significant health problem in Ghana and the rest of Africa. Anemia has been associated with an array of gestational problems in expecting mothers (Fondjo et al., 2020). The results of the study showed that "the overall prevalence of *P. falciparum* malaria was 8.9% and anemia was 42.2%. Even though the prevalence of mild (35.7 %), moderate (6.1%), and severe anemia (0.6%) respectively" (Fondjo et al., 2020, pp. 1-2). Anemia is easily diagnosed and treated in an African woman when she is pregnant; Fondjo et al. (2020) stated that this would be the best time to educate her about the effects of anemia on fetal development.

For this reason, I chose to focus my study on Ghanaian immigrant women living in the United States to help these women have healthy pregnancies and not die of health and pregnancy complications that can be preventable with the proper education and awareness. I focused on the Ghanaian immigrant women's beliefs about how the food they consume while pregnant will affect the way their fetus develops.

The purpose of this descriptive qualitative study was to understand the beliefs of immigrant Ghanaian women living in the United States about maternal nutrition, food taboos, and fetal development, as well as the effect of these beliefs upon childbirth health outcomes. Most of the studies conducted about pregnancy and nutrition have examined the baby's weight after it is born and the effects of maternal obesity on pregnancy.

I explored the beliefs of immigrant Ghanaian women living in the United States about the foods they believe should be consumed before conception. Women think they should avoid certain foods due to food taboos before and during fetal development. I chose Ghanaian immigrant women because the state of the medical community's understanding of the nutrition practices of pregnant Ghanaian women living in other countries is "... dire, with minimal research published in this area" (Vasilevski & Carolan-Olah, 2016, p. 3070). My research will help educate doctors, nurses, and midwives in this country about the beliefs and nutritional preferences of Ghanaian immigrant women living in this country.

Research Questions

Research Question 1 (RQ1): What is the lived experience of Ghanaian immigrant women regarding medical care contrasting Ghana with the United States?

Research Question 2 (RQ2): What is the lived experience of Ghanaian immigrant women regarding nutritional foods and fetal development?

Theoretical Foundation

The model for the current study was general systems theory (Engel, 1977), which was developed in biology more than 50 years ago. This theory states that every level of organization—including molecular, cellular, biological, personal, social, family, and environmental, affects every other level of life. This model was initially developed by biologists Weiss and Von Bertalanffy, who stated that a person's life is an exposed organism and, for that reason, must be investigated (Edozien, 2015; Engel, 1980; Presis et al., 2018). The general systems theory recognized the give-and-take nature of the associations amongst the different parts (Benning, 2015; Bolton, 2020).

Engel developed the biopsychosocial model from general systems theory (Benning, 2015; Bolton, 2020). However, general systems theory is not entirely and precisely acknowledged in Engels' biopsychosocial model (Benning, 2015; Bolton, 2020). Engel suggested the model protects psychiatry from other viewpoints that could influence it (Benning, 2015). According to a few researchers, the biopsychosocial model was established to describe the development of disability and illness; however, it is not a philosophical model appropriate for a health study, according to a few researchers (Bolton, 2020; Pilgrim, 2015). It became a new medical model, one of the novel features of which was created for doctors (Bolton, 2020; Pilgrim, 2015). Engel believed that doctor-patient communication, when it includes the doctor being concerned and kind to their patient, could significantly improve many illnesses (Benning, 2015; Turablan,

2018). Engel developed the biopsychosocial model to reflect analytically upon medical philosophy. Engel never created the biopsychosocial model to reflect analytically upon the medical philosophy and practice overall. It was designed to address the primary reasons that in the person's body produced illness in a person's body in the first place (Pilgrim, 2015). How Engel addressed culture assumed to doctor-patient ethnic homogeneity is most appropriate when both the doctor and patient care from the same ethnic background. Culture became an essential issue to Engel regarding doctor-patient care, especially when both the doctor and patient were from the same ethnic background. Some researchers have pointed to this as a flaw in the biopsychosocial model (Benning, 2015; Bolton & Gillett, 2019). This negligence of cultural and language features and context of the people that seek health care services in the community is one of the reasons why health disparities exist in health care systems today and exposes this flaw in the biopsychosocial model (Hatala, 2012; McKenney et al., 2018).

The biopsychosocial model (Engel, 1977) has three components: biological, psychological, and social. Each part of this model fits perfectly to explain the aspects needed to describe a healthy pregnancy. The three components interconnect to demonstrate the importance of the mother's nutrition, mental health, and how important it is to be accepted in her family and society. The efficacy of these three parts of the theory is altered in a significant way when one examines a mother's ethnic, racial, or ancestral background, which differs from that of her physician.

The biological components are used to explore how nourished the Ghanaian mother is and the foods she has been allowed to eat based on her gender and the foods

she is not allowed to eat while pregnant (Debpuur et al., 2020). The biopsychosocial model leads to the speculation that if this bond between a mother and fetus is firm, the fetus may feel and hear what is happening to their mother. Those vibrations can be imprinted in the baby's deoxyribonucleic acid (DNA; Silveira et al., 2016).

The psychological aspect of motherhood for Ghanaian women includes their beliefs about how foods affect the development of their babies and how such thoughts affect the amount of stress they are under while they are pregnant (Buultjens et al., 2013; Wu et al., 2020). Thoughts and beliefs play a significant role in how women care for their bodies and function in society (Silveira et al., 2016). Thoughts and beliefs become imperative in the way the fetus develops in the womb of the mother. The pregnant woman's value given to her pregnancy plays a role in how the embryo develops; and how adaptive the infant is to the outside world after they are born (Ickes et al., 2017; Noroozi et al., 2020).

The social component is used to examine a Ghanaian immigrant woman's treatment by her family (e.g., her husband; Chinyoka & Ganga, 2017) and her place in society (e.g., class system, tribal and racial affiliation; Alhusen et al., 2016). The way the mother is treated while pregnant, how she feels about being pregnant (planned or not planned), and how her food impacts the mother-infant bond affects how her fetus develops in utero (Salisbury & Robinson, 2013; Zdolska-Wawrzekiewicz et al., 2020).

Theory Relates to the Study Approach and Research Questions

Other researchers in medicine and psychology have mainly reported quantitatively on maternal nutrition and fetal development (Alex & Rogers, 2017;

Atkinson et al., 2016; Aziato et al., 2017). In this study, I examined the lived experiences of Ghanaian immigrant women and evaluated their beliefs about the role that maternal nutrition plays during fetal development. I employed a descriptive qualitative methodology and analyzed information that I gathered from the interview questions following the three-component framework of the biopsychosocial model. Each component of the biopsychosocial model was described in the questions I asked in the interview guide. For example, the biological part of the model was related to (maternal nutrition and fetal development), psychological (Ghanaian immigrant women's beliefs), and social (e.g., reasons these women immigrated to the United States), which is explained further in Chapter 2 under Theoretical Foundation.

Nature of the Study

I conducted a descriptive qualitative study in which my participants and I became co-researchers in the development of this study. In this descriptive qualitative analysis, I focused on the common themes of my participants' stories than on the individual details that each of my participants described. The stories that I collected from my participants helped me write a descriptive qualitative study of the beliefs of Ghanaian immigrant women after they settled in the United States, have become pregnant, and had a baby within several years after immigrating to the United States. The knowledge I gained from interviewing Ghanaian immigrant women about their beliefs about maternal nutrition, and its effects on fetal development helped health care workers understand how to support this population of women to have healthy pregnancies. I conducted a descriptive qualitative study because I was interested in hearing and assessing the participants'

voices, their lived experiences. I did this by engaging my participants in the process of storytelling about what Ghanaian immigrant women believe about the foods, they can eat while pregnant, and how the foods affect the way their fetus develops in utero.

As I worked to understand these women's beliefs about maternal nutrition and fetal development in general, I was particularly interested in understanding the role of food taboos and the practice of pica in Ghanaian culture. Why do these women believe that this food taboos practice will help them have a healthy pregnancy? Will Ghanaian women adhere to food taboos and pica behaviors once they settle in the United States? Alternatively, to what extent will they adopt the people's relevant nutritional and cultural norms in the United States? I wanted to understand the extent to which these food taboos are just restricted to Ghanaian women during their childbearing years, on maternal nutrition and fetal development. In this study, I wrote a story of the lived experiences of Ghanaian immigrant women at the heart of which lies an examination of their beliefs about the role that maternal nutrition plays during fetal development. This present study employed a descriptive qualitative methodology, which analyzed information that I gathered from the interview questions following the three-component framework of the biopsychosocial model. Each component of the biopsychosocial model was described in the questions I asked in the interview guide. For example, the biological part of the model was related to [maternal nutrition and fetal development], psychological [Ghanaian immigrant women's beliefs], and social [e.g., reasons these women immigrated to the United States]), which is explained further in Chapter 2 under Theoretical Foundation.

Recruitment of Participants

I recruited Ghanaian immigrant women through the help of a male Ghanaian cultural broker who contacted his friends who fit the criteria of this study. He texted me the names of these potential participants for my research. I either texted my potential participants, called my potential participants or emailed my potential participants to set up the initial interview to see if they would qualify for my study. I then emailed them my consent form. Once the Ghanaian immigrant women agreed to my consent form and participating in my research, then I asked those participants if they would refer someone, they think will fit the criteria to participate in my study (Woodley & Lockard, 2016).

In this descriptive qualitative study, I conducted interviews with 25 Ghanaian immigrant women who have been pregnant in the United States. Interviews with one of the participants comprised the material for my pilot study and were not included in my main study. This participant helped me test my interview questions consisting of an instrument that I developed myself. All the participants were 18 years or older, self-report that they have been pregnant and have given birth in the United States after living here for several years after immigrating from Ghana.

This study painted a clear picture of what life can be like for pregnant Ghanaian immigrant women migrating to the United States. It gave my reader a glimpse of what life would have been like for these women had they remained in Ghana during their pregnancy. These individual stories comprised a contextual framework or understanding personal stories of this demographic in the United States at large.

The findings from my study are not transferable to minors, other people from other ethnic backgrounds, or to women who may not have been pregnant but are a stepparent. I established dependability in this study by conducting an audit trail, which measured the accuracy of the method used to collect and interpret my data (Stadtlander, 2015). Ghanaian immigrant women through the help of a male Ghanaian cultural broker who contacted his friends who fit the criteria of this study. He texted me the names of these potential participants for my research. I either texted my potential participants, called my potential participants or emailed my potential participants to set up the initial interview to see if they would qualify for my study. I then emailed them my consent form. Once the Ghanaian immigrant women agreed to my consent form and participating in my research, then I asked those participants if they would refer someone, they think will fit the criteria to participate in my study

I transcribed my data by hand. After I transcribed each interview, I coded them to find the themes. After all my transcripts were transcribed and coded, I sent my transcriptions to a second coder who separately coded the data. Then we consulted on the findings until we reached a consensus.

Definitions

Anemia: This condition is the most common blood disorder diagnosed worldwide, especially in Ghana (50.8% among pregnant women (Wemakor, 2019). An illness emerges when an individual is diagnosed with a low level of red blood cells (RBC) or lacks the protein that helps oxygen travel to the lungs (Alemayehu et al., 2016). This

disorder is characterized by a person's experience of hemorrhaging, menstrual problems, blood loss during pregnancy, and extreme fatigue (Alemayehu et al., 2016).

Fetal Development: the progressive stages of the development of an offspring from the moment an egg and sperm fertilize to the day the baby is born (Herring et al., 2018).

Food Taboos: These are dietary rules concerning nutrition that are socially maintained and enforced among members of a society for religious and cultural reasons during different stages in an individual's life (e.g., fetal development and menstruation; Mohamad & Ling, 2016). Such dietary rules are taught to pregnant women and are intended to protect the mother and fetus's life (Mohamad et al., 2016) within the population of interest.

Hidden Hunger: When an individual is suffering from a micronutrient deficiency (Gödecke et al., 2018).

Malnutrition: When a person is not eating the right quantity, combination, or balance of; deriving sufficient calories, vitamins and or minerals from; or is lacking sufficient access to certain types of foods (e.g., animal protein; World Health Organization, 2016). As an example of the complexity arising from malnutrition some people may eat the right types of foods and yet may suffer from disorders arising from not being able to digest those foods correctly due to the lack of appropriate enzymes (WHO, 2016).

Pica: A condition that people crave and consume substances that would normally not be eaten, and which have no nutritional value. In some instances, they will be harmful

to the body (Rajput et al., 2020).

Assumptions

My central assumption was that the women would be able to describe their experiences accurately and precisely concerning the effects of maternal nutrition on their developing fetus (baby). Additional assumptions follow: My descriptive qualitative methodology presented as safe enough to interview subjects that they furnished faithful and candid responses to my questions; the stories I examined were meaningfully generalizable to the population of interest. The stories they shared fell into meaningful themes. The themes I uncovered yielded insights that will tend to spur future research in this area of health science. Non-narrative research alone, though necessary, is insufficient to generate the understanding needed to understand and address relevant health disparities for the population.

Scope and Delimitations

This study focused on Ghanaian immigrant women who lived in the United States for several years after immigrating and gave birth to at least one child while residing in the United States. I wanted to study their beliefs about the role of food taboos and pica in maternal nutrition and fetal development. To help future healthcare professors create culturally sensitive programs that may help eliminate mortality of the mother and the baby due to malnutrition, malaria, and anemia due to a lack of adequate nutrition these women experience during pregnancy.

Limitations

This study focused on Ghanaian immigrant women who lived in the United States for several years after immigrating and gave birth to at least one child while living in the United States. Limitations to my research that might apply to any qualitative research were difficulty in interpreting and understanding the participants while speaking due to language and cultural barriers between the researcher and the participants. Another limitation of a qualitative study was that the write-up of the results of the interviews and transcription of the data was entirely reliant on the researcher's level of relevant training and skill (e.g., whether it is a student researcher vs. a faculty member who is doing research). Also, the educational level of the researcher (knowledge of the research tradition used) can affect the results of a qualitative study.

The researcher's dedication to the accuracy of the information reported and their discipline and organization are vital factors to the quality of the study and its results. Furthermore, the researcher's capacity to imaginatively combine previous knowledge (e.g., from the literature review) with the results of the interviews is key to their ability to report (e.g., story). Insightfully and accurately concerning the lived experiences of the population and or topic being studied in my study, the language barrier may be another limitation because of the difficulty it could cause for the participants to convey details and impressions vividly and accurately. The participants may speak English, but they might not be as fluent as those born United States. I wanted to study their beliefs about the role of food taboos and pica in maternal nutrition and fetal development. To help future healthcare professors create culturally sensitive programs that may help eliminate

mortality of the mother and the baby due to malnutrition, malaria, and anemia due to a lack of adequate nutrition these women experience during pregnancy.

Theories that might have been appropriate for this study were not used, including feminist theory and life course perspective theory. The feminist theory offers a systematic framework for studying how girls and women relate to men in society (Allen, 2016). The theory does this by focusing on why gender discrimination exists in girls and women and how gender plays a role in household structures (Allen, 2016). Feminist theory investigates why women and girls are victims of oppression in some cultures and ethnicities in the world (Allen, 2016). One reason feminist theory was not used as a theoretical framework for this study is that, as a researcher, I am not of the same culture as my participants, and I have not been pregnant. To use this theory in research, the researcher needs to closely mirror the experiences of the participants studied the only thing I had in common with my participants was that I am a female.

The life course perspective theory considers the events in a person's life as the primary reasons for an individual's life in adulthood. The theory traces these life events to explain the role that genetics plays in people's health. It examines how life events' actual timing and arrangements are critical for understanding why one person may get sick and another person may not (Reyes et al., 2018). The life course perspective ranges from topics such as a person's childhood regarding their educational attainment, the location where they may live, and the financial background these individuals were exposed to while growing up (Braveman, 2014; Reyes et al., 2018). According to this theory, these

factors become critical in analyzing a women's risk of mortality in childbirth (Reyes et al., 2018).

In one quantitative study, the researchers studied the lifetime association between the timing and arrangement of the beginning of a woman's marriage and her ability to conceive a child to her risk of maternal mortality. The study results indicated that once a woman had her first child, she was more likely to die (Reyes et al., 2018). The finding illustrates how social factors (e.g., marriage) shape the health of a woman. This study was not concerned with the educational attainment or the marital or financial status of the participants but mainly focused on the beliefs of the participants about maternal nutrition and fetal development. Excluded from my study were pregnant women who are minors, women who have never been pregnant or given birth to a baby outside of the United States, women who are not Ghanaian, or other ethnic backgrounds (e.g., Caucasians, Asians, or Middle Eastern).

Significance

The potential contribution of the study to advance knowledge in the field of Health Psychology was that it might help health care providers in the United States provide culturally relevant prenatal programs for the woman who has immigrated to the United States from another country. The issues (e.g., food taboos, pica, malnutrition, and childbirth practices) relevant to the focus population are different from those of women born in the United States who have given birth. Insights from this study may help healthcare workers devise culturally appropriate and informed treatment plans to reduce

the rates of maternal mortality and fetal distress or mortality for Ghanaian immigrants to the United States.

The potential contribution the present study makes to advance practice in the field of health psychology is that it contributes to the literature about the beliefs of maternal nutrition and fetal development in pregnant immigrant Ghanaian population in the United States. It will increase awareness among health care providers concerning dietary restrictions these women had observed back in Ghana which influence their nutrition in the United States. The present study contributed to the knowledge base concerning which foods are allowed or restricted for these women during pregnancy. Culturally relevant insights from the study may help patients to be more compliant with healthy dietary and treatment guidelines. Such insights may increase trust toward health care providers improving appointment compliance which in turn may help to ensure that both the mother and her baby stay healthy through the nine months. Mothers who are better understood by and who feel more trust toward providers may show greater adherence to healthy dietary requirements that are culturally relevant to them. The current study's findings may help educate health care practitioners as well as patients to lessen the occurrences of infant and maternal disease and mortality resulting from pregnancy complications.

The potential implication of this study to impact positive social change was the study's ability to answer a question vital to understanding health disparities in the population of interest. Ghanaian immigrant women while living in Ghana are required to adhere to food taboos while pregnant (Adom, 2019). However, it is not known whether

women immigrants to the United States still follow the laws of Ghana and practice the food restriction as they did in Ghana or if they adopt the diet of the people in their host country. This study explored these issues.

Summary

In this chapter, I gave a synopsis about the different parts of this study and why I chose to study the lived experiences of Ghanaian immigrant women of childbearing years who have immigrated to the United States and gave birth within several years since arriving in the United States. I also explained that the goal of my study was to examine Ghanaian women's beliefs about the role of maternal nutrition in the development of their fetuses. I described the problem of my research was concerned with Ghanaian women diagnosed with a high rate of anemia, malaria, hidden hunger, and malnutrition due to a lack of foods and diets lacking in protein vitamins and minerals, because of food taboos and the practice of eating non-nutritive food like food taboos and pica. I summarized the methodology I used to collect my data and the steps to transcribe my data for this study. I explained the scope and delimitation of my research and finally benefited from my study results.

Chapter 2 (the literature review for this study) I discussed the impact of nutrition and how it affects maternal sustenance and fetal development. I also discussed the theoretical foundation of the analysis, nutrition, epigenetics, nutritional factors in pregnancy, maternal and fetal nutritional needs, maternal diet during fetal development, types of nutritional stress in pregnancy, malnutrition in utero, nutritional deficiency in utero, beliefs about nutrition. I also discussed Africans, the art of cooking in the African

community, the importance of nutrients in pregnancy, nutrition in Africa, hidden hunger, the importance of nutritional education of the mother, food taboos in Ghana. I ended the chapter by discussing my chosen methodology, how researchers in health psychology approach the problem, and the rationale for selecting key concepts from literature.

Chapter 2: Literature Review

The value the mother places on her pregnancy plays a role in how the fetus develops and how adaptive the infant is to the outside world after they are born (Demir & Yildirim, 2019). How the mother was treated while she was pregnant, how she feels about being pregnant (planned or not planned) and the food she eats impacts the mother-infant bond (Demir & Yildirim, 2019). If the bond is firm, the fetus feels and hears, starting at around 25 to 27 weeks, what is happening to their mother, and those vibrations get imprinted on the baby's DNA (Haslbeck & Bassler, 2018).

When immigrant women travel to any new country, they need to figure out how to synthesize and reconcile their native cultural beliefs and traditions with the national beliefs and customs of the country to which they migrate (Greenwood et al., 2017). When women migrate to a country whose mainstream culture they fit in relatively well with, they may not feel prejudice or discrimination (e.g., European immigrants moving to the United States) compared with a woman from a culture that is far different from that mainstream target culture (e.g., African immigrant women: Greenwood et al., 2017).

Structural racism can induce a buildup of chronic stress, which increases susceptibility to illness (e.g., low birth weight babies and preterm infant mortality; Came & Griffith, 2017; Hardeman et al., 2020; Roth, 2016). Interpersonal racism is internalized, affecting the health outcomes of people of color (Roth, 2016). This type of stress differs from other forms of stress that pregnant women may endure. Its impact affects the lives of both African American women and African immigrant women (Slaughter-Acey et al., 2016), leading to racial and ethnic health disparities. Therefore, an

African immigrant woman's ability to conceive a baby is found to be negatively related to the amount of prejudice and bias she faces on a day-to-day basis (Frazier et al., 2018).

African immigrant women, as well as Black women, experience disproportionately high rates of uncalled-for hysterectomies, pregnancy related death, as well as infant mortality due to racism and discrimination in the health care system compared with women from other ethnicities or cultures that immigrate to the United States (Prather et al., 2016; Vora et al., 2019). Stress arising from racism impacts the lives of African immigrant women from diverse backgrounds and ethnicities (Alhusen et al., 2016). Genocide, female feticide, and infanticide are discriminations that tend to happen in Africa. Discrimination can also be seen with famine and hidden hunger (e.g., micronutrient deficiency; Ogbe, 2020). For example, one tribe may discriminate against another by starving its members to death (Exenberger & Pondorfer, 2014; Ogbe, 2020). Failing to account for racism within any study that includes African immigrant women or African American women may seriously alter the research results. Since African American women suffer disproportionately high levels of stress (including that resulting from racism) before they conceive (Giurgescu et al., 2017; Heard-Garris et al., 2018), such stressors can cause problems in gestation while the fetus is still in utero (Gebrezgi et al., 2017; Rajani, 2017, Tobon et al., 2016). The effects of racism might stay with the woman and her family for many generations, which increases rates of illness and death among newborns (Wallace et al., 2017). Maternal stress, anxiety, and mental illness can cause instant changes in the blood flow to the uterus, fetal heart rate, and fetal movement (Arabian & Baschat, 2017). A mother who has a mental illness due to the stressors she

experiences during pregnancy may have children who fail to develop correctly in utero (e.g., poor fetal growth and development of schizophrenia spectrum disorder; Ciesielski et al., 2015; Lipner et al., 2019). Such mothers may not carry a baby to full term, leading to low birth weight or stillbirth (Hasanjanzadeh & Faramarzi, 2017).

While previous studies on immigrants and pregnancy focused on Latinos in the United States or Europe, Africans in Australia or Canada, and migrants in Norway, there is a need for research on Ghanaian immigrant women in the United States regarding their beliefs about maternal nutrition and fetal development. A relevant quantitative study on the experiences of Latinas conducted in the United States found a strong, positive correlation between birth weight and Latina immigrant women's time in the United States (Ceballas et al., 2018).

A qualitative study of African immigrants was conducted by Mohale et al. (2017); it involved semistructured dialogues with Sub-Saharan women who migrated to Australia. The participants compared their experiences delivering babies in their continent of origin, Africa, with Australia. The study showed that African women feel they must adhere to ethnic and religious customs related to pregnancy and childbirth in both the country they travel to (Australia) and Africa (Mohale et al., 2017). The results indicate the importance of culturally appropriate health care (e.g., maternity) making it more accessible for African women if they live in Australia or Africa (Mohale et al., 2017). In this study, I examined similar pregnancy issues with African women in the United States and Africa. I will discuss the literature search strategy, the theoretical

foundation of the study, the literature review related to critical concepts, a summary of the chapter, a conclusion, and a transition to Chapter 3.

Literature Search Strategy

The literature that I used in this study was primarily from the National Institute of Health (NIH), World Health Organization and PubMed. I also cross-referenced articles. Academic Search Complete, Business Source Complete, *BMC Medical Research Methodology*, EBSCOhost discovery service, Sage Premier Journals, Sage Premier 2019, Thoreau Multi Database Search, *ScienceDirect*, ScienceDirect Collections-Health Sciences, ScienceDirect Collections-Psychology, Medline with full text, CINAHL plus with full text, and CINAHL& Medline Simultaneous Search, ELSEIVIER, EBSCO Open Access Journals, *Appetite*, *Frontiers in Physiology*, *Frontiers in Pediatrics*, *frontiers in Nutrition*, ERIC.gov, *Journals@ OVID*, *AMA Journal of Ethics*, Health & Medical Collection, *The Pan African Medical Journal*, *Ethnicity & Disease*, *Social Science & Medicine*, *Journal of Ethnic Foods*, *Nutrition and Health*, *nutrients*, *Taylor & Francis Online*, and Wiley Online, I accessed all the journals through the Walden University Library link. I bought books from amazon.com. The keywords I used included: *Ghanaian immigrant pregnant women*, *Africa*, *pregnancy*, *fetal development*, *maternal nutrition*, *epigenetics*, *fetal epigenetics*, *racism*, *obstetric racism*, *biopsychosocial model*, *malnutrition in utero*, *Hidden Hunger*, *Barker Hypothesis*, *food taboos*, and *pica*.

Theoretical Foundation

Engel (1977) developed the biopsychosocial model from the general systems theory to respond to the biomedical model. The biomedical model primarily focused on

the biology (e.g., nutrition of the mother) of a given disease (e.g., preeclampsia), frequently failing to address social (e.g., treatment of mother while pregnant, mother's socioeconomic status) or psychological factors (e.g., if the pregnancy was planned, the mother's stress level). The biomedical model assumed that the language of chemistry and physics would ultimately explain biological occurrences (Fava & Sornino, 2017).

As Engel envisioned it, the biopsychosocial model was not intended to replace the biomedical model in healthcare but to enhance the model to treat an individual as a whole person and not just a set of organs (Wade & Halligan, 2017). Wade and Halligan (2017) explained Engel's position on the biomedical model by saying that the model left "no room within its framework for the social, psychological and behavioral dimensions of illness" (p. 996). However, even though the biomedical model is missing several parts that the biopsychosocial model incorporates, this model is still widely implemented in the 21st century (Wade & Halligan, 2017). One reason could be that many healthcare professionals are not aware of an alternative, holistic model that could help them provide better diagnosis and treatment to their patients (Wade & Halligan, 2017). A criticism of the biopsychosocial model by health care professionals focuses on the scientific explanation of the model and its unfounded confrontation with the biomedical model (Wade & Halligan, 2017).

The biopsychosocial model explains that a person is not just a set of organs that a doctor needs to diagnose in an illness (Wade & Halligan, 2017). In this paradigm, a patient is assessed as a whole person whose health is influenced by dimensions of their personality, behavior, environment, interpersonal relationships (family, friends, co-

workers). They also experience life differently based on their cultural, tribal, and ethnic background, expectations of health care providers, how old they are at the time of illness, and how far along their disease has progressed when they seek medical treatment (Wade & Halligan, 2017). When a healthcare professional considers all these factors in diagnosing and treating a patient, a better understanding of who the person is and how best to treat them emerges (Wade & Halligan, 2017).

In a prospective observational study, Ruiz et al. (2021) tested the blood urine to measure the progesterone and cortisol levels of 515 Latina women along with administering a questionnaire (Acculturation Rating Scale for Mexican Americans-11, Brief Cope, Beck Depression Inventory, and the Perceived Stress Cope). The authors used the biopsychosocial model to address the cultural risk factors of adverse birth outcomes of Latina women who immigrated to the United States from Mexico. The results of this study showed that pregnant women who were more assimilated to the United States, single, young, poor, not having positive coping strategies, and stressed were at a higher risk for delivering a tiny preterm infant. Thus, the greater the acculturation and stress she experiences, the chances of having a tiny preterm infant are eminent.

In a review article (Saxbe, 2017), the biopsychosocial model was used to explain childbirth's psychological and physical implications. Saxbe (2017) stated giving birth to a baby can impact the body and mental well-being of both the mother and the father of the child and start the bond between the mother and her offspring.

Biopsychosocial Theory and the Present Study

In the present study, the biopsychosocial model explained the beliefs of immigrant Ghanaian women concerning how the food a woman ate before and during pregnancy affected the baby's development. This theory incorporated different aspects of a woman's life that influenced her well-being and her unborn baby in utero. It explained the various stages (e.g., trimesters of pregnancy) and how the fetus developed depending on the mother's health as influenced by dietary strictures arising from her religious and cultural background. It explained the relationship between a mother's psychological health (the role of stress, for instance) and the development of the fetus. This theory clearly showed how an individual's environment influenced the development of a fetus (e.g., treatment of women in many societies). The three primary dimensions of the biopsychosocial model explained how health care professionals can develop a culturally sensitive prenatal program that takes a holistic approach to maternal health care.

The biopsychosocial model encompasses several aspects related to pregnant women, such as: biological (pregnancy), psychological (beliefs), and social (culture and environment). The model's premise is that nothing happens in isolation and that concerning well-being, everything is interconnected; thus, the health of a pregnant woman affects the health of her fetus. For 9 months, the mother and fetus are connected (Zdolska-Wawrzekiewicz et al., 2020). The mother's feelings, sensations, thoughts, and how she is treated during pregnancy affect her child (Silveira et al., 2016). Ideas and beliefs play a significant role in how women care for their bodies and function in society

(Silveira et al., 2016). For this reason, pregnancy should not be regarded as merely a routine life event (Silveira et al., 2016).

Biopsychosocial Model and Research Questions

The research questions and each of the interview were directed toward the biopsychosocial framework. The first set of interview questions were geared toward the biopsychosocial model's social aspect, asking where the participants were born and why they came to the United States. The second set of interview questions deals with biological aspects of pregnancy; for example, how it would be different if they had been pregnant in Africa versus the United States. The third set relates to the psychological aspect of the model. The questions generated responses about my participants' perceptions or beliefs concerning how taboos might influence nutrition while pregnant and how the American diet may differ from their country of origin.

Literature Review Related to Key Concepts

Nutrition

It is vital to understand the role of different types of nutrition and how they relate to maternal nutrition in the development of a fetus. Fetal growth is harmed by poor nutrition, altering the way the organs develop and predisposing the fetus to illnesses like heart disease, diabetes, and obesity (Marciniak et al., 2017; Moreno-Fernandez et al., 2020). Many factors during pregnancy can influence the baby's and the mother's epigenetic condition. The factors that can affect both the mother and baby's condition could be one of the following categories of disorders. First, the mother's nutrition at

conception, and throughout her pregnancy; second, the mother's physical activity or mobility while pregnant, third, how well the mother's endocrine, neurological, and psychological systems work correctly during gestation. Fourth, the mother has toxins or infections in her bloodstream or her body at the time of conception or pregnancy.

(Fitzgerald et al., 2020; Marciniak et al., 2017).

Epigenetics

Waddington coined the term epigenetics in the early 1930s (Waddington, 1956; Marciniak et al., 2017; Sedley, 2020) to refer to the study of "heritable changes in organisms caused by modification of gene expression rather than alteration of the genetic code itself" (Duempelmann et al., 2020, p.203;). It is the way genetic information is predicted, organized, maintained, informed, and read (Rey et al., 2020; Tiffon, 2018). How the embryo needs to develop into a human being can be compared to the role of epigenetics in the human genome (Kanherkar et al., 2014). The key mechanism in epigenetic modifications is DNA methylation. DNA methylation is the epigenetic tool used by the cells to regulate genetic factor manifestation (Rey et al., 2020). This concept is essential to nutrition because nutrients and bioactive food components can change epigenetic occurrences and modify the expression of genetic factors at the coding level (Raganelli et al., 2018). Epigenetics provides a genetic connection between the environment and the set of genetic factors that create a human being (Marciniak et al., 2017; Raganelli et al., 2018). This inheritance factor implies that it is handed down to the next generation via an epigenetic code. (Sales et al., 2017).

Nutritional Epigenomics

Nutrition is a significant component of epigenetics. Nutrition-influences change a mother's biological makeup and can induce epigenetic changes in her fetus and the future offspring of her baby (Marciniak et al., 2017; Morrison & Regnault, 2016). Nutritional epigenomics clarifies how nutrients contribute to fetal development (Chango & Pogribny, 2015). Nutritional epigenetics explains how the particles of food interact with the particles that attach to the gene, regulating levels of genetic factor manifestation in the body (Bordoni, 2017; Sedley, 2020). This field is concerned with explaining how nutrients affect the regulation of genes in conditions such as metabolic syndrome, diabetes, and obesity (Bordoni, 2017; Pandey & Pandey, 2017). Foods such as carbohydrates, fats, and proteins are classified as dietary bioactive foods because these compounds help cells to function correctly and are essential for the way genes are activated in the body (Pérez-Gregorio & Simal-Gandara, 2017; Sedley, 2020).

Food can be considered a form of biological exposure, which also fuels the cells in the body according to nutritional epigenetics (Chango & Pogribny, 2015). For example, the types of food a mother consumes during the development of her fetus are essential because these foods may impact the cells of a developing fetus on a cellular level (Ji et al., 2016). The mother's diet functions in this way as a clue to the developing fetus's body about the world it is about to be born. This clue will be reflected in the gene expression patterns of the offspring (Chango & Pogribny et al., 2015; Hsu & Tain, 2019).

During an individual's lifetime, nutrients (food and micronutrients) can modify biological and medical developments across epigenetic means vital for gene expression (Bar-Sadeh et al., 2020). Epigenetic alterations arising from diet or induced by nutrients

may inhibit illnesses and sustain wellbeing (Navarro et al., 2017). Nutrients also interact with genes, other nutrients, and other lifestyle factors (Navarro et al., 2017). Early nutritional environments, whether in utero or early infancy, can set the range of possible gene expressions for the individual's life (the mother) and her offspring (Morrison & Regnault, 2016; Navarro et al., 2017). Epigenetic effects from diet, behavior, and chemical exposure (e.g., smoking, alcohol, and drugs) can be transmitted from one generation to another (Maekawa et al., 2017). Each cell of a person's body contains the same gene and determines which genes turn on and off to separate into different cell types (Ainsworth, 2017). During the development of an embryo, the design of each cell is formed through epigenetic changes (Indrio et al., 2017). Epigenetic factors can be customized by appetite exposure throughout significant periods in fetal growth (Jang & Serra, 2014). The epigenetic expression of a gene in one generation can impact its appearance in the next (Maekawa et al., 2017). However, these alterations permanently alter the fetus both physically and how its body functions later in life (Moreno-Fernandez et al., 2020).

Fetal Epigenetics.

Epigenetic processes are central in interceding in the lasting outcomes of fetal malnutrition (Ramírez-Alarcón et al., 2019). The first 1000-days of development (from conception until two years of age) comprise a crucial period that defines the child's wellbeing and growth (Indrio et al., 2017). Epigenetics has been found to play a significant role in fetal programming, which sets the stage for health into adulthood (Galan et al., 2020; Stevenson et al., 2020).

Fetal Nutrition.

From the moment of conception, the ovum (female reproductive cell) responds to the number of nutrients in the fallopian tubes (a pair of tubes in a female reproductive tract where the eggs travel to the uterus; Lowensohn et al., 2016). The uterine glands or endometrium glands (is a simple tubular gland formed by a cavity or pouch in the mucus lining membrane in the uterus) secrete nutrients to the fetus during the first ten weeks of conception (Lowensohn et al., 2016). If the fetus is deprived of nutrients in the first trimester due to malnutrition in the mother's body, this can significantly impact its growth in the second and third trimesters (Pereira et al., 2016).

The fetus's body monitors its atmosphere and sets growth predictions according to nutritional factors and oxygen levels available in its mother's bloodstream through her placenta (Lowensohn et al., 2016). For this reason, maternal diet during pregnancy plays a significant role in determining the fetus's short- and long-term growth-related outcomes (Ji et al., 2016; Lowensohn et al., 2016). If the fetuses' body detects impaired or poor nutrition in its environment, this may cause the baby to be born with a shorter body (Khan et al., 2015; Kumar & Murkopathyay, 2019). Fetuses constrained by nutritional deficiency show persistent changes in their biology and metabolism, leading to reduced fetal growth (Agosti et al., 2017).

The maternal constraint is when the mother's small body size and limited nutrient supply reduce her baby's size during the last part of fetal development (Pereira et al., 2016). Nutritional signals, mental and social stress, and societal toxins are transmitted to a fetus through epigenetic processes (Miller et al., 2017a). For example, under stressful

conditions, the fetal growth of human males is much more likely to be retarded than is that of females (Bale & Epperson, 2015).

Poor nutrition in fetal development produces a permanent change in glucose-insulin metabolism (Ji et al., 2016). The central element of the thrifty phenotype hypothesis is poor nutrition in utero (Villanueva-Ortega et al., 2017). The hypothesis explains that malnutrition in utero can result in changes, the purpose of which is to adapt and survive in an atmosphere deficient in nutrition (Villanueva-Ortega et al., 2017). Nutritional exposures during critical periods of offspring development have epigenetic and biological effects that persist throughout an individual's life (Ji et al., 2016; Lowensohn et al., 2016; Villanueva-Ortega et al., 2017). Stress could alter the energy balance in the body, the availability of nutrients to the mother and the fetus, as well as cell signaling pathways (Villanueva-Ortega et al., 2017).

Insulin is a primary fetal growth hormone (Hellström et al., 2016). Exposure of the fetus to a high nutrient supply either in the form of glucose, fat, or global caloric excess during critical periods of development results in permanent alterations in the structure and function of vital systems involved in the regulation of energy balance and metabolic control (Lane et al., 2014; Tian et al., 2019).

One type of gene that is very important in fetal development is imprinted genes (Crespi, 2020). Imprinted genes play a role in controlling fetal growth and metabolism during infancy and later life (Crespi, 2020). The effects of overnutrition on the development of the fetus may not be facilitated directly by the nutrients themselves but by the influence that this nutrition has on the metabolic, hormonal prominence of the

mother (Calatayud et al., 2019). Although the fetal genome affects the development of a human being in utero, ecological conditions before birth affect fetal growth, birth weight, and neonatal survival in all cultures (Hellström et al., 2016).

Nutrigenetics.

Nutrigenetics studies the biological differences that people exhibit in response to the diets of different ethnic groups (Uthpala et al., 2020). It explains that since a wide variety of genetic variations among individuals are found even within a single ethnic group, it is hard to generalize one nutritional diet to different people, especially among other ethnic groups (Johnson, 2015; Uthpala et al., 2020). This discipline states that not every human body will respond similarly to the nutrients they eat because each person's digestive system works differently to absorb, metabolize, and transport food throughout the body (Johnson, 2015; Uthpala et al., 2020). Such a perspective suggests consideration of particular risks and benefits of specific diets or dietary mechanisms necessary to aid in tailoring a personal regimen for individuals (e.g., a pregnant woman; van Ommen et al., 2017).

Nutritional Factors in Pregnancy.

There is a need to understand the nutritional factors that must be present for a mother to have a healthy pregnancy and for a fetus to develop normally in utero. Maternal nutrition is a paramount health concern worldwide, especially in developing countries (e.g., Africa; Tafese & Kebebu, 2017). Maternal nutrition means different things to different people depending upon the mother's culture, community, and

socioeconomic status (SES) before conception (White et al., 2017). Pregnancy tends to widen the nutritional gap among many different populations of people in the world (Bianchi et al., 2016). Each people have a specific dietary need based on the foods available in that region of the world (Bianchi et al., 2016).

All mothers, no matter from what culture, tribe, or ethnicity in the world they come from, need the same amount of nutrients to develop their babies (Abubakari & Jahn, 2016). "The mother's body requires 30,000 calories for nine months to produce a baby, increase the size of the placenta and reproductive organs, provide energy for newly formed tissues and create additional fat stores in the mother" (Nabatanzi et al., 2015, p. 1267). However, due to the availability of foods in her culture and culturally transmitted strictures concerning maternal nutrition, she will have to adjust her nutritional intake accordingly. In some communities, the older women in that community or tribe will share with the pregnant women the specific traditions, myths, and chores the mother should engage in while pregnant (Chamberlin et al., 2016).

Maternal and Fetal Nutritional Needs.

In this section, I will discuss a mother's nutritional needs before she conceives a baby, the role her diet plays in developing her baby in utero. I will also discuss how nutritional stress and deprivation affect the way her fetus develops, the part that food security, food insecurity, and over and undernutrition plays in the health of both the mother and her baby later in life.

Maternal Nutrition Before Conception.

There are significant risk factors that can cause adverse pregnancy outcomes, such as nutritional status of the mother during the periconceptional period, which includes: preconception, conception, implantation, placentation of the embryo, and organ formation stages which happen during the second and third trimesters of pregnancy (Stephenson et al., 2018). Attention to adequate nutrition should begin not only in the prenatal stage but even earlier in the preconception stage as a woman prepares for pregnancy and childbirth (Bianchi et al., 2016). A woman's fertility and ovulation are affected by the foods she eats even before she decides to conceive a baby (Silvestris et al., 2019). The expectant mother is instructed on the foods to eat during the early stages of her pregnancy and those she should avoid at different stages of development depending on her cultural and ethnic background (Chamberlin et al., 2016).

Nutrition is passed from one generation to another, which significantly impacts pregnant women's lives, especially her reproductive system, even before she thinks about conceiving (Silvestris et al., 2019). Therefore, maternal nutrition needs to be adequate before the mother conceives (Ho et al., 2016). Upon hearing they are pregnant, some women may change the way they eat because they are concerned about the health of their fetuses (Silvestris et al., 2019). Other women may continue to eat and drink foods that are harmful to their fetus in utero and later in life because they do not understand the effects of the foods on fetal growth or may say, "my mom ate everything, and I turned out fine" (Buultjens et al., 2013).

Maternal Diet During Fetal Development.

Maternal nutrition during fetal development may predispose her child to a greater risk of chronic disease in later life (Arabian & Baschat, 2017; Dimasuay et al., 2016; Lamyian et al., 2017). Placenta growth is dependent on the quality of maternal nutrition (Dimasuay et al., 2016). Most mothers will do their best to continually make sure that they influence the dietary decisions of their children throughout their children's lives. The mothers will do this by reminding the children of the foods they should eat and those that are forbidden to them, especially in the lives of the females in their families (Kariuki et al., 2017).

Types of Diet***Plant based diet during gestation.***

Maternal nutrition during fetal development may predispose her child to a. Some people get most of their food from a plant-based diet because they believe it is the healthiest way to eat and lessens animal cruelty (Graça et al., 2015). Plant-based diets are typically inadequate because they lack one or more vital amino acids (Mecacci et al., 2015). A woman who eats a plant-based diet suffers less from complications such as gestational diabetes because this type of diet consists of a high amount of fiber (Pistollato et al., 2015). risk of chronic disease in later life (Arabian & Baschat, 2017; Dimasuay et al., 2016; Lamyian et al., 2017).

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do this by reminding the children of the foods they should eat and those that are forbidden to them, especially in the lives of the females in their families (Kariuki et al., 2017).

Vegan diet/ Vegetarian diet.

When a pregnant woman consumes a poor diet, is malnourished, or is fasting, her metabolism changes, and fetal growth undergoes chemical fluctuations because of the many hours of food and water restriction between meals (Avalos et al., 2020; Sultan et al., 2015).

Acute hunger may progress to starvation and then to severe ketoacidosis (a life-threatening condition in which the body cannot use blood sugar for fuel and breaks down fat for energy instead: Chausse et al., 2018; Hui & Shuying, 2018; Sinha et al., 2014). The mother's body uses the fats; she consumes more than it does the carbohydrates, which causes her baby to be deprived of sufficient amounts of starches and sugars for healthy fetal development (Herring et al., 2018; Sonagra et al., 2014). This condition, if left untreated, can cause neurological impairment for the mother or stillbirth of the fetus (Hui & Shuying, 2018).

In a review article conducted by Fitzgerald et al. (2020), the authors stated that a mother's diet is one factor that affects the development of her fetus's brain. A diet that is full of fat when a mother consumes it while her baby is developing in utero may grow up to exhibit behaviors that exhibit anxious behaviors and repetitive behaviors (i.e., generalized anxiety disorder, post-traumatic disorder, etc.: Fitzgerald et al., 2020).

Poor Diets.

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Types of Nutritional Stress in Pregnancy

Food security is when people have access to nutritious food because they have the economic means for obtaining it (Burchi & De Muro, 2016). Food security is a prerequisite for nutritional sufficiency (Burchi & De Muro, 2016). In South African

disadvantaged communities, food is highly valued due to low rates of food security (Peyton et al., 2015). In many developing countries, crops and livestock depend on seasonal climate change (e.g., in Africa; Taffesse et al., 2017). Food is not always available year-round, so the population suffers from famine and malnutrition (Taffesse et al., 2017).

African women have been described as household “gatekeepers” responsible for buying and preparing foods (Tafese et al., 2017). They are also the dietary change agents who influence healthy food consumption, such as fruits and vegetables (Sheats et al., 2013).

Food insecurity, in which pregnant women and growing children are especially vulnerable, could influence epigenetic programming to give rise to a range of diseases and adverse functional outcomes in the offspring (Iqbal & Ali, 2021). Food insecurity is a tenacious stressor related to scarcity and lack of money (Iqbal & Ali, 2021). Low-income families are far more likely to experience food insecurity than other families (Fiese et al., 2016). Food insecurity is when an individual must worry about when the next meal will come due to food scarcity or economic conditions (Iqbal & Ali, 2021). Babies who are born into these types of homes have a greater risk of developing an illness. Due to a lack of protein and micronutrients, children who become developmentally hindered may struggle in school-related tasks such as reasoning skills and mathematics (Fiese et al., 2016). In its most severe form, food insecurity is experienced as absolute food deprivation, which means that both mothers and their children are not eating anything at

all. Food insecurity constitutes the classical definition of starvation (Ke & Ford-Jones, 2015; Morales & Berkowitz, 2016).

Maternal food insecurity during fetal development is associated with several factors later in the fetus's life, such as obesity, depression, early childhood delays, adverse pregnancy outcomes, cleft palate, and spina bifida (Barua & Junaid, 2015; Pedroso et al., 2020). Any person undernourished or suffers from micronutrient deficiency is considered food insecure (Martínez-Galiano et al., 2020). It has also been associated with poor pregnancy outcomes, including low birth weight, gestational diabetes, type 2 diabetes developing in the mother and her baby in the womb, and increased pregnancy-induced hypertension (Darnton-Hill & Mkparu, 2015; Martinez-Galiano et al., 2020). Maternal food insecurity has been associated with mothers having a hard time losing the weight they gained while pregnant and returning to their prepregnancy weight (Tsai & Nicholson, 2017). Gestation is a time during which women can experience dramatic behavioral, physical, and psychological changes that can have direct implications for both fetal development and the future mental well-being of the offspring (Fitzgerald et al., 2020; Nikolopoulos et al., 2017; Soltani et al., 2017).

Under and over nutrition can co-exist in any society in the world, especially in developing countries and low-income communities in the United States (Adimma et al., 2017; Siddiqui et al., 2020). For example, in Africa under nutrition causes illness and death in both mother and fetus (Otekunrin et al., 2020; Shommo et al., 2015). Over nutrition and under nutrition are both types of malnutrition (Scrinis, 2020). Fetal malnutrition can stimulate or inhibit the development of disease in later life (Neha et al.,

2020). Under nutrition occurs from an insufficient consumption of proper food or from an augmented nutritional requirement or from losses that may occur in pregnancy and breastfeeding (Adimma et al., 2017). Being overweight as adults appears to be replacing under nutrition as a public health problem (Dukhi et al., 2019; Seidell & Halberstadt, 2015).

Women of childbearing age are at risk of poor health due to under nutrition and micronutrient shortages (Adimma et al., 2017). Fetal growth is most vulnerable to maternal dietary deficiencies and nutrients (e.g., fats, vitamins, and minerals) before pregnancy and during the first trimester of rapid placental growth (Grieger et al., 2014; Maqbool et al., 2019). Under nutrition in pregnant women may result from low intake of dietary nutrients due to the limited supply of food, severe nausea and vomiting in the mother, and early or closely spaced pregnancies (Rosen et al., 2018).

Malnutrition in Utero.

Malnutrition in utero is a global health problem, which affects mothers of childbearing age (Castrogiovanni et al., 2017). The assessment of malnutrition in women who live in developing countries becomes difficult because most of the citizens in such countries (e.g., those in Africa, Asia, and India) gather around on the floor or ground and eat from a shared pot. Therefore, making it challenging to evaluate the exact amount of nutrients an individual may consume at a given time (Abubakari et al., 2016). According to Desyibelew et al. (2019), malnutrition is getting better in third-world countries around the world except on the continent of Africa. Malnutrition is a condition that stems from an individual who consumes an unbalanced diet that contains insufficient macronutrients

(e.g., calories and proteins) and micronutrients (e.g., vitamins and minerals: Abubakari et al., 2016; Adimma et al., 2017; Arabian & Baschat, 2017). Malnutrition causes a specific type of stress on both the growth of the placenta and the baby in the womb (Papathakis et al., 2016). It is a significant cause of poor fetal development because it negatively affects the baby in the womb intangible and permanent ways by influencing the development and function of fetal organs (Kwon et al., 2017). When a baby in the womb is exposed to prolonged malnutrition (e.g., nutrients and micronutrients) in utero, it slows down the growth rate of the baby from that required for the fetus to thrive by decreasing the speed at which the baby can metabolize nutrients (Barker, 1998; Kwon et al., 2017). If this condition persists in the womb in the last part of the third trimester when the fetus grows most rapidly (Barker, 1998; Kwon et al., 2017), it will affect the tissue and organ formation of the baby. These effects on the newly formed organs will develop into the starting phases of specific illnesses during various periods of the offspring's life (Barker, 1998; Kwon et al., 2017).

During this critical period of development, maturation is associated with an increased risk of obesity and other metabolic diseases. It may affect the growth of the neural pathways responsible for regulating energy balance in the baby's body (Villanueva-Ortega et al., 2017). Malnutrition leads to a severe risk of developing the fetal immune system (Musumeci et al., 2015; Prentice, 2017). Other conditions that may be caused by malnutrition in utero are heart disease, stroke, diabetes, kidney disease, and respiratory health complications (e.g., lung function & development), as well as low birth weight (Korten et al., 2017; Luyckx & Brenner, 2015). Malnutrition during pregnancy

causes gestational diabetes, high blood pressure, fetal hemorrhaging, which generally causes fetal death, and neural tube defect complications such as low birth weight (Oluwole et al., 2016). Malnutrition also causes weak eyesight, increased danger of toxicity (infection) in the mother, thyroid enlargement, and anemia (Oluwole et al., 2016).

Maternal malnutrition has profound and enduring effects on the associations and functions of numerous biological systems in the fetus (Papathakis et al., 2016). It negatively influences the baby's growth, how it digests its food, and vascular development (Bianchi et al., 2016; Tafese et al., 2017). White blood cells (cells of the body that protect it from contagious illnesses and foreign attackers), and the surrounding plasma serve as a replacement or surrogate for the cells of the placenta and the growing body in the womb (Che et al., 2017). Immune process factors in the maternal environment which influence her white blood cells during gestation may also similarly impact cellular digestion in the fetus.

When the mother is malnourished, it causes her to have heavy bleeding when she has her menstrual cycle. If the mother is malnourished, she runs the risk of hemorrhaging while giving birth. Therefore, it may take her longer to conceive another child (Rajeshwari et al., 2020). Malnutrition during pregnancy can lead to fertility impairment by harming the development of the organs responsible for creating and regulating female reproductive hormones (Harrath et al., 2017; Kwon et al., 2017)

Fetal malnutrition can stem either from the nutritional condition of the women before and during pregnancy or from the abnormal functioning of the placenta, which can

deprive the fetus of the necessary food it needs to grow (Sgarbieri & Pacheco, 2017). The first case involves overt malnutrition, in which vital food particles are in too short supply in the maternal blood to support adequate growth for the fetus (Papathakis et al., 2016). The second case may entail fetal malnutrition, which compliments maternal illnesses characterized by deficient uteroplacental circulation (Dimasuay et al., 2016). The sign of fetal malnutrition is intrauterine growth retardation (the inability of a fetus to reach average weight for its gestational age: Ernst et al., 2017; Sgarbieri & Pacheco, 2017).

Fetal malnutrition is a medical disorder, which causes an increased rate of neurodisability, such as impaired cognitive development, selective attention (the mental ability that declines with age), cerebral palsy, and spastic paraparesis (Short & Baram, 2019). Most neurodevelopment in a baby is completed during the first 1,000 days after conception (Linnér & Almgren, 2020; Schwarzenberg & Georgieff, 2018).

Food security arising from cultural traditions and beliefs that people have in many developing countries is the leading cause of malnutrition during fetal development and maternal and fetal complications in pregnancy (e.g., frequent infections, Lennox et al., 2017; Tafese et al., 2017). In developing countries, socio-cultural customs, disparities in household norms and practices, and socio-economic issues can intensify a mother's chances of being malnourished (Tafese et al., 2017). Fetal malnourishment the world over is concentrated mainly in developing countries (Preston et al., 2018). Food insecurity can be caused by the mother's inadequate consumption of nutrients, by the poor quality of nutrients consumed (e.g., animal source foods and micronutrients from vegetables and fruits), heavy workloads, and the short spacing between pregnancies she

experiences (Tafese et al., 2017). The balance of nutrients in the maternal system may be a regulating factor in replicating, growth, and differentiation of new cells such as maternal white blood cells, fetal cells, and placental cells (Morrison & Regnault, 2016).

Nutritional Deficiency in Utero

Maternal good nutrition and health have a substantial influence on the uterine environment and, thus, on fetal growth and the health and wellbeing of the baby later in life (Sgarbieri & Pacheco, 2017). The types and amounts of food that the fetus is exposed to in utero can reprogram the expression of its inherited makeup (Barker, 2007; Sgarbieri & Pacheco, 2017). The Barker Hypothesis regarding the fetal origins of adult disease was established to help describe why the maternal diet is so vital to the growth of the fetus, including influencers upon fetal development. These influencers include how the mother stores the foods she consumes and how these nutrients are transmitted to the placenta to feed the fetus (Arabian & Baschat, 2017; Duque-Guimarães, & Ozanne, 2017; Singhal 2016). The development of this hypothesis initially arose out of an attempt to explain the relationship between cardiovascular disease and a baby's birth weight (Sgarbieri & Pacheco, 2017). Genetic processes and nourishment are the two factors playing a significant role in fetal growth (Workalemahu et al., 2018). The supply of food and oxygen influences genetic processes in the placenta (Mandy & Nyirenda, 2018). Barker's hypothesis can help explain the relationship between the mother's diet and the gestational process in the current study.

Therefore, by stating that any adverse environmental influence (e.g., nutrition) in utero and during infancy are associated with poor living standards [i.e., toxic living

conditions in poor minority neighborhoods (Arabin & Baschat, 2017)]. Those conditions make the fetus susceptible to disease (e.g., cardiovascular disease and diabetes) in adult life (Arabin & Baschat, 2017; Sgarbieri & Pacheco, 2017). Poor nutrition before pregnancy, during early pregnancy, and during the third trimester influences the timing of delivery and the birth weight of the fetus (Pathirathna et al., 2017). Fetuses who are subject to the low nutrient supply in utero tend to develop a lowered metabolic rate (Maršál, 2018). Therefore, these fetuses tend to grow slower, leading to minor physiology as adults (Maršál, 2018). Maternal nutritional deficiencies during pregnancy have been links to intrauterine brain development issues. These issues may cause neurodevelopment disabilities in the infant as an adult (Parisi et al., 2018). There is a positive association between periconceptional maternal consumption of dairy and healthy brain development in the fetus (Parisi et al., 2018). ***Household Food Insecurity.***

Household food insecurity is increasingly becoming recognized as an independent risk factor for many poor health outcomes for women and children (Chilton et al., 2017). Women who live household food scarcity are more likely to develop metabolic health conditions while pregnant. Living with these types of food insecurity can cause stress on women. Such women may seek relief by reaching for calorie-dense but nutrient-poor foods, increasing their risk of obesity (Jomaa et al., 2017).

Nutritional Stress and Deprivation.

Mothers endure tremendous burdens regarding the effects of nutritional stress and deprivation (e.g., avoidance of foods such as with food taboos) (Lindsay et al., 2017). Pregnancy heightens the effects of nutritional stress and deprivation (e.g., famine and

seasonal nutritional stress) enforced by cultural and ecological constraints (Lindsay et al., 2017). Stressors in the womb give rise to adult-onset diseases (Srivastava & Bhatnager, 2019). The interaction between nutritional deprivations and stress during fetal development causes an increased incidence of obesity, diabetes, and heart disease in the adult (Lindsay et al., 2017).

Maternal stress and anxiety are associated with higher maternal cortisol and inflammation, which could affect fetal growth (Miller & Georgieff, 2017). Such inflammation can adversely affect the baby's development of nervous system pathways in the brain (Miller et al., 2017b). When the fetus is exposed to maternal stress or poor nutrition, maternal and fetal adaptations prepare it for early delivery and survival in the hostile environment (Lilliecreutz et al., 2016). Nutritional deprivation in utero leads to widespread alteration of the epigenome (Feinberg et al., 2015; Tuscher & Day, 2019). The thrifty phenotype is a term which describes how the expression of the DNA of a nutritionally deprived fetus is reset to more efficiently utilize food sources to improve its changes for survival in society (Villanueva-Ortega et al., 2017).

Maternal Depletion Syndrome (MDS). Maternal depletion syndrome (MDS) is ordinarily used to describe poor maternal and infant health in developing countries (Bigiu et al., 2015). This syndrome has been attributed to nutritional stress of successive gestations and breast-feeding and includes softening of the bones typically through a shortage in vitamin D or calcium (osteomalacia), swelling of the neck resulting from swelling of the thyroid gland (goiter), anemia, edema, insufficient gestation weight gain, as well as little newborn birth weight (Onwuka et al., 2020). When the mother

experiences depleted nutritional reserves during the growth of her fetus and cannot recover after the baby is born, she may suffer from depression (Buultjens et al., 2013; Onwuka et al., 2020).

African mothers are at risk for adverse health outcomes during pregnancy and childbirth (Agbemenu et al., 2019; Remedios & Snyder, 2015). These risks include low birth weight newborns and pre-term deficiencies (Jember et al., 2020; Remedios & Snyder, 2015). African mothers facing the possibility of being mistreated are less likely than Caucasian mothers to seek medical care. This mistreatment contributes to higher rates of poor health care outcomes for themselves and their babies (Okoro et al., 2020; Remedios & Snyder 2015; Vedam et al., 2019).

Beliefs about Nutrition.

In this section, I will trace the nutritional influences of Africans. Many historical and cultural factors influence Africans' current dietary intake and food choices (Holdsworth & Landais, 2019). Women, especially mothers in most developing countries, oversee household nutrition and have long been entrusted with the primary duty of selecting, preparing, and serving foods to support their families (Tafese et al., 2017). History and culture shape and sustain particular behavior in many societies, and diet is no exception to this rule (Grew, 2018).

Africans

Females in Africa are often seen as the caretakers of cooking and child-raising traditions, especially grandmothers (Basseyy & Badu, 2019; Michel et al., 2019). In Africa, the act of preparing and eating food has a symbolic meaning. Africans see the

preparation and eating of a good meal as a sign of friendship and love among family and friends and employ them as opportunities for gastrodiplomacy (using food for communicating culture in public diplomacy context: Adesina, 2017; Oktay & Sadıkoğlu, 2018). In many rural areas in Africa, the residents still prefer to use their hands rather than knives and forks and dish out food from the same wooden bowl or plate while sitting on the floor in a circle (Okoror et al., 2007).

This act of eating together is a sign of cultural identity (time and place the food is offered and in what condition it is offered) in many African cultures (Okoror et al., 2007). Guests and the head of the household are served the best part of the meal in African countries. The mothers either eat before or after the guests and men.

In some cases, children eat with their mothers. In other cases, they may eat after everyone else. Men in Africa do not eat the leftovers because these foods are given to the children and mothers. In the absence of refrigerators in rural Africa (Waswa et al., 2020), even though countries like Nigeria have excess food, their citizens may still suffer from malnutrition due to leftovers going bad quickly and losing nutritional value. Many African homes' kitchens and eating areas are still the family gathering place and the location where traditions and values are passed down (Remigios, 2014). Therefore, the diets of individuals in many cultural civilizations can become a tool through which academics and researchers can observe the occurrences of the culture, along with its thoughts about the value, class, sex/gender, race, creed, and nationality of its citizens (Bonnekessen, 2010)

The Art of Cooking in the African Community.

African mothers consider cooking an art form and a way they share their love with friends and family. African girls are taught cooking from a young age (Sennott & Mojola, 2017). African pregnant women prepare and cook certain foods based on their religious and cultural traditions (White et al., 2017). For example, Mills et al. (2017) conducted a quantitative sizeable population-based cohort study in Fenland, where home cooking is ultimately linked with the cultural background of the cook. Also, eating meals cooked at home was associated with better nutritional value and lower weight gain.

Each cultural tradition has its distinctive ingredients and spices they use based on the taste of individual families or their cultural backgrounds (White et al., 2017). The ancient and gendered relationship between food and African women supports the observation that African mothers who cook take great pride in the act of cooking (Sennott et al., 2017). Cooking in the African culture is a type of skill and knowledge that these mothers develop from a very young age to entertain their family and friends. The foods they create become self-portraits, an expressive artistic creation (Fingleton-Smith 2018; Liburd, 2003).

The performance of food preparation ties African women to the past and their ancestors and is an art form that is privileged and unique to their cultural and historical identity (Liburd, 2003). Cooking can be labor-intensive, but cooks take pleasure in the effort (Fingleton-Smith 2018). When the cook's identity is attached to the preparation of the food, even more energy is required (Liburd, 2003).

Women in African communities use food as a meaning-making ritual to express and demonstrate how they feel about others, create fond memories, and sustain their

societal ties with their relatives and acquaintances (Liburd, 2003). African food is a representative symbol of love (Liburd, 2003). Therefore, rejecting an offering of food can be considered a rejection of the person offering it (Bonnekessen, 2010). Relatives, friends, and guests are often obliged to eat to excess to demonstrate receptivity to the love embodied in the food (Bonnekessen, 2010).

The Importance of Nutrients in Pregnancy

Nutrition plays a significant role in a woman's ability to conceive a child since successful fertilization is highly dependent on how nourished the mother's womb is at the time of conception (Ji et al., 2016). The fetus to develop into a healthy baby needs to be exposed in utero to fresh foods (e.g., kale, broccoli, meat, fish), vitamins (e.g., A, D), and minerals (e.g., folate, iron, calcium: Arabian & Baschat, 2017). These foods help develop the fetus, but it also helps the mother's tissues and metabolism (Bianchi et al., 2016).

When the mother does not consume nutrient-dense foods (fresh foods that are minimally processed), the fetal environment is altered. Potentially retarding its level of maturity and predisposing the fetus to illnesses as it grows up (Bianchi et al., 2016; Ji et al., 2016; Morrison & Regnault, 2016). Also, when the mother consumes foods with high sugar, fat, and calorie content during critical fetal development stages, this may permanently modify the fetus's metabolic system. Leading to potential memory issues (e.g., Alzheimer's and dementia) and sleep problems (Borge et al., 2017; Schneider & Garcia-Rodenus, 2017). When the mother is malnourished, she may experience a miscarriage because there are insufficient nutrients, vitamins, and minerals to help the cells divide to form an ovum or zygote (Morrison & Regnault, 2016). Not only does the

nutrition of the mother affect fetal development, but it also influences infections that she may be dealing with at the time of conception and throughout her pregnancy (Claycombe et al., 2015; Piedmonte & Hartford, 2020). The reason infections have such a strong negative effect on pregnancy is that some of the diseases may alter the number of nutrients available to the baby (Nti et al., 2016).

Nutrition in Africa.

Each country in Africa may have various acceptable or available animals for its people to consume. Two foods that are widely acceptable culturally are non-domesticated animals (e.g., wild animals, reptile, large body birds) and insects (e.g., West Africa: caterpillars, crickets, locusts, winged ants) because they both provide a good source of nourishment to the people living in impoverished tribal areas (de Bruyn et al., 2016). When a pregnant woman is deficient in macronutrients, her offspring may be born with smaller birth weight, develop insulin resistance, sugar intolerance, high blood pressure, or become overweight as an adult due to metabolic issues (Vafa & Mahmoodianfard, 2016). Pregnant mothers are at risk for multiple micronutrient deficiencies (Awuchi et al., 2020; Shommo et al., 2020).

African mothers oversee making sure the meals they serve to their families contain various nutrients such as legumes or foods from animal sources rich in protein and fats (Ene-Obong et al., 2017). Nutritious food containing enough micronutrients and trace minerals is vital to the development of the fetus in utero (Keats et al., 2019; Khayat et al., 2017). The maternal diet during pregnancy plays a significant role in developing a fetus (Groth et al., 2017). If the fetus is not exposed to nutrition, micronutrient, or trace

minerals, then malformations, disease, and fetal death will occur (Wilson et al., 2018). Micronutrient deficiencies should be prevented or treated before a woman conceives, which will improve fertility, fetal development, and maternal health (Allen & Jaramillo-Sierra, 2015; Djossinou et al., 2020).

Fetal growth relies on adequate nutrition. However, when the fetus lacks these vital nutrients because its mother may be living in a developing country and lacks the financial resources to get nutrients needed during gestation to avoid complications such as pre-eclampsia, obesity, and glucose intolerance in adulthood (Vahid & Mahmoodianfard, 2016). They are more likely to involve multiple inadequacies in poor quality diets due to inadequate intake of animal proteins (Nair et al., 2016). Women who do not consume meat or dairy products are also at risk of nutritional deficiencies (Bhandari et al., 2016). The link between maternal nutrition and fetal nutrition can be indirect, complex, and subtle (Calcaterra et al., 2020). The inadequate supply of nutrients forces the fetus to adapt by downregulating its growth and prioritizing the development of essential tissues and organs (Calcaterra et al., 2020) at the expense of less vital but still valuable systems. A marginal micronutrient deficiency in the first trimester could lead to a more severe shortage later due to pregnancy stressors and giving birth (Oh et al., 2020).

Co-existing nutritional deficiencies could reduce the potential dietary and illness benefits offered by a single nutrient supplement (Oh et al., 2020). Vitamins and minerals are vital for the fetus to prevent complications involving the heart, kidney, or respiratory system (Ganguly et al., 2020). The primary nutrients in pregnancy are protein, calcium, iron, and folate (Vafa & Mahmoodianfard, 2016). Adding these nutrients is indicated for

pregnant women when these nutrients do not exist in sufficient quantities in the foods the woman eats to sustain her health or the fetus's growth (Asali et al., 2020; Cetin et al., 2015). Women in Africa are expected to become pregnant after marriage. For example, if she does not, then it is seen as a violation of their ancestor's beliefs in that city or tribe. In Akwanu, East Africa, according to (Osei & Dankwa, 2019), the chief will know the woman ate something or did something taboo. Therefore, that woman will instantly become infertile, and that is believed to be bad luck.

Vegetables.

African leafy vegetables (indigenous/wild leafy vegetables/traditional vegetables), fruits, young roots, and flowers are among indigenous and culturally essential foods that are harvested and eaten in many local communities in large swaths of Africa (Kansiime et al., 2018; Omondi et al., 2016). These vegetables sprout naturally in the wild and are domesticated into the personal gardens of the African people (Omondi et al., 2016). The variety and amount of these leafy vegetables eaten depend on the respective neighborhoods, culture, ethnicity, gender, tribe, socioeconomic status, and age of the African people. For example, poor people eat these vegetables more than wealthier people, gender (e.g., females eat these vegetables more than males; Gido et al., 2017). Two hundred seven indigenous vegetables are growing in Africa out of 275 species known globally (Kansiime et al., 2018). These vegetables tend to be drought-tolerant, able to sprout in poor soil, offer suitable soil protection, and can be harvested within a brief amount of time (Mabhoudhi et al., 2017).

These vegetables are recognized inherently as African indigenous vegetables (e.g., spider plant also known as cat's whiskers or African vegetables), which contribute substantially to the everyday nourishment and diversity of the often-cereal based core diets of African people (Gido et al., 2017; Omondi et al., 2017). African indigenous vegetables were considered “the poor people's crop” (Kansiime et al., 2018; Omondi et al., 2016). These vegetables deliver significant vitamins and minerals, are nutrient-dense, and furnish vital protein and calories the poor farm people during times of famine and drought, helping to alleviate the hidden hunger (micronutrient deficiency in tropical Africa), which exists in many African countries (Kansiime et al., 2018). In sub-Saharan African countries, the issue of hidden hunger is not uncommon (Kansiime et al., 2018). The two groups of people affected by hidden hunger the most are pregnant mothers and their offspring (Alamu et al., 2020). To combat hunger, mothers need to make sure they serve a wide variety of foods to their families (Saaka et al., 2020) so that they too may partake in nutritious meals.

Country people in this region eat native and conventional vegetables in their diets (Gido et al., 2017). The African leafy vegetables are made into a relish and eaten with starchy primary foods (e.g., oatmeal). One vegetable type or a mixture of a diverse variety consumed daily may make these foods from one vegetable type or a combination of various varieties consumed every day (Kruger et al., 2018). Most indigenous produce may prepare a relish from animal products by either blanching or cooking the vegetables. Additionally, African soups or other garnishments are provided by various vegetables such as beans, lentils, or groundnuts with green leafy vegetables (Kruger et al., 2018).

Salt and other condiments (e.g., oil, butter, groundnuts, coconut, milk, tomato, and onion) are typically added for flavor to these vegetable dishes (Menyanu et al., 2021). African leafy vegetables are preferred above exotic vegetables (e.g., Swiss Chard, kale, cabbages) when they are available (Maseko et al., 2018). Suppose pregnant women, poor people, and children consume these indigenous vegetables. In that case, it will help eliminate nutritional deficiencies in their diets and substantially address malnutrition because of the medicinal qualities, high protein content, and vitamins contained in these foods (Kansiime et al., 2018).

Nutrients

Macronutrients (e.g., carbohydrates, fats, and proteins) are defined as those foods present in quantities of one gram or more in an individual's diet and provide energy for the body (Biesalski & Tinz, 2017). The environmental conditions influence the amount of these nutrients needed at harvesting (de Bruyn et al., 2016; Simitzis, 2017). For example, the weather, soil content (rich or deficient in nutrients), lack of water, and famine will influence the nutritional value of the food consumed.

Micronutrients.

There is a high need for a woman to consume these nutrients (e.g., folic acid, iron, vitamin D) during the years she can conceive a child (Ayensu et al., 2020; Biesalski & Tinz 2018). One of the most important of these nutrients and the most popular one that doctors tell their patients about is folic acid (vitamin B9 vital for cells to divide correctly during fetal development: Marangoni et al., 2016). Lack of Folic acid deficiency can also lead to anemia (deficiency in red blood cells in the blood) and leukopenia (reducing white

blood cells in the blood: Marangoni et al., 2016). In Ghana, pregnant women are deficient in iron, vitamin B12, and folic acid during gestation (Ayensu et al., 2020).

A cross-sectional study conducted by Mohammed et al. (2019a) studied pre-conceptual folic acid consumption among Ghanaian women. The authors found a low rate of Ghanaian women who took folate before conceiving a baby. The study results were that these Ghanaian women understood the significance of taking the Folic acid pill but did not take it before they got pregnant (Mohammed et al., 2019a). In an unmatched case-matched case-control study, Owusu-Sarpong & Tetteh (2017) mentioned that the risk for developing prenatal anemia in the Eastern Region was a lack of education of the pregnant women concerning what causes anemia. The authors stated that one of the leading causes of anemia is malaria, HIV, and Hookworm infections. Thus, the authors mentioned that a pregnant woman with anemia has a high chance of dying and her baby during gestation. The authors suggested that education is the best way to combat anemia in pregnant women (Owusu-Sarpong & Tetteh, 2017). An anemic woman may deliver an underweight baby or a baby with unfavorable bodily and mental development (Elema et al., 2018).

Hidden Hunger

Globally, 800 million individuals regularly suffer from starvation, malnutrition, and hunger, which means they are undernourished (chronic hunger: FAO et al., 2017; Gödecke et al., 2018). These people are not getting enough calories to sustain life (Sharma et al., 2017). Out of these 800 million human beings, 2 million live with a micronutrient deficiency (hidden hunger: Allen & de Brauw, 2018; Gödecke et al., 2018).

“Hidden hunger” is the term used among Tropical Africans, Sub-Saharan Africans, and peoples of the Horn of Africa to describe individuals suffering from micronutrient deficiency (Gödecke et al., 2018). Africans in this region of the country believe that micronutrients are the chief reason that the death rate of people is so elevated and why people are so economically impoverished (Grubben et al., 2014; Otekunrin et al., 2020). Hidden hunger is prevalent in the rural areas of Ghana (Pobee et al., 2020). Women and girls are most affected as it causes them to suffer from diminished physical growth, blindness, and reduced intelligence (Sharma et al., 2017). To fight this condition, people need to plant foods that have a high nutritional content, diversify the foods they consume, supplement their diets with vitamins and minerals when they lack essential nutrients, and fortify their crops against theft (Chemedo et al., 2018; Sharma et al., 2017).

Pregnancy and Nutrition in Africa

In this section, I will discuss the statistics of the African immigrant countries represented in the United States of America. I will also discuss the role that culture, and religion play in the types of foods Africans eat and some of the symbolic significance (e.g., meat) that food, cooking, and eating hold for many Africans. I will discuss the African diet and the types of foods that are typically eaten in these countries. This section will provide a foundation for exploring what kinds of foods pregnant women may be exposed to in Africa compared to what pregnant U.S.-born African American women might eat. What African communities eat can be viewed in the context of diverse socio-cultural and economic environments (Amaral et al., 2018). The food options differ from one region and community to another throughout Africa, although some important dietary

trends and similarities span broadly (Amaral et al., 2018). Generally, Africans eat their homegrown vegetables (e.g., garden egg: Agbozo et al., 2020) and fruits (Afari-Sefa et al., 2015). For example, in Ghana, the vegetables that are grown the most are hot peppers, yams, okra (Boon & Anuga, 2020), garden egg (African eggplant), Kontomire (leaf of cocoyam), plantains, sweet potatoes (Dzomeku et al., 2020). These locally available foods are the main foods people eat and constitute the basis of most meals. These staples may be nutritionally fortified and made tastier if a relish or soup and fruits are added.

In most African communities, people rely on one or two staple crops. Common examples include maize (corn), cassava, yam, sweet potatoes, rice, plantains, sorghum, and millet (Amaral et al., 2018; Boon et al., 2020). Such crops provide the bulk of the energy intake of household members in Africa (Amaral et al., 2018).

Taboos

In many parts of the world, pregnant women avoid foods due to medical reasons or a solid dislike for the food due to temporary appetitive changes associated with pregnancy (Demissie et al., 2017). In many parts of the world, especially in Africa, food avoidance during maternity may also result from food taboos (Demissie et al., 2017). This section will discuss the meaning of taboos and define and elaborate upon specific food taboos. I examined some of the positive and negative effects of food taboos on health in general and discuss who can impose these food taboos on the members of each tribe in Africa. I explained why food taboos for women exist in these tribes, particularly attention to taboos affecting pregnant mothers. I discussed food taboos peculiar to the country of Ghana.

A taboo is a belief that forbids groups of people with other people, places, or practices (Ekwochi et al., 2016; Zerfu et al., 2016). Most taboos have a cultural origin and meaning and cannot be scientifically or nutritionally validate (Dalaba et al., 2021; Ramulondi et al., 2020).

Two psychosocial frameworks used to explain all taboos are functionalist and symbolic (Altmann et al., 2020) frameworks. A Functionalists approach underlines the health-promoting aspects or ecological benefits of taboos (Altmann et al., 2020; Kuzma et al., 2013). For example, suppose a woman overeats protein in her pregnancy in Africa. In that case, the people believe that her baby will be born too big, and the mother will have a difficult delivery (Kariuki et al., 2017). The symbolic approach emphasizes the psychological assumptions of a belief (Altmann et al., 2020). In their views, Africans implement magical thinking; the person consuming the taboo food is believed to acquire the characteristics of the object or food consumed. For instance, a pregnant woman should not eat a snake while pregnant in Papa New Guinea in keeping with the belief that since the snake removes its scales, the baby of a woman who ate snake meat will have skin with scales like the snake (Kuzma et al., 2013). Also, women who are on their periods cannot consume red and newly cut animal protein. They are also not allowed to consume ripe or succulent bananas, creatures such as lions, and bushmeat, seafood like fish, as well as eggs (Angsongna et al., 2016).

Such beliefs stem from cultural, spiritual, or religious ideas (Altmann et al., 2020). An example of a taboo in some parts of Africa is that a pregnant woman cannot sit at the doorstep because they believe she will have difficult labor (Chinyoka & Ganga,

2017). These taboos and beliefs are slowly being replaced by nutritional education provided by doctors and nutritionists. In some rural regions of Africa, where most citizens live, these food taboos are still practiced among mothers and children (Abubakari et al., 2019; McNamara & Wood, 2019).

Food Taboos.

Categories of food taboos may relate to gender, health, conception, pregnancy and breastfeeding, culture, religious tradition, social mores, ancestral beliefs, illness, or economics, or ideas about temperature (Asi & Teri, 2016; Hadush et al., 2017; Riang'a et al., 2017). These classifications influence food preferences: foods selected for consumption and ultimately the types of foods people will eat (Riang'a et al., 2017). Health-related food taboos have originated because of behavioral and emotional changes after consuming particular foods (Asi & Teri, 2016). For example, after consumption of snails, some mothers were showing symptoms of allergies. Subsequently, snail consumption has been forbidden among some tribes (Asi & Teri 2016). In Ghana, if a pregnant woman eats a snail, for example, the people believe she will give birth to a baby who will exhibit the characteristics of the snail such as being slow or producing excessive salivation (Mahmoud & Ghaly, 2019).

In a systematic review study conducted by Tafese et al. (2017), African American women reported that they abstained from eating vegetables and animal protein foods during pregnancy because of cultural taboos, practices, and beliefs. Eliminating vegetables from the diet of pregnant women can have negative consequences on fetal development (Tafese et al., 2017). Deficient amounts of folic acid (abundant in some

vegetables) can cause a fetus to develop abnormally (Tafese et al., 2017). Folic acid is so vital to healthy gestation that there is a need for abundant amounts in the mother's body, preferably even before she considers getting pregnant. These same African women reported that eating during pregnancy is severely restricted because of the fear of the fetus getting large and causing complications during childbirth (Tafese et al., 2017). Food restrictions have been recognized as one of the issues contributing to maternal malnutrition in pregnancy, especially in rural African communities (Hadush et al., 2017; Maliwichi-Nyirenda & Maliwichi, 2016; Zerfu et al., 2016).

Food taboos can be enforced on people by strangers or by members of their group, elders in the community, mothers-in-law through instruction and examples during their upbringing, and husbands (Lennox et al., 2017). Food taboos could undermine people's health and nutritional needs, especially the vulnerable in society (Hadush et al., 2017). For example, women may be deprived of nutrients from certain foods resulting in iron and protein deficiencies (Riang'a et al., 2017; Zepro, 2015).

Food taboos are relatively common among poor communities, especially in Sub-Saharan Africa. They are often more strictly practiced by pregnant and lactating women to prevent what they perceive as harmful effects which those foods have on newborns (Ekwochi et al., 2016; Riang'a et al., 2017; Saaka et al., 2017). The diets that are found in these poor populations mainly consist of fruits, starches, and vegetables. These communities consume little, or no meat produces (Saaka et al., 2017).

Different cultures in several countries worldwide have various reasons for forbidding the consumption of the meat of certain animals (Mahmoud & Ghaly, 2019).

For this reason, in several countries in Sub-Saharan Africa, the people eat a predominately plant-based diet (Asayehu et al., 2017). This plant-based diet, they believe, prevents pregnant women from consuming certain foods, affecting fetal growth (Kuzma et al., 2013).

In Africa, drinking fluids is encouraged for mothers during gestation (Amon-Tanoh-Dick, 2015). Most food taboos are lifelong for women in most ethnic groups in Africa. However, in some ethnic groups, food taboos such as those concerning meat consumption and protein are only restricted to part of the women's life (e.g., pregnancy and lactation: Kuzma et al., 2013). The meats pregnant women across Africa are forbidden to consume come from mammals, rodents, reptiles, amphibians, bony fish, and crustaceans (Nwusu et al., 2013). Some of the taboos are specific to a particular part or excretion of an animal. Other taboos forbid the consumption of plants, fungi, or insects (Nwusu et al., 2013). For example, eggs have long been associated with sexuality, reproduction, and a new life (Washington, 2015). Therefore, eating eggs (e.g., chicken) is a common taboo for pregnant women in Africa (Washington, 2015). Africans do not consume slimy and pasty foods such as sticky rice or plantain sap (Amon-Tanoh-Dick, 2015) during fetal development because they believe these foods will interfere with the baby's delivery.

Pregnant women are sometimes told to avoid eating and preparing foods that seem to have a cooling sensation (e.g., ice cream, watermelon, bananas, and mung beans because these foods, it is thought, can lead to miscarriage (Washington, 2015). Other foods that pregnant women are supposed to avoid are pineapples, shrimp, and mangoes,

as it is thought these foods can cause allergies or skin problems in the baby. Pregnant women believe that cold, oily, and spicy foods can cause infertility and that women should avoid these foods as well (Washington, 2015). In a mixed-methods (quantitative and qualitative) study conducted by Bentley et al. (1999), the authors spent over eight months among the Lese horticultural women living in Ituri Forest in the northwestern Democratic Republic of Congo. The authors stated that the Lese women could augment the environmental, biological, and cultural restrictions of nutrition (e.g., food taboos) in their bodies. However, despite this ability, the study showed that women who place a high value on food taboos have higher rates of fertility complications (Bentley et al., 1999). Fertility complications become a problem because African women are expected to become pregnant right after they get married.

Eating ripe plantains due to their softness is believed to result in lethargic and soft babies and may cause prolonged labor (Otoo et al., 2015). Okra is believed to cause burning sensations in the mother's waist and stretch delivery (Otoo et al., 2015). Eating groundnuts, in some cultures, is believed to cause the infant to become sleepy during labor (Otoo et al., 2015). Consuming mangoes and sweet potatoes during pregnancy is thought by some cultures, make the mother have prolonged and difficult labor (Otoo et al., 2015). According to some cultures, fruits, crabs, and unripe plantains seem suitable for pregnancy (Otoo et al., 2015). Pregnant women in some cultures believe that crabs and fruits make both women and unborn babies healthy. Since unripe plantain is hard, it is thought to make the unborn baby strong and give the mother strength during labor (Otoo et al., 2015).

In many parts of the world, food taboos are often meant to protect people from allergies and depression (Ugwa, 2016). The avoidance of certain food substances and improper information concerning their advantages can deny women of adequate nutrition, of good nutrition, especially during the critical periods of maternity when it is of great use to the mother and her fetus (Hadush et al., 2017; Maliwichi-Nyirenda & Maliwichi et al., 2016; Ugwa, 2016).

Food taboos are subject to change due to levels of literacy that prevail in society and due to cultural contacts. Adherence to taboos varies across food items and communities; for example, what is considered a taboo in one community may not necessarily be taboo in another society in the same country (Asi & Teri, 2016). Also, a pregnant woman who may be disobedient to a particular food taboo may apply possible social sanctions if a pregnant woman is defiant to a specific food taboo (Hadush et al., 2017). Adherence to food taboos is greater among teenagers than among older pregnant women (Hadush et al., 2017). Poor maternal nutrition reduces fertility and causes an increase in infant mortality.

Food Taboos in Ghana. If the mother is malnourished, she cannot transfer nutrients from her placenta into the fetus bloodstream, instigating an absence of brain growth in her baby. The placenta has multiple layers that food and substances have to cross to nourish the fetus. When this process does not proceed smoothly, it can have dire consequences in fetal programming (the fetus's response to the environment in the womb and its effect on disease development later in the baby's life). Therefore, it may set the stage for disease in later life for her offspring (Kwon & Kim, 2017).

Chosen Methodology

A descriptive qualitative study has been performed on different types of studies related to pregnancy. HaCohen et al. (2016) conducted a qualitative narrative analysis of difficulties faced by married women with fertility complications who eventually conceived a baby naturally. The researchers wanted to understand the two to six-year-long journey these women took to conceive their first child naturally (HaCohen et al., 2016). HaCohen et al. (2016) interviewed women in their second or third trimester of pregnancy with their first child. The study, which involved 12 women, showed that concerns about infertility dominated their attention as they were trying to become mothers. Once pregnant, they did not think about the challenges they faced before that point (HaCohen et al., 2016). The study illustrates how vital fertility can be to a married woman's state of mind.

Health Psychology's Approach to the Problem

Health psychologists approach pregnancy, fetal development, and nutrition in a couple of ways. Atkinson et al. (2016) conducted a qualitative interpretative phenomenological analysis of gestation being a teachable moment in a women's life to adopt healthy routines. The authors wanted to study the views of seven women about diet and physical activity while being pregnant for the first time (Atkinson et al., 2016). The study showed that once women learned they had conceived a baby, they will instinctively begin to alter their eating and bodily movement to benefit their gravidity (Atkinson et al., 2016). Therefore, these women did not need a doctor or midwife to motivate them to live

a healthy lifestyle. They would automatically take the initiative. Thus, in the authors' study, gestation did not become a "teachable moment" (Atkinson et al., 2016, p.842).

Macleod et al. (2018) conducted a systematic review of literature on abortion in Africa. These researchers took the feminist health psychology approach to abortion to understand its implications in Africa (Macleod et al., 2018). According to Macleod et al. (2018), the literature on abortion in Africa paints a picture of African women who are desperate to undergo the killing of their fetuses on a continent that highly values children. The abortions conducted are unsafe because they risk the bodily health of these women. They also affect their acceptance in society because such women are stepping outside of the strictures of their culture concerning what it means to be female (e.g., reproduction) and traditional practices (Macleod et al., 2018). All of this explains why African women a difficult time have asking health care professionals for help (Macleod et al., 2018).

Strengths and Weakness of Other Studies About Nutrition and Pregnancy

In the previous literature, researchers have studied pregnancy and nutrition both quantitatively and qualitatively. In the following section, I explored the advantages and disadvantages of their research methods, I discussed four research articles to explore the advantages and disadvantages of their respective research methods. The studies include:

- A double-blind, randomized control study.
- A systematic review studies.
- An animal studies.
- A qualitative focus groups.

Ogundipe et al. (2016) in London, England, supervised a double-blind, randomized control study. The authors selected both healthy and high-risk expecting women to evaluate the effect of fatty acid supplementation (e.g., fish oil) in these women's diets. The women were selected from a hospital in London. The study found that the mother's state in the months leading up to conceiving a baby is a principal predictor of gestational time. The strength of this study is that it shows the importance of a woman's diet when it comes to brain and neurodevelopment in her baby (Ogundipe et al., 2016). The limitation of this study is that it may not be generalizable to populations of women in different parts of the world as it is limited to a specific hospital and city.

A systematic review of the literature by Ashman et al. (2017) was conducted to ascertain interventions aiming to improve gestation effects in Aboriginal women of Australia and New Zealand. It used abstracts and titles to pick the articles that were eligible for the review. Ashman et al. (2017) reviewed the information they gathered for narrative themes. This study is based on 315 studies that the authors examined. These articles lacked detail about how the interventions were established and run. Also, the authors used a non-randomized control cluster of individuals to gather the effectiveness of interventions needed to answer their research question. Performing a quantitative study like this lacks the face-to-face interaction of the Aboriginal people and hearing from their voices about the foods these women believe are healthy for them to consume while pregnant. A qualitative semistructured interview will bring a voice to a group of people who may not have had an opportunity to express their beliefs in their own words before. Systematic reviews are a standardized method (e.g., replicable, transparent, objective,

unbiased, and predictable methods) of conducting research. A limitation of systematic reviews is that much depending on how the researcher decides to report the data, what information they select for inclusion, the location of the data, and the potential loss of data which the researcher may not have the ability to clarify and accurately communicate the data found.

In animal trial research, Malik et al. (2017) studied the effect of stress by comparing mothers who are under nutritional pressure during pregnancy with mothers who are not. The authors noted that this stress harms the placenta and fetal weight compared to mothers who were not stressed. Mice were used as the subjects of the study because it is hard to study human fetuses. Malik et al. (2017) results obtained through mouse studies may be relevant to pregnant women who undergo substantial fasting in human pregnancy. Malik et al. (2017) results might yield clues about how fetal brain development may affect mental or physical behavior after birth.

The strength of this study is that health care providers based on animal studies are now aware of the impact that stress has on pregnant women and can educate their patients on how to reduce the amount of stress they may be facing in their lives. The advantage of animal studies is that it puts no risk on human beings. A disadvantage of animal studies is that since the animals used in these experiments are bred specifically for laboratory use, their relevance to testing human diseases (Akhtar, 2015) is limited.

In a qualitative study conducted by Hunter-Adams and Rother (2016), the authors led focus groups and interviews with women and men living in low and middle-income communities from three African countries (e.g., Congolese, Somalia, and Zimbabwe)

who migrated to Cape Town, South Africa. Hunter-Adams and Rother (2016) were interested in studying these African cultures' maternal and infant nutrition beliefs. The authors wanted to understand the impact of food yearnings (e.g., cravings) in gestation regarding traditional native meals of the immigrants in Cape Town and junk food (e.g., Nandos & Kentucky Fried Chicken) which has become prevalent in South Africa in recent years. Hunter-Adams and Rother (2016) study showed views on food during pregnancy mainly reflected habits and traditions from their native countries. Hunter-Adams & Rother (2016) found that what is essential is not so much whether African immigrants believed the food cravings were for healthy foods (e.g., traditional native foods) or junk food.

The strength of this study is that Hunter-Adams and Rother (2016) conducted focus groups with both men and women to get a perspective of the implication of food cravings in pregnancy. The focus group with men and women was a well-rounded approach. It helped design programs for health care providers treating immigrant populations that migrate from one African country to another. A limitation is that focus groups are not efficient in covering the maximum depth of a particular issue. Another is the likelihood that the focus group participants may not be frank and truthful in expressing their views on a specific subject being studied (Kook et al., 2019).

Rationale for Selection of Key Concepts from Literature

The topics chosen for the literature review for this study were developed so that the reader can understand the effects of maternal nutrition on fetal development in general. I picked concepts that were relevant to a study about food. To understand how a

fetus is affected nutritionally by its mother, the reader needs to understand the mechanics of what guides the embryo's development in the womb. I chose to explore how epigenetics is implicated in the programming of embryonic development as influenced by multiple generations of lived experience (Feinberg, 2018). Since this is a descriptive qualitative study regarding nutrition and fetal development, I wanted to explain an aspect of nutritional epigenetics. Just as genes are understood to operate in epigenetic processes, the reader is led to understand how nutrition affects the genes and influences an individual's health, specifically during the nine months of gestation (Stover et al., 2018).

Once the reader understands the impact of nutrition on the cells of the human body, then they can understand the next level: fetal epigenetics, which explains how the fetus develops tissues and organs and how these tissues and organs function correctly when their mother consumes adequate nutrition. Fetal epigenetics also explains what happens to these same tissues and organs when the mother is malnourished. Fetal epigenetics, therefore, explain the adequacy of food contributes to the health of the baby later in their life (Gartstein & Skinner, 2018).

After a person understands the mechanics behind how a fetus develops, they can better understand the role of fetal nutrition. What types of food are necessary for the fetus to grow in utero? Fetal nutrition explains that the fetus will take whatever nutrition they need from their mother for its health (Kwon et al., 2017). The fetus does this whether the mother needs that specific nutrient to survive or not (Kwon et al., 2017).

Nutrigenetics was incorporated in this study review because it explains to the reader that not all types of food are nutritious for every culture or ethnicity. For example,

there might be foods in Africa that only Africans have the enzyme to digest efficiently. If a European person were to eat such food, they might become sick. Nutrigenetics describes the connection and rich interaction between genes and nutrition, furnishing us with (among other things) a partial understanding of why nutrition can be so individualistic (Alpert, 2016). Preparing foods can even consuming those foods are all based on cultural and ethnic differences. These differences include preparing foods, eating raw or cooked, eating sweets, and the types of liquids the person drinks. However, cultural differences can even show when an individual or a group of people prefer to eat those foods. Either by hand, using utensils such as spoons, knives, and forks, or even eating with chopsticks. In some cultures, people sit either on the floor or on the ground and eat their food from the same bowl (Senghor et al., 2018).

Plant-based and vegetarian diets are the type of diets most Africans follow (Senghor et al., 2018). In general, Africans consume more grains and eat fewer fruits than other peoples (Senghor et al., 2018). The day's main meal is lunch, which usually consists of a mixture of rice, legumes, fish, and sometimes red meat or chicken (Senghor et al., 2018).

African women are responsible for putting food on the table. It helps people understand how African women obtain food defined relative food security and insecurity to help understand how African women get food (Gorman et al., 2017). In a qualitative study using an eighteen-item Core Security Module, Gorman et al. (2017) showed that mothers obtain food using various strategies to feed their children and husbands.

Women's methods are based purely on their cultural and ethnic backgrounds (Gorman et al., 2017).

Over and under-nutrition was selected to explore how nutrition quality and quantity affect a mother's reproductive ability and egg maturity (Chadio & Kotsampasi, 2017). Maternal malnutrition can result in the mother experiencing anemia, preeclampsia, or hemorrhaging during labor (Papathakis et al., 2016). In addition to over and undernutrition, malnutrition in utero can yield complications for the fetus by stunting the baby's growth (Papathakis et al., 2016). Stunted development has become the most prevalent form of malnutrition in children in Africa (e.g., Ghana; Orsino et al., 2018; Matsuno et al., 2017). The consequence for a child who is stunted at birth may be devastating and include the possibility of diminished mental growth (Ersino et al., 2018).

Nutritional deficiency in utero can program the fetus to a life of chronic disease. It is elucidated by the Barker Hypothesis (Barker, 1998). It outlines the developmental origins of disease and states that there is no other time in a person's life more vital to an individual's long-term health than the nine months they spend in their mother's womb. It is the period during which the programming of cells and tissues of the body occurs, potentially paving the way (when things go wrong) to life-long illness (Barker, 1998; Reichetzedder et al., 2016).

Nutritional stress and depression were examined after nutritional deficiency because not having adequate nutrition can induce stress in the body. However, when this stress happens during pregnancy, it modifies the mother's constitution, negatively influencing fetal development (Chan et al., 2018). Chronic stress leaves epigenetic

imprints, which in turn are passed down to successive generations through the female reproductive system (Chan et al., 2018). Children exposed in utero to maternal stress can develop include autism, attention disorders, and schizophrenia (a disability that affects the way a person thinks feels and behaves clearly). I included autism in this study due to its prevalence in South Africa (Guler et al., 2018). It also plays a significant role when I discuss maternal depletion syndrome. In developing countries, the maternal depletion syndrome framework helps to explain maternal and infant health issues, such as the importance of the mother spacing her pregnancies far enough apart from one another to replenish her nutrients after giving birth (Onwuka et al., 2020).

Cooking is extremely valuable among many African cultures (e.g., Ghana). Females from a very young age are taught to be good wives; they need to learn how to cook (Sennott & Mojola, 2017). I have therefore explored the traditional roles of African women in their families and communities. In these third-world countries, a woman's worth is often substantially based on her ability to cook food for her family and her capacity to procreate (Sennett & Mojola, 2017). Not being able to cook or become pregnant may result in the women's husband and in-laws kicking her out of the house. Not being able to cook disgraces her husband and impacts how her parents are seen in the community. The community may think the parents were not able to teach their daughter the art of cooking. Most women (it is commonly believed) should cook without using a recipe book and know what seasonings to use with each dish (Sennott & Mojola, 2017).

African diets consist mainly of starches and vegetables (Afari-Sefa et al., 2015; Kunindjani et al., 2020). African vegetables contain high amounts of micronutrients. One

type of African vegetable, which is amaranth, is the most preferred vegetables eat by Africans. Other vegetables that Africans eat are African eggplant (possessing natural ulcer-preventative properties) and jute mallow (leaves and stems eaten in various forms in soups and a vegetarian spread): Afari-Sefa et al., 2015). Each of these indigenous vegetables is rich in micronutrients (e.g., iron, zinc, vitamin A, & phytochemicals: Afari-Sefa et al., 2015). They also safeguard individuals against certain diseases (e.g., Africa cervical cancer & diabetes): Afari-Sefa et al., 2015; WHO, 2019). These vegetables (e.g., African eggplant) are generally well-liked, drought-tolerant, and require little effort to cultivate or refine satisfactorily: Afari-Sefa et al., 2015). Indigenous African vegetables represent a vital part of the diet of most Africans, for which reason I have included this essential topic as a part of the present study.

A Kizirian et al. (2016) ecological study of a secondary analysis of the GI Baby 3 Study found that the more extreme the mother's diet, the greater the effect on the growth of fetal tissue demarcation and propagation. A mother's diet later in gestation can influence fat cell development in her baby (Kizirian et al., 2016), which means that the growth of fat cells in the fetus and the distribution of these cells depends on the diversity of their mother's diet (Kizirian et al., 2016). Both the creation of fat cells and their distribution in the fetal body occur systematically within the trimester schedule (Kizirian et al., 2016). Studies have shown that a baby's fat tissue is diminished mainly in a mother's pregnancy (Kizirian et al., 2016). Micronutrient undernourishment in the mother's diet can produce high blood pressure and fatness from birth to age four. The diet creates both conditions their mother eats (Crume et al., 2016). The study showed that

when the mother is well informed about the effects of macronutrients nutrition on fetal health, she could help lessen the consequences of malnutrition on her child's BMI (Crume et al., 2016).

One of the most common forms of malnutrition found in breastfeeding mothers and women of childbearing age is micronutrient deficiency (Oluwole et al., 2016). Micronutrients are minuscule amounts of elements and compounds that the human body needs (Richard et al., 2017). Micronutrient deficiencies can lead to increased illness (Oluwole et al., 2016). These nutrients can pass the placenta wall (Richard et al., 2017). When a woman has an adequate number of micronutrients, it helps her baby grow normally (Richard et al., 2017). A lack of micronutrients such as folate, iron, iodine, zinc, and copper (Richard et al., 2017) during gestation can negatively affect cognition (Richard et al., 2017). A micronutrient deficiency for a fetus also increases the risk of becoming fat and developing insulin resistance later in life (defiance of the hormone insulin, which causes an increase in blood sugar: Richard et al., 2017).

Micronutrient deficiency increases the risk of fetal and maternal deaths while the mother is pregnant (Richard et al., 2017). I included micronutrients deficiency in this study because it has caused complications in women from developing countries (e.g., Asia and Africa). These complications range from congenital disabilities from a lack of folate in the diet to megaloblastic (a type of anemia) and cell demises (Richard et al., 2017). Foods known to be the best contributors to folate and vitamin A are dark green leafy vegetables (Oluwole et al., 2016). Iodine deficiency disorder causes damage to the

fetus's brain, inherited deformities, abortion, miscarriage (stillbirth), and prenatal demises (Oluwole et al., 2016).

I decided to include hidden hunger (a severe form of malnutrition) found in the African people (Uchendu, 2018). Hidden hunger prevents people from surviving and thriving (Kurabachew, 2015). People suffering from hidden hunger may experience impaired eyesight (blindness) caused by vitamin A deficiency, illness, and death, particularly in the younger generations, increased disease in women of childbearing age and breastfeeding mothers (Kurabachew, 2015). Vitamin A deficiency causes eye problems (e.g., xerophthalmia, a progressing eye disease that causes abnormal dryness of the transparent membrane covering part of the front of the eye and cornea of the eye). It also can limit the growth of the fetus, weaken the immune system of the mother, and increases the chances of death in the mother and her baby (Kurabachew, 2015). In Ghana, the micronutrient most essential for securing the nation's health is iodine (Abu et al., 2019). Rice is the staple food in Ghana (Hackl et al., 2019).

In the taboos section, I explained what taboos were in general, and then, in pursuit of my study's inquiry into the impact of the lack of foods on fetal development, I focused on food taboos. Food taboos are strictures and restrictions concerned with foods that arise from religious and cultural concerns and traditions (Zepro, 2015). In a cross-sectional study conducted by Uzma et al. (2016), taboos are passed down from one generation to another by the elders in the woman's family. The woman has no choice but to listen to them and practice what they do preach. For example, Uzma et al. (2016) stated that pregnant women in India are not allowed to consume papaya and green leafy vegetables

while pregnant as they are thought to cause the mother to miscarry. Hot foods are also considered to make a woman miscarry, while cold foods damage the fetus (Uzma et al., 2016).

In a pre-post intervention cross-sectional analysis study conducted by Cherkose et al. (2015), the authors stated that once educated pregnant women learned about the impact of not consuming certain foods on their pregnancy; these women started consuming those foods right away. Once they ate foods like milk, meat, and eggs, they saw their iron levels rise significantly which educated pregnant women about the importance of consuming foods that contained iron in them they began to see an increase in their iron levels improved significantly. Various ethnic groups such as those from Kenya, Ghana, Iran, India, Pakistan, Mexico, Central America: (Ezzeddin et al., 2017; Intiful et al., 2016) augment their diets with food other than vegetable times of scarcity or in compensatory response to restrictive taboos.

Studies Related to the Research Questions

No other researchers have studied maternal nutrition and fetal development the way I have researched and studied the topic. Most of the articles that I have employed in my research came from medical journals and psychology journals by doing a broad search for maternal nutrition and its impact on pregnancy. Most researchers were concerned with either the effects of maternal nutrition on the weight of the baby (Bhaskar et al., 2015; Pereira-Santos et al., 2019; Santangeli et al., 2015) postpartum impacts of diet on the mother's mental health (Contu & Hawkes, 2017; Lee et al., 2019; Moussa et al., 2016a), obesity in the mother and offspring (Godfrey et al., 2017; Howell & Powell,

2017; Koletzko et al., 2019), breastfeeding the baby (Fledderjohann et al., 2016; Leurer et al., 2019) and baby's birth weight (Muchemi et al., 2015; Nyamasege et al., 2018; Tshotetsi et al., 2019).

Reason the Approach (Descriptive Qualitative Study) is Meaningful

Researchers in the fields of medicine and psychology have conducted several types of research: such as extensive experimental research on rodents and non-human primates (Malik et al., 2017), recruited participants from Facebook to complete an online survey (Lee et al., 2019), a hospital-based unmatched case-control study (Bhaskar et al., 2015), a literature review (Moussa et al., 2016b), a case-control study (Tshotetsi et al., 2019), a systematic review (Dörsam et al., 2019, Sanderson et al., 2019; ter Borg et al., 2019), a cross-sectional analytic study (Muchemi et al., 2015), a cluster randomized controlled trial (Nyamasege et al., 2018), a scoping review (Sanou et al., 2014; Warland et al., 2018), quantitative studies (Hrolfsdottir et al., 2019; Zhao & Han, 2019), and discourse analysis self-presentation on Instagram (Mayoh, 2019).

All of the studies mentioned above conducted in medicine or psychology are about maternal nutrition and pregnancy. No other studies were conducted looking at maternal nutrition and fetal development, the way that I am studying the topic. Narrative studies have been completed, but the topics range from smoking and pregnancy (Gould et al., 2017), postpartum and new mothers peer support (Leger & Letourneau, 2015), narratives of women living with obstetric fistulas (Mselle & Kohi, 2016), and race and reproduction (Nikolajski et al., 2015). I conducted a descriptive qualitative study where I performed semistructured interviews of 25 Ghanaian immigrant women living in the

United States. I wanted to learn about their beliefs about the role of maternal nutrition and its effects on fetal development. So, conducting this type of study was meaningful because I wanted to hear these women's stories firsthand and not read their experiences in other research studies conducted by other researchers. The different types of studies conducted were systematic literature reviews or scoping reviews and quantitative studies. These firsthand stories allowed me to observe the participants, to listen to the sound of their voices, to write a descriptive qualitative account of their lived experiences of immigrating to the United States and becoming pregnant in a way that no other researcher has captured before.

Summary and Conclusion

Parenting begins before a woman and a man decides to start a family. Therefore, the fetus's health starts not when conception but when the mother has conceived herself (King 2016). It all begins with the foods that the fetus's ancestors ate (great grandmother, grandmother, etc.) and their mother's experiences, which influences how these foods affect the development of that fetus in utero and after birth (King 2016). Nine months of pregnancy is a very challenging time for the mother. There are many factors her health, her financial background, the way friends and family treat her, her stress level (psychological), and her racial background can play a role in how her fetus develops (Neiterman, 2013; Vedam et al., 2019). For this reason, young girls must be taught that the decisions that they make in their lives do not just affect them but also their offspring in the future (King, 2016).

The development of both the placenta and the fetus (fetal nutrition) depends on the nutritional background of the mother (King, 2016). Therefore, the mother's dietary position when the egg and sperm unite affects the process in which nutrients of the food she consumes are divided between the fetus, placenta, and her own body (King, 2016). Consequently, if the female experiences a lack of nutrition during the growth of the placenta or the development of fetal organs, then the damage is done will be permanent (King et al., 2016). However, suppose the mother who experienced dietary restrictions to food taboos or religious guidelines changes to a better and healthier lifestyle while the fetus is developing. In that case, the mother can sustain a healthy pregnancy. (King, 2016).

In health psychology, researchers (Fletcher et al., 2018; Sabuncuoglu & Basgul, 2016) mainly have focused on the effects of maternal nutrition on the weight and size of the baby after they are born. Researchers such as (Steiner et al., 2017; Tyrrell et al., 2016) find that obese women have issues with fertility and that their children suffer higher rates of illnesses such as asthma, diabetes, mental health issues, and heart disease later in life.

Researchers (Mohammed et al., 2019b) have studied the effects of food taboos and religious food restrictions on the health of mothers in Ghana as well as their babies. To what extent do Ghanaian women continue to adhere to the Ghanaian strictures and taboos concerning food while they are in the United States instead of adapting to the nutritional standards and habits extant in the United States? Understanding what types of foods Ghanaian immigrant women will and will not typically eat will help healthcare providers create culturally relevant health programs. As revealed through the reports of

my participants, a descriptive qualitative study methodology allowed me to tell a rich and insightful story. That explored the beliefs and experiences that drive many Ghanaian immigrant mothers' nutritional and dietary decisions and habits and how these choices affect the development of their offspring in utero.

Chapter 3: Research Method

I discuss in this descriptive qualitative study the beliefs of immigrant Ghanaian women living in the United States about maternal nutrition, food taboos, and fetal development. In this chapter, I discuss the research design and rationale for this study, the role of the researcher, the methodology chosen for this study, researcher-developed instruments, procedures for the pilot study, procedures for the main study, procedures for recruitment, participation, data collection, the data analysis plan, issues of trustworthiness, and ethical procedures. The chapter closes with a summary of and transition to Chapter 4.

Research Design and Rationale

Research Questions

RQ1: What is the lived experience of Ghanaian immigrant women regarding their beliefs about maternal nutrition and fetal development?

RQ2: What is the lived experience of Ghanaian immigrant women regarding nutritional foods and fetal development?

Central Concepts and Phenomenon of the Study

The central phenomenon of my study was the lived experiences of Ghanaian immigrant women living in the United States and their beliefs about maternal nutrition, food taboos, and fetal development. The biopsychosocial model (Hamed & Attiah (2019) was the theoretical framework for this study. The results of this study may help medical providers, obstetrics and gynecologists, health coaches, and nutritionists better

understand the experiences of Ghanaians living in the United States concerning what it is like for them to give birth and become mothers.

I used a descriptive qualitative design to answer the qualitative research questions. I conducted a qualitative study to better understand the effects of maternal nutrition on fetal development through the eyes of Ghanaian immigrant women.

I used a descriptive qualitative study instead of one of the other four approaches: ethnography, case study, grounded theory, or phenomenology. I used this approach because I wanted to hear and assess the participants' voices concerning their strictures, taboos, and beliefs concerning what they ate while pregnant and how they believed the development of the baby might be affected.

A descriptive qualitative study involved a contemplative reflection upon what I heard from each participant. My assumptions about the topic studied, and an extensive literature review painted a picture of the lived experiences of my participants I explained the experiences Ghanaian immigrant women in the United States and in Ghana and explored their beliefs of how the foods they ate affected the development of the fetus in their womb. These stories can be used by health care workers to understand the cultural and ethnic requirements of Ghanaian immigrant women who become pregnant in the United States in comparison to Ghana.

I did not choose ethnography because this approach showed the social interactions, behaviors, and perceptions that occurred with a group. In this approach, the researcher goes beyond what people say to understand the shared meanings of a

particular culture, tribe, or community (Hammersley, 2018). I wanted to understand the beliefs that women have about maternal nutrition and fetal development.

I did not use a phenomenological method because it seeks to describe an individual's understanding and perceptions of an experience as the person live it A case study was not chosen because this approach involved research conducted over a long time, and it is an in-depth study of a community, event, group, or a single person I am studying a group of women for a short amount of time. I also am not going to do a grounded theory study because this approach is used to develop or construct a theory or experience through the analysis of data, I wanted to hear lived stories rather than to develop a theory.

Role of the Researcher

Injustice toward women in all parts of the world profoundly saddens me. The stories (e.g., domestic violence, traumatic birthing conditions in Africa, and female genital mutilation) I read in books, magazines, articles, watch on TV or DVD have affected me in a very profound way as a qualitative researcher. Therefore, I wanted to faithfully express the thoughts and feelings of my participants about the effects of maternal nutrition on the developing fetus in the Ghanaian immigrant population

As an Iranian researcher, I can empathize with the women I will interview for my study. Women throughout the world have often been unable to voice their opinions, speak up about important issues, or be free to pursue an education. I know what tribulations and trials my sisters in Iran have encountered. Such an awareness summons in me a deep sense of solidarity toward the African women in my study because, like

their Iranian counterparts, some of these women may be from countries where women are treated as second-class citizens. As a researcher who is not from the same culture of my participants, I must convey to my participants the importance of my research. I needed to make sure my participants understand that I am not conducting my research for selfish reasons. My goal is to help my sisters globally regarding maternal nutrition and fetal development I did this by explaining to each participant how the stories that she shares with me will help other women who struggle under similar circumstances to her own

Africans, because of the way imperialist conquering nations historically treated them (e.g., Tuskegee Airman; Dale, 2015) and more recently by medical and scientific interests concerning unethical practices, including research where consent was not obtained (e.g., women's reproductive health issues; King, 2018; Prather et al., 2016a; Prather et al., 2018b), may be hesitant to participate in a study where a researcher may be incentivized by financial remuneration, status, or privilege (McDougal, 2017). As a researcher from a different culture than the participants, I needed to be mindful of the roles that race, class, and gender oppression have played and continue to play in perusing such research I also had to be aware of the history of research conducted with Africans in this country and abroad. I needed to keep in mind that Africans are more comfortable participating in clinical trials and research where the researcher is of the same race and culture as them. My goal was to gain the participants' trust to open up and share their stories with me. I did this by practicing active listening and limiting the amount of information I wrote down on my interview template.

I needed to be understanding and patient while listening to stories my participants were sharing with me. I needed to listen with an open heart and compassion to stories that may have been hard for my participants to discuss because these issues may have been very personal. They may have caused my participants to relive an experience based on a question that I asked. The stories may have been very personal or hard to express due to cultural barriers (e.g., it may be difficult to express something in English due to nuanced and sometimes untranslatable cultural or linguistic differences). My goal was to do my best to ensure I safeguard the information the participants convey to me in both the interview (audiotape) and written form. As a descriptive qualitative researcher, I am both a participant and an observer of the interviews that I conducted with my participants. In a descriptive interview, the researcher and the participant become collaborators in collecting data. Even though I perform these two roles, I am considered an outsider in this study because my participants are Ghanaian immigrant women, and I am an Iranian American woman.

I am an Iranian American female born in Iran and raised in the United States since the age of two years and became a Naturalized Citizen at a young age. I was raised to see the world as one country and humankind its citizen. This is the lens that I have used all my life to interpret what is going on around me. My parents did not raise me as a typical Iranian woman. I was raised with the belief that men and women are equal in the sight of God and that there is one race: the human race.

My participants were Ghanaian immigrant women. Many of my participants' issues were faced by people in my home country (e.g., arranged marriages and a

patriarchal community). However, I have not had to deal with these issues myself. What I know about the treatment of women in Iran, I have learned from books, articles, and interactions with friends and extended family. I am a researcher who has not had personal experience with much of the content under study. I have not been pregnant. Much of what I know about fetal development and nutrition I have learned through my research for this study. As a researcher, I am responsible for learning from my participants to help me share the participant's stories from their perspectives and attain a certain distance and objectivity concerning my perceptions of what is shared with me I knew my cultural broker, a Ghanaian man, before getting Institutional Review Board (IRB) approval to study Ghanaian immigrant women in the United States.

Researcher Bias

A qualitative study by different academic researchers showing similar results as this study is called reflexivity (Luttrell, 2019). It is emotional responsiveness, self-observation, and attention of the scholar toward their behaviors and choices, which affects the value and context of the topic being studied. Therefore, an awareness of reflexivity becomes a significant part of qualitative studies to ensure trustworthiness and credibility in that research (Luttrell, 2019).

In this research study, I had little personal understanding or experience with the population (e.g., immigrant Ghanaian pregnant women) and subject (e.g., food taboos and pregnancy) being studied. The participants may have perceived me as a researcher and an educated American and, therefore, as someone with authority or power, although I am an outsider (e.g., different cultural background) and am unfamiliar with how it feels

to be pregnant. I may have viewed myself as inexperienced about gestation and may have seen my participants as the experts. This experience, according to Berger (2015), is an inspiring occurrence for an academic who wants to learn about a topic. Berger (2015) explained that a scholar is an outsider to critical dimensions (culture, unique experience, expertise, etc.). The phenomenological world inhabited by the participants studying, enhancements may accrue to the researcher's ability to capture the subject's essence through the lens portraying the "cultural, historical, and temporal view of the world" of his or her participants (p. 228).

Participants in the current study were Ghanaian-born and immigrated to the United States at an older age than I did. My experience differs significantly from other immigrants because my family moved to the United States when I was just two years old.

Balls-Berry et al. (2016), regarding a community-engaged approach, stated that for African Americans, "participation in research is risky" (p.577). A lack of historical trustworthiness among health care providers and academic researchers, investigators, and providers have often failed to adequately inform African American subjects concerning the procedures or rationale for the need for their contributions in a research study (Balls-Berry et al., 2016). Given the historical climate, both researchers and the participants usually come into research situations with biased understandings and beliefs about one another (Alpers, 2016). According to Alpers (2016), these complex issues are substantially responsible for the rise of intercultural codes of conduct for medical professionals and researchers where African Americans and other ethnic minorities are concerned. According to Lyons (2016), due to a general lack of trust among African

Americans toward any Caucasian researcher, a study participant may decide to exaggerate the stories they conveyed. The participants may have also restructured their personal stories by withholding, circumventing, or disclaiming information about some uncomfortable (e.g., painful FGM procedure or giving birth to a baby) part of their lives.

Lyons (2016) mentions that the medical and academic research participants are doing more than just replying to the researcher's queries and outlines. They are also engaged in actively influencing the conversations they have with researchers to tailor the way the participants believe they should be portrayed within the study. I needed to understand these issues because my research involved African American women in general. Language differences may build a trusting and affirmative rapport with ethnic minorities perplexing when researching both medicine and academic settings (Alpers, 2016).

Methodology

Participant Selection Logic

The population in my study was female Ghanaian immigrant women ages 25 to 38, who self-reported that they had been pregnant in the United States and given birth in the United States within a couple of years after immigrating. The participants in my study were legal, documented immigrants. I chose to work with legal immigrants because I wanted my participants to be comfortable telling their stories without being afraid, they may be sent back to their home countries if a government agency found out that they were illegally living in the United States. I did not want to unknowingly be a source of someone deported or be in legal trouble because they participated in this study.

My participants were able to read and understand English. I excluded participants who would need an interpreter, which allowed me to avoid concerns over whether the question I asked was conveyed to my participants correctly. This exclusion also prevented the possibility of any of my participants becoming uncomfortable sharing their whole story with me due to an interpreter knowing what they were sharing. The confidentiality of my participants might have been at risk if the interpreter was to share information given in the interview with other people.

Participant Criteria

My participants for the present study were immigrants who were 25 to 38 years old and have given birth to a baby within a couple of years after they have migrated to the United States. Also, my participants in this study were able to read, understand and give verbal consent to participating in my research after reading the consent form that I emailed them before the interview being scheduled without someone else helping them. In obtaining the consent, I explained the study and let them know they could withdraw from my study at any time without question. By listening to them, I was able to get a pretty good idea if my participants were able to participate in my study or not. If my participants were not, I thanked them for participating and their time and ended the interview.

I interviewed 25 Ghanaian immigrant women who have immigrated to the United States and have given birth in this country a couple of years after immigrating to the United States. The rationale for using one participant in my pilot study was because she helped me test my instrument. To see if my interview questions would generate the data

needed to answer my research questions and determine the time required for the study. The 25 participants in my main study provided the data needed to understand better the lived experiences of Ghanaian immigrant women who have been pregnant and given birth in the United States and their beliefs regarding maternal nutrition and fetal development. By including 25 participants, I hoped to reach “conceptual density,” which, according to Nelson (2017) key concept employed by qualitative researchers who are collecting stories as a form of data. In qualitative research data analysis, two words can be used interchangeably. These words are information redundancy (sampling can be terminated when the interviews produce no new knowledge) or data saturation when participants give no new knowledge (e.g., a saturation of categories Nelson (2017) stated that it is the depth of knowledge that needs to be reached instead of information redundancy to stop interviewing any more participants.

Relationship Between Sample Size and Data Saturation

The relationship between sample size and saturation is that if I did reach information redundancy or data saturation in my data compilation, then it means I did not have enough participants in my study. I needed to continue interviewing people. Failing to reach data saturation would have influenced the value of my research by tainting content validity. To avoid this eventuality, I needed to understand that information redundancy or data saturation is not just about the information I collect (the knowledge I gain from my interviews, or the categories I create from the data). It is all about the quality and rigor (meaning of the knowledge) I gather from my participants.

Descriptive qualitative methodology is an ongoing process from the moment the first interview has been conducted. In my research, I created a saturation grid. I placed the significant themes on the vertical side of my grid and answered the interview questions the participants convey to me on the vertical side of my grid

Instrumentation

I used an interview guide to help guide me through my interviews, I developed this interview guide myself. Therefore, I am the author of my own instrument for the current study. The interview guide for this study can be found in Appendix A.

Expert Panel Review

I consulted with an expert panel consisting of two Walden University professors about their opinion about the interview questions and if the questions aligned with my research questions or not. I conducted a pilot study because the population I studied would probably have less education than my expert panel. Therefore, I wanted to make sure that my participants understood the questions in the interview guide (I did not need IRB approval for the expert panel, but I did get IRB approval for my pilot study).

The Pilot Study Participants

My pilot participant gave me additional feedback on my questions. For instance, I ask her if there were anything she did not understand and used her feedback to re-tool the array of questions constituting my instrument. The pilot gave me some opportunity to acquire interviewing experience and competency and ascertain a good idea about the time required to conduct the interview. For this part of the study, I obtained IRB approval.

Researcher Developed Instruments

I developed my instrument (interview guide) based on a systematic review of the literature in medicine (Feinberg et al., 2015; Steiner et al., 2017), psychology (Greenwood et al., 2017; HaCohen et al., 2016), and nutrition (Ickes et al., 2017; Kansiime et al., 2018) mainly published in the last five years. I conducted an extensive literature search in both Google Scholar and Walden University library databases related to the main topics in chapter two, which helped me formulate the research and interview questions

My study followed current descriptive qualitative guidelines, including such recommendations as follows. It was suggested to use “what” (ways people make sense of the past, present, and future: e.g., what foods do you believe pregnant women should eat? Furthermore, “how (relates to the storytelling process: e.g., How do you believe the foods you eat before and while you are pregnant affect the development of your fetus (baby) in your womb?) questions in a topic guide. Weller (2018) suggested that the best type of questions descriptive qualitative guide is open-ended questions. Open-ended questions can invite the participants to tell their stories. Examples from the interview guide of this study are: Are there food taboos that require you to eat certain non-food substances or items? Can you name a couple for me? Have you personally eaten any such tabooed item? What do you think these foods do for you and the baby?

Content Validity

Content validity is the degree to which a study tool precisely measures all parts of the concept investigated by academics. Of all the types of validity (e.g., construct, face,

and criterion-related), content validity is the most important in creating an instrument. Content validity is the type of validity that defined the degree to which the questions in the interview guide will be able to answer a particular research question (). In the present study, the main research questions were based on broad ideas (e.g., what is the lived experience of Ghanaian immigrant women regarding their beliefs about maternal nutrition and fetal development?). The interview questions started simple (e.g., Do you perceive your ethnic diet or the American diet as healthier?) and progressed to more complex emotional or controversial topics (e.g., domestic violence, FGM, and food taboos).

The Relationship of the Literature Review to the Interview Questions

The literature review became the theoretical basis for the actual interview questions. In the present study, to ensure that the interview guide is valid, I endeavored to ensure that the interview questions were aligned with the research questions and the literature reviewed in Chapter two.

The Relationship of the Research and Interview Questions in the Interview Guide

The research questions for this study were: RQ1: What is the lived experience of Ghanaian immigrant women regarding medical care contrasting Ghana with the United States? and RQ2: What is the lived experience of Ghanaian immigrant women regarding traditional food and fetal development? The 15 interview questions broke the research questions down into smaller items that my participants could easily understand and hopefully provide informative and relevant responses. The questions were designed to garner responses that either meaningfully supported or challenged the literature review

findings or offered novel data learned about the impact of maternal nutrition and fetal development. The questions were intended to increase understanding of the demographic background of my participants, the participant's plight, views concerning their struggles as women and mothers.

Procedures for Pilot

I conducted my pilot study with one woman in my community who has been pregnant and given birth in the United States. I conducted a face-to-face descriptive qualitative and semistructured interview with this woman in the same manner, using the same protocols as the main study.

The pilot study helped me uncover any moral and real-world concerns which may have hindered my main study. It helped me detect issues in my main study that could have caused the main study to fail to achieve its research objectives. The pilot study helped me practice the steps in my interview process, ensuring that I followed them to get the data I needed. If I missed a step in the interview process, my pilot study would have revealed those mistakes, which would have helped me avoid those errors that could jeopardized the results in my main study. In this way, pilot studies are a vital component of good study design (The IRB approval number is 12-23-19-0256573).

Procedures for Recruitment, Participation, and Data Collection

I conducted the main study with 25 Ghanaian immigrants who have been pregnant and given birth in the United States in several years after they immigrated here. I conducted interviews via phone, FaceTime, WhatsApp, and Google Duo descriptive qualitative and semistructured interviews with Ghanaian immigrant women who have

been pregnant to learn about their beliefs about what foods they can eat before pregnancy vs. while they are pregnant. I want to know if these food restrictions apply to them only during their childbearing years or if they apply to women in general.

The main study of my descriptive qualitative interviews will be conducted in four steps (Andersen & Kirkpatrick, 2015). The four steps comprising descriptive qualitative steps (Andersen & Kirkpatrick, 2015) are as follows:

Step one was the introduction and explanation of my research study. I introduced myself as a student researcher who is a candidate for a doctorate in Health Psychology at Walden University. I am conducting this research as part of my degree, why I am conducting the study, the people who would benefit from the study, the purpose of my study, the steps involved in the interview process (interview will be tape-recorded). I informed my participants that the stories that she conveys to me in the interviews during my pilot study will not be part of my study but will help me test my interview instrument and procedures. I explained to the participant that it was my obligation to report anything that I hear those sounds like she might be harming herself or others in the interview process to my research committee and ethics board at my university.

Next, I mentioned to the participants how long the interview would last approximately because a descriptive qualitative study can last 30 minutes or last three hours according to the topic (Andersen & Kirkpatrick, 2015). I explained to my participant that I did not anticipate that there will be any risk to her mental health or physical harm.

I explained to the participant that she has the right to stop the interview without any penalty. I mentioned to my participant how that her participation in my study is voluntary, and she can refuse to be part of my study at any time. I explained to my participant that she could contact my research committee at my university if she has any questions. I then explained the consent form and got verbal consent on the recording.

Step two in the descriptive qualitative study; the participant starts to tell her story. I listened to her without taking any notes. Periodically I verbally used cues (e.g., verbally voiced that I still listened to them) let her know that I am still interested in what she was conveying to me (Andersen & Kirkpatrick, 2015). However, I did my best not to interrupt her while conveying her story until there were clear signs that she may be finished conveying her story (Andersen & Kirkpatrick 2015).

Step three is the questioning phase in a descriptive qualitative study. According to Andersen and Kirkpatrick (2015), this phase is added if the researcher combines both narratives and semistructured interviews as I did in my study. I used my participant's specific words (e.g., language) to ask her to clarify a thought (e.g., emotion). I did this by asking more specific questions about the focus of my study (e.g., "... can you say a bit more about...?" Andersen & Kirkpatrick, 2015, p. 3).

Step four is the conclusion of my descriptive qualitative study. I ended my interview by telling the participant that the audio recordings will be transcribed (Andersen & Kirkpatrick, 2015) and written up in a research paper. I mentioned to her that the information could one day be written up in other articles and be presented in projects by me or others who may use my research in their studies. I further explained

that my research findings could help health care professionals create culturally relevant prenatal and pregnancy programs for Ghanaian immigrant women. I explained to her that I as a researcher, maintain confidentiality. I would assign a different name to the information that she provides to me so that no one could link the information back to her. Her identity will be accidentally known to people reading my research. I asked her if she has any questions for me. I thanked her for participating in my research. Before I contacted, the next participant wrote any notes in my journal for further reflection. I collected my data from Ghanaian immigrant women who self-report that they were pregnant and given birth to a baby several years after they immigrated to the United States. I, as the researcher, would be collecting my data by conducting semistructured interviews. The duration of data collection was over 4 to 5 months. The data recording takes approximately one hour to an hour and forty-six minutes to complete. I used my iPhone 8 to record the interviews and the zoom voice meeting to record the audio record of the interview. I transferred the audio file into my password-protected computer after each interview.

If I did not reach saturation, I planned to continue interviewing until saturation was achieved. If the data I collected produced surprising results significantly out of keeping with research expectations, I planned to consult the literature and see if others have had similar results. By researching descriptive qualitative literature, I attempted to ascertain whether I asked the right questions.

Debriefing Procedures

Proper debriefing is an essential task in keeping with the ethical standards concerning research in the modern age. Every study involving human participants must be discharged conscientiously and thoroughly. Proper debriefing is necessary for, among other reasons, assuring that their experience does not psychologically and physically harm participants in a study or experiment (McDougal, 2017). During debriefing, I took the opportunity to assess the emotional reactions of my participants in my study and to listened to them regarding concerns or emotions that may have come up in the interviewing process (McDougal, 2017). I would have referred them to a free hotline staffed with counselors to help them process their emotions and help them if healing or recovery is necessary. I did not require my participants to come back for a second interview.

Data Analysis Plan

After I transcribed the interviews in a Microsoft Word document, I created a data matrix for each of my interview questions. Each section was marked to signify whether the respective interview query produced data pertinent to that study question (Castillo-Montoya, 2016). This matrix helped me spot any conceptual gaps between the way I asked a question and the character of the response/data to the question generated (Castillo-Montoya, 2016). I made these informed decisions involving adjustments or additions to questions in my interview guide to fine-tune the guides' relevance and usefulness to my descriptive qualitative interview (Castillo-Montoya, 2016).

Coding is a method that encompasses creating codes (e.g., finding meaning units) that symbolize participant's stories from a scholarly viewpoint (Onwuegbuzie & Frels et al., 2016). There are different steps in coding descriptive qualitative data (Erlingsson & Brysiewicz, 2017). I methodically converted transcripts into a structured text volume to create a succinct overview of the main topics or themes (Erlingsson & Brysiewicz, 2017).

Once data collection was completed, and I have transcribed all the data for the 25 participants in my study, data analysis began, which took a couple of steps to complete. In the first step, I read and re-read all the transcripts several times to feel what my participants were doing their best to convey (Erlingsson & Brysiewicz, 2017). In the second step, I started dividing the transcript text into more minor texts (Erlingsson & Brysiewicz, 2017). These meaning units, therefore, will help me discover the central theme in all my transcripts. I made sure I maintained these meaning units throughout my data analysis process (Erlingsson & Brysiewicz, 2017). Step three I started to label the meaning units that I found by creating codes and then grouping my codes into separate categories (Erlingsson & Brysiewicz, 2017).

Also, exploring data is not just a single-time event. It is a reflective process; therefore, according to Erlingsson & Brysiewicz (2017), a researcher cannot assume that after they go through steps one, two, and three, they finish analyzing the data. Finding and condensing meaning units in the descriptive qualitative study, coding those units, and categorizing the information takes a bit of time. The reason is that I had to keep going back to the interviews to make sure that I did not miss any initial data contained in my

transcripts (Erlingsson & Brysiewicz, 2017). I did not use any software for analyzing my data I did all the data analysis for this study by hand.

Discrepant cases are the cases that emerge during data collection that deviate from the themes that have come up in other participant's interviews or from the patterns found in the literature review (Goodell et al., 2016). Discrepant cases are surprising and make a researcher stop and wonder what relevance of that specific participant's beliefs and life history have on the topic being studied (Rose & Johnson, 2020). I did not discount such themes but examined them to see if they would add any new information to my study, which was not mentioned by any of the other participants or anticipated by learning from the literature review phase. If the data became relevant, I incorporated them in my analysis and explained how they enrich my study.

Issues of Trustworthiness

Credibility (Internal Validity)

One dimension of credibility entails the confidence a researcher has that the veracity of the research conclusions he or she has arrived at may be reasonably trusted and relied upon as valid. Another dimension involves whether the research findings faithfully represent the original information the participant shared with the researcher and whether the researcher interpreted that information in reasonably close keeping with the participant's interpretations.

To reach conceptual density in this study, I interviewed 25 participants for my main study. I knew when I reached conceptual density when I had no new knowledge, themes, or coding, and when the data set was complete and could not be replicated. If I

had not reached data saturation, then the value of my research will be jeopardized. In such a case, I continued until I reached conceptual intensity. I provided a detailed description of how I reached data saturation with the themes that emerged from my data collection.

Transferability (External Validity)

Transferability is when the outcomes of a study can relate or move to comparable people, locations, or circumstances. I wrote up the steps of my research carefully and thoroughly detailed so that others may replicate my study. I conducted a thick description of the interviews I conducted by describing the environment where my interviews were conducted. Thick description allows my study to be replicated.

In addition to paying close attention to my participants' stories, I paid careful attention to the thoughts and emotions I heard through their voices during the interviews. Obtaining and conveying observations concerning this non-verbal dimension of participants' responses would help the reader understand the themes I gathered as well as my interpretation of the data concerning the actual beliefs and perspectives of the demographics represented by the participants of the current study.

Dependability (Reliability)

Dependability is defined as the accuracy of my data collection method (Stadtlander, 2015). I showed dependability by conducting an audit trail. I maintained a journal in which I collected: a detailed record of activities and decisions made about the research process; notes concerning anybody I meet with, what we talked about; interview details, including my reflections and descriptions of my emotional responses during the

interview. In my journal, I maintained a log of my data collection from the start till the finish. I kept a log of all my data analysis recordings, making sure all the information I document is precise.

I maintained a reflection diary in which I wrote about: my own beliefs, perceptions, interactions with the research participants, my changing insights about the study, experiences, ideas, fears, mistakes, confusions, stressors, frustrations that I may encountered, problems that may have arisen during my interview process, and any changes in procedures list. A reflection diary was a vital tool to help me identify any biases that I may have had which might affect my study. Biases can develop at any stage in the study process, I consulted closely with my committee to investigate any such potential issues that may arise. Recourse to the findings and feedback garnered from diary reflections and committee consultations represented vital avenues to assess whether I have learned anything new and whether I have grown as a researcher after the literature review and data collection phases have been completed.

The goal of the audit trail was to show the creditability and dependability of my research. So that another researcher can replicate my study step by step. Therefore, my audit trail was concerned mainly with the process I took to conduct my research.

Confirmability (Objectivity)

I documented the procedures that I used to check and recheck the accuracy of my data every step of the way from the beginning until the end of my study. Confirmability is primarily concerned with how the data is presented when it is collected and transcribed (Cypress, 2017). Confirmability has to do with how I showed that my research brought

about new information to medicine and psychology High confirmability means that other researchers can judge and understand my research It requires that I demonstrate that my study's result was based on themes established from my interviews with the participants rather than on any bias that I may have had about the study. An example of confirmability is inter-coder reliability (ICR).

I reduced bias in my research by having someone else code my data after I did ICR as a way to determine whether a study is reliable and whether another researcher can replicate it. This measurement is an added verification of the validity of given research ICR is one way to determine if there are any weaknesses (inaccurate code meanings or overlapping meaning in the coding pattern) in my study I worked with a peer coder who confirmed the accuracy of my study

Ethical Procedures

IRB required me to obtain and get signed agreements before I could conduct my research. I got access to these forms after IRB had received my application once my committee approved my proposal. Once I got these forms back from the IRB, I placed a copy of the forms in my proposal.

As a student researcher, I am committed not to harm the participants while conducting the study It is also my responsibility as a student researcher to make sure I contribute to the well-being of others I did my best not to expose my participants to conditions that may likely cause them any harm (e.g., participants reliving a painful event in their life by telling me their story).

Ethical Concerns

The duration of data collection was over four to five months. The data recording took thirty minutes to one hour and forty-six minutes to complete. I used my iPhone 8 voice memo recorder and then transferred the files into my computer, which is password protected after each interview.

A qualitative study conducted by Mfutso-Bengo et al. (2008) stated that there are several reasons that African people may refuse to participate in a research study. The main reason is that researchers lack the knowledge of traditional customs, which causes them to be perceived by Africans as culturally insensitive. Traditional customs in the African culture include expectations a traditional community may have that a researcher should solicit permission from a chief in the village if his people could participate in the research. The process of involving the community is vital to Africans. Another reason Africans might refuse to participate in a study is if the researcher is a stranger in the community (Mfutso-Bengo et al., 2008).

Researchers need to be conscious that participants have the right to withdraw from a study at any point. If my participant decides to end the interview midway, I will thank them for their time.

As a student researcher, I have an ethical obligation to ensure that the participants are protected throughout my study. I needed to be cognizant that some of the participants may not have had the opportunity to express themselves freely due to living in a patriarchal society where men do much of the talking and make most of the decisions and where women mainly do what they are told. I needed to understand that under these

circumstances, the participants may reveal and articulate details about themselves and their families that they may not have been able to express before and that this may produce distress in some participants. I provided them with phone numbers (crisis hotline) and connected them with resources (counseling services or churches) to help them deal with the issues.

Treatment of Data

Anonymity is when there is no way for someone, including the person conducting the interviews, to identify the participants in the study results after it is published. Although the participants' responses were disguised, using a pseudonym, as a researcher, I cannot guarantee 100 percent anonymity considering my awareness of "who said what?".

As a researcher, I protected the identity of my research participants. To guarantee confidentiality, I needed to make sure only I can identify the responses of the participants. I did everything in my power to make sure that the readers of my study will not be able to identify the participants. I did this by giving the participants pseudonyms. For the privacy of the future participants, I did not list the names of sites or people that could be traced once my study was completed.

I have a MacBook Pro computer, which is a password, protected. I stored my transcribed data on an external hard drive and on my computer. I set up a distinct folder on my computer for each participant, which contained the voice recording and the transcripts of each interview. Once I finished my dissertation, I placed all my recordings, transcribed data, journals, and thumb drive into a locked filing cabinet in my home office.

All my hard copy articles and hand-written notes have been placed in bins and stored in my home office.

I will use the results of my study as the basis for a research article published in several peer-reviewed journals in both the fields of medicine and psychology. Through the dissemination of my research, I hope to establish my reputation in the field of maternal nutrition and fetal development in the Ghanaian population. Upon earning my degree, I hope I can expand on my work while employed abroad in some capacity to use my skills and research interests.

My second coder, who signed a confidentiality agreement, accessed my data. She coded the data independently to check to see if my interview data reached information saturation. We then discussed the data results for thirty minutes I discussed the results with my methodologist as I was writing up the results of my data in Chapter four.

The raw data for my dissertation will be destroyed seven years after I have graduated with my degree. I will erase the data off my hard drive and my external hard drive. I will destroy the written information on paper by shredding them.

Other Ethical Issues

I did not conduct this study with my co-workers or at my place of employment. There are no conflicts of interests in this study. The participants may see me, as a researcher, as an educated American, and as someone with power. I did my best to mediate adverse effects that might arise from real or perceived power disparities by attempting to sustain a sensitive awareness of such issues by speaking respectfully to my participants, asking any questions, and voicing any concerns about the interview process.

I got IRB approval to mail a \$10.00 Starbucks gift card to my participants as a thank you gift for participating in my study.

Summary

In this chapter, I discussed research design and rationale for this study, the role of the researcher, the methodology chosen for this study, the researcher developed instruments, procedures for the pilot study, procedures for recruitment, participation, data collection, the data analysis plan, issues of trustworthiness, ethical procedures, and other ethical issues. In Chapter four, I will discuss the results of my study.

Chapter 4: Results

Twenty-five Ghanaian immigrant women living in the United States were interviewed in my descriptive qualitative study about their beliefs of maternal nutrition, food taboos, and fetal development, as well as the effect of these beliefs upon childbirth health outcomes.

Two research questions were the focus of the interview questions.

RQ1: What is the lived experience of Ghanaian immigrant women regarding medical care contrasting Ghana with the United States?

RQ2: What is the lived experience of Ghanaian immigrant women regarding nutritional foods and fetal development?

This chapter will discuss the pilot study, setting, demographics, data collection, data analysis, validity and reliability, results, summary, and transition to Chapter five.

Pilot Study

Conduct of Pilot Study

Before initiating the pilot study, the IRB approved (12-23-19-0256573) the study. One community member piloted the study to improve and validate an interview guide and interview process. The pilot study furnished me interviewing experience and competence, it determined the amount of time required to conduct the interview and provided me feedback regarding the efficacy of the questions I asked my participants.

Setting and Impact of Pilot Study

I conducted a pilot study in person at my participant's home. I emailed ahead of time the consent form for my participant to review. I began the interview by following a

script highlighting the key components listed in the consent form. After verbal consent was obtained, the interview unfolded.

After completing the pilot interview, the participant provided feedback that Question Number 15 needed to be rephrased. The original question was: Are there foods you are not allowed to eat (food taboos) that require you to eat certain non-food substances or items? Can you name a couple for me? Have you personally eaten any of them? What do you think these foods do for you and the baby? The participant suggested that the question be rephrased as: Sometimes, people feel they need to eat nontraditional foods such as chalk or dirt. Did you desire or feel like you had to eat these nontraditional foods? Did that happen in the United States? Did you share that with your doctor?

Before this question could be changed in the interview guide, I had to do a change in procedure form with the IRB to ask them if I could substitute the question. IRB approved the change, and I proceeded to ask that question to the participants in the main study.

Setting

Timeline

The initial study was to collect data from Ethiopian women, and the IRB gave me approval on December 23, 2019. I met with the cultural broker on January 4, 2020, to provide her and her aunt, the second cultural broker, with flyers for distribution in securing potential participants; this was when data collection for Ethiopian participants started. On this same day, I sent my first change of procedure form requesting to add telephone interviews as an option. The second change in procedure was on March 13,

2020, when I emailed IRB about adding a \$10 Starbucks gift card as an expression of gratitude to participants for their involvement.

The third change in a procedure I sent to IRB was for me to attend the annual Ethiopian Community Meeting and leave flyers. Unfortunately, the event was canceled due to COVID-19. On March 24, 2020, I emailed my committee for approval to change the population from Ethiopian immigrant women to Ghanaian immigrant women because there was no receptivity from the Ethiopian women who culturally needed consent from their husbands. On March 27, 2020, my committee approved the request. The same day IRB sent me approval to add compensation effective immediately. On March 31, 2020, I sent IRB the fourth change in procedure form requesting to change the population and new consent forms indicating Ghana instead of Ethiopia.

The fifth change in procedures was on April 13, 2020, asking permission to change the wording of Question Number 15 of my interview guide, as per recommendation from the pilot study participant who felt the wording needed to be more precise. IRB approved starting data collection for Ghanaian immigrant women. My first Ghanaian immigrant interview was conducted on April 21, 2020, and my last interview was done on June 13, 2020, the 25th interview. I finished transcribing the interviews on July 5, 2020 and started my data analysis on that same day.

Demographics

Twenty-five Ghanaian immigrant women who lived in the United States were recruited with the help of a Ghanaian male cultural broker. He contacted his friends whom he thought fit the approved criteria. He texted me their names, and I contacted

them via text and phone. Consent forms were emailed, and a few hours or days later, my participants were interviewed. My participants initiated new referrals of their Ghanaian friends, after the interviews were completed. I used the same procedures (see Appendix B).

Table 1
Main Study Demographics

Participants	Region Born	Immigration	Marital Status	No. of Children
Jade	Ashanti	Visa lottery Permanent Resident Education	Married	3- US
Analia	Akwatia	Education Scholarship Join Husband	Married	1-US
Gianna	Ashanti-Fante Tribe	Education Visa Lottery Immigration	Married	1-Ghana / 1-US
Mercy	Asankrguwa	Education Nursing Husband Education	Married	2-US
Omara	Ashanti	Education Nursing Husband Education	Married	2-US
Angela	Ashanti	American Dream Better Life	Married	1-Ghana / 4-US
Jemila	Ashanti	Join Husband Better Life	Married	3-US
Sarah	Ashanti	Visa Lottery Immigration Education	Married	2-US
Hegar	Volta Region	Visa Lottery Marriage	Married	4-US
Zahara	Ashanti	Visa Lottery Immigration Green Card Permanent Resident	Married	1-US
Juanita	Ashanti	Marriage School	Married	3-US
Serephina	Bolo	Husband was here Court Marriage	Married	2-US

(Table continues)

Regina	Ashanti	To be with husband To be and education in US	Married	1-US / 1-Africa / 1-Canada
Beatrice	Ashanti	Reunite with family Better Education Marriage	Married	3-US
Samira	Volta Region	School Starting a Family	Married	2-US
Makena	Coastal	Education	Married	1-US
Ruth	Ashanti	Economic Reason	Married	2-US
Tracy	Volta Region	Join her Husband	Married	2-US
Zinab	Volta Region	Go to School	Married	3-US
Rachel	Ashanti	To See Greener Pastures	Married	1-US / 1-Africa
Lucy	Cape Coast	Immigration Naturalized automatically	Married	2-US
Felicia	Volta Region	Family Marriage	Married	6-US
Miriam	Ashanti	Education Marriage	Married	3-US
Portia	Western-Kumasi	Visa Lottery Came with Husband	Married	3-US
Jessica	Ada	Join her husband Better life Better education	Married	1-US

Note: The names of the participants are pseudonyms

Data Collection

Participant Recruitment

The 25 participants were referred by text from a family friend, a Ghanaian male cultural broker who contacted his friends and talked to them in their native language. The participants increased referrals by recommending some of their friends. The cultural broker texted their contact information, and I texted them to set up an interview. Once the

interview date was set, I emailed the participant a copy of the consent form. I conducted nine interviews on Facetime, three interviews Google Duos, three interviews over the phone, and 11 interviews on Zoom meeting with audio.

In the interview, a script of what I said was written to ensure consistently shared information for all 25 interviews. As I asked the central questions in the interviewing guide, I also asked probing questions to obtain more pertinent information or to clarify the answers that the participants were trying to communicate. The audiotape confirmed that the participant understood and was voluntarily consenting to be in the study recorded, transcribed, and published. I mentioned to my participant that if she needed to take a break during the interview, she should verbalize such, she could do so without any penalty if she decided to withdraw from the interview. Once verbal consent was secured, the interview unfolded. The pilot study took 53 minutes to complete. The interview ended by asking the participants questions:

- Do you have anything else you would like to add that I did not ask about?
- Would you like to know the results of this study after it is published?
- I have a thank you gift I would like to mail you, could you please text me with your address?

Three of the 25 participants refused the gift card as they felt that my study was a gift; it would potentially help their sisters back home in Ghana and worldwide.

While transcribing the interviews, I had to text a couple of my participants for clarification purposes. I also enlisted the help of my Ghanaian cultural broker on a couple of culturally related concepts for which I needed further understanding. My

cultural broker further referred me to YouTube videos and articles to elevate my understanding.

Background of Participants

Fifteen of the women interviewed were from the Ashanti region, one was from the Eastern Region (Akwatia), two were from the Western Region (Asankrguwa), five from the Volta Region, one Southern Region (Bolo), and one from the Coastal Region. The ethnic groups represented were Fanti, Twi, and Ewe.

Location, Frequency and Duration, and Span of Time

Location

Participants were in their respective homes during the recorded interviews. The interviews were by phone, FaceTime, Google Duo, or Zoom meeting due to the restrictions created by COVID-19. It is interesting to note that this change of methodology helped the participants be less stressed due to their familiarity with the use of technology and eliminating the need for a babysitter during the meeting.

Frequency and Duration

I conducted 23 interviews which were conducted with a duration range from 19 minutes to one hour 46 minutes, which allowed me to conduct three interviews in one day. One of the participants asked for a break, and another one asked to interview in two parts a couple of days apart due to childcare and at-home work schedule.

Span of Time

The interviews ranged from 21 April 2020 until 13 June 2020. At the start of the interviews, everyone was at home due to COVID-19, which caused several businesses

and even states to shut down with stay-at-home orders. Toward the end, some participants had returned to work, thus extending the period for completion of data collection.

Data Recorded

As noted earlier, the participants' interviews were recorded either by phone, FaceTime, Google Duo, or Zoom meeting mechanisms. With both the Google Duo and phone interviews, two phones were needed to record as this dual function was not compatible with my iPhone 8 voice memo. So, I borrowed a family member's iPhone 11 for recording. After I recorded the interviews and transcribed them, I transferred each recording into my iTunes folder on my password-protected computer. I deleted those recordings from the family member's cell phone to maintain confidentiality and anonymity.

Variation in Data Collection

One of the participants asked for a break, and another one asked to interview in two parts a couple of days apart due to childcare and their working at home schedule. Two people were more comfortable interviewing on the phone. The interviews conducted via FaceTime, Google Duo for the android users, and zoom meeting were much easier to understand because of the variation of tones in the participants' accents when speaking English.

Unusual Circumstances

The COVID-19 pandemic changed the study's dynamics from conducting the interviews in person at an agreed-upon public place to the participants and the researcher

conducting the interviews from their respective homes. Therefore, interviews were recorded either by phone, FaceTime, Google Duo, or Zoom meeting. IRB approved these technologies without the need for a new approval form.

Data Analysis

Process of Coding Data

After I transcribed all 25 transcripts in a Microsoft Word document, I created 15 tables, one for each question in my interview guide. In the table on the left side, I wrote out the participant number and the top of the matrix I typed the question (*e.g., Q10: How do you believe the foods you eat before and while you are pregnant affect the development of your fetus (baby) in your womb?*). The codes column is on the right of the table, under the question at the top of the matrix. I cut and pasted the response of each of the 25 participants. I also cut and pasted the probing question that I asked the participants (*e.g., Do you think it made a difference in your pregnancy to eat more Ghanaian food than American food?*). I printed the tables and spent a few days writing the codes out in the code's column, thinking about what I had learned about the Ghanaian culture from my culture broker, friends, and participants. The participants sent me, called, and texted unsolicited photographs of Ghanaian food they cooked for their families to visually show me why they thought Ghanaian foods were healthier than American foods during fetal development. Articles, personal experiences, communicating with a master's level midwife who is practicing in Eastern Ghana via WhatsApp, and YouTube videos help increase understanding of culturally sensitive responses to interview questions. All these

contributed to the meaningful development of unique codes that appeared in the transcribed transcripts.

Description of Codes, Themes, and Categories of Data

A data matrix for each question was developed to allow for codes for each question in the interview guide. The top of the matrix has four columns; the far-left column was labeled subject number (e.g., subject #), then the participant's name (e.g., Samaira). The interview question (*IQ 9: Do you perceive your ethnic diet or the American diet as healthier? Tell me why you think that diet in your opinion is healthier?*) and then a column for the codes. Underneath the question on the top of the matrix is where I copied and pasted each participant's response from the transcripts. After analyzing all the responses for a particular question, I wrote out a list of the standard codes for the particular question (e.g., IQ 9 the codes were: perceive ethnic diet healthier, make everything from scratch every day, I like to cook, and no preservatives, sugar, artificial chemicals, in our food back home because everything is organic).

The themes of this study are the experiences of immigrant women in Africa and in United States; unsanitary delivery room, treatment of Ghanaian pregnant women by physicians of another culture; no money no health care in Ghana, family support, easier delivery of the baby, pregnancy complications in the United States, medical technology, nutrition before, during and after pregnancy; food restrictions; and nontraditional foods (see Appendix C).

Several of the responses to certain interview question were outliers (they did not fit in with most of the other responses for that particular question). Because those

responses added a different perspective to the question, I chose to include them in my analysis as they exposed other informative viewpoints. In regarding to question 4: the treatment of medical professionals in the United States, Samira said “I was asked where you call home?” this made me feel better versus the annoying and condescending of questions “where are you from?” I chose this outlier because it demonstrated that the immigrant Ghanaian women had a positive experience in pregnancy and childbirth in the United States.

In order to prove the validity of my study, I consulted with a former classmate, now a professor at Walden University sharing the matrix tables and codes of the interview. She analyzed my data and sent feedback with a set of questions for clarification. I responded to her concerns and sent those responses back to her the same day I received them. She agreed with all but IQ12. (Are you familiar with food taboos?). She mentioned that this question yielded a yes or no, shallow response rather than rich, in-depth information. Therefore, she thought I should have done more probing, which could have helped gather more information. She also stated that possibly the participants did not fully understand that question, which further probing would have clarified it.

Unusual Circumstances Encountered in Data Collection

The unexpected COVID-19 pandemics led to distance face-to-face interviews rather than the previously IRB approved face-to-face in person at a neutral pre-approved location. I was in my own residence.

Evidence of Trustworthiness

Credibility

Credibility in a research study is established when a researcher can describe the lived experiences of his or her participants (Erciyes, 2020). The way the researcher can show credibility is through the following ways: data saturation, persistent observation of the data being studied, prolonged contact, member checks.

Saturation was reached in this study by interviewing 25 participants. The original number noted in Chapter 3 was 12 participants for my main study. However, 12 participants were not enough to reach saturation. I wrote a letter to my committee for approval to increase the number to 25 participants. My committee approved my request. The next step was to obtain approval from the IRB. After IRB approval, I continued interviewing until I got saturation with the 25th participant. By this point, I did not get any new information.

I utilized persistent observation in this study (Korstjens & Moser, 2018; Smit & Onwuegbuzie et al., 2018). After transcribing the interviews, copying, and pasting the interviews into a coding matrix for each of the 15 questions, and developing codes and themes for each of the two research questions, which helped me make meaning of the data collected from the interviews 25 participants studied. The transcripts and the coding matrixes were reviewed over several months. I discussed the results with my methodologist (chair) and a peer collaborator.

During the interview, for the first several minutes before I turned the recorder on my iPhone 8 voice recorder or recorded the conversation on the zoom call, I spent time

asking the participants about themselves and their children. This process seemed to help them get comfortable with who I was during the initial interviews. Once they understood why I was studying their culture, the women were eager to help me in a way that they could. Several of them sent me unsolicited Ghanaian food photographs to explain why they perceived Ghanaian food to be healthier than American food. They sent YouTube links to further my knowledge about their foods and watch how they cook their food since cooking is a big part of Ghanaian women's lives. Several of them continued to text me and ask how the study was going and if they could further help me in any other way. All 25 of the women told me that once I finished the study and it was published, they wanted to cook the foods they were talking to me about to try them all, see and taste them for myself. Data collection lasted from April 21, 2020, until June 13, 2020.

I did not email the transcripts to my participants to check the accuracy of the transcribed information. After the interview, I asked the participants if I had any questions about something they said if I could text them for clarifications. Several of them told me, yes and I texted them for clarifications. Most of my clarifications came via extensive discussions with my cultural broker. We would spend hours talking about what the participants conveyed to me. He also sent me YouTube videos and articles to help me further understand his culture, medical care, and pictures of Ghanaian foods. He explained to me why those foods were healthier than American foods.

Transferability

I wrote a handwritten guide for the beginning of the interviews and after the questions were done. This guide contained a set of questions from the consent forms to

ensure that I asked all 25 participants the same questions in the recording. I also developed an interview guide that contained the RQ on the top and then listed all 15 questions that I asked my 25 participants. I did not write out a list of possible probing questions because those questions were based on the participants' answers to the question asked. I asked the probing question only if I needed clarification about my participant's answer or if I wanted to encourage my participant to explain her answer in detail.

Dependability

I demonstrated data triangulation in this study by conducting semistructured interviews of Ghanaian immigrant women. During the interviews, several of the participants and my cultural broker referred me to YouTube documentaries and articles that would help me further understand the treatment of Ghanaian women by the midwives and traditional birth attendants and the conditions of the maternity wards in Ghana.

Confirmability

Every article that I have read for this study was printed out and placed in a rubber bin or saved on my computer's hard drive under the file. I kept notes in the margins of the printed articles or on loose-leaf paper. I kept a loose-leaf journal of thoughts about the study in clear view draft folders for each chapter. I have saved everything handwritten or typed either by hand or printed on a computer. The interviews were transcribed by hand on loose-leaf lined paper and then typed into a Word document and placed into individual folders labeled interviews on my computer. I have also printed the matrices that I created and placed them in a binder. I transferred all those codes and themes developed into a

computer copy of the matrix in my data collection folder, saved on my computer hard drive and a thumb drive for backup. There is a computer backup of study materials on my hard drive, iCloud storage account, and thumb drive.

Intra-and Intercoder Reliability

Once I finished copying and pasting the exact phrases from the transcripts of the 25 participant's answers to 15 questions and probes in the data matrix. I spent a couple of weeks reflecting on the results and created codes for each participant's response. After I sent my peer collaborator my 15 matrixes, she told me she needed a week to review my participant's responses and the codes I developed. The peer collaborator then sent me an email underlying her agreement with the codes or disagreement with the codes found and why she disagreed with those codes. After she finished her analysis, we spent 30 minutes on the phone discussing these results. This process confirmed that the results of my interviews with the 25 immigrant women were their own beliefs and not my own beliefs or assumptions about the topic being studied (Stenfors et al., 2020).

Results

The data were collected from 25 Ghanaian immigrant women who had given birth in the United States. These women ranged from ages 25 to 38 at the time of gestation when they gave birth to their children. They were all married and immigrated to the United States for various reasons (e.g., visa lottery, joining their husband, marriage, education, and economic reasons).

There are two themes for RQ 1, which are medical care in Ghana and medical care in the United States and for RQ 2 there is one theme which is Ghanaian food versus

US food during pregnancy and nine subthemes that emerged in this study after I developed the coding matrix for each question: to get pregnant, eat native foods, and then come to the US to have the baby, the results for this study will be written up as RQ 1 has two themes. Theme 1 has three subthemes, and theme 2 has six subthemes. RQ 2 has one theme with nine subthemes.

RQ: 1 What is the lived experience of Ghanaian immigrant women regarding medical care contrasting Ghana with the United States?

ThemesRQ 1: Medical Care in Ghana

Delivering a baby in Ghana could be compared as “being in hell” versus “being in heaven” in the United States (Regina). When a pregnant woman goes to the hospital or a clinic to deliver her baby, she expects to give birth in a sanitary condition and have a doctor or a nurse to be present. In Ghana, the delivery room air is filled with the smell of dried blood mixed with vomit and urine due to the ventilation system being very bad. In this room there may be 30 pregnant women in various stages of labor. These women are “crammed into a room that does not have enough beds or cots in there” (Beatrice). Therefore, some women are “lying on the floor only on a towel” (Hegar) in a “very filthy unsanitary conditions” (Lucy). Several of these women may also be lying in pools of their own blood and or the blood that misses the buckets which catch the blood from the women giving birth. Thus, woman who come into the delivery room healthy may contract some type of infection, experience hemorrhages, still births, which endanger the lives of the mother and the baby.

The midwives and the Traditional Birth Attendants (aka Traditional Bed Attendants) do not have cleaning supplies to wipe down the beds, cots, and floor for the next pregnant women to give birth. They just use water and a dirty towel (Samira). There is a lack of beds or cots and the mothers lay on the floor with their babies. If the “mother dies, then the baby is left on the floor because no one wants a baby whose mother dies. In Ghana the people think that the baby is cursed with a bad omen” (Hegar).

In Ghana, there is a shortage of doctors and nurses. Even though there might be a doctor present in the delivery room according to all 25 participants they just stand in the delivery room and watch and do not help deliver the baby. The reason is because the doctors believe “they are scaring us” (Miriam) and “therefore will not provide us with enough information about our care” (Miriam). At the time of delivery, midwives and traditional birth attendants actually deliver the babies. Those Traditional Birth Attendants (TBA) often cannot read and write (Miriam). Therefore, they are “taught through song how to access the signs of fetal and maternal distress” (Regina).

The medical care was often described by the participants as traumatic due to the lack of fetal monitors, ultrasound machines, two babies being placed in one incubator, and poor pain management. Regina stated that “they do not have monitors to listen to the heartbeat of the baby much less even me” or even “to see the position of the baby while the mother is in labor” (Mercy). The 25 participants stated either they experienced the treatment of midwives and TBA, or they watched a family member or heard about in a documentary that at the time of giving birth the “mothers are hit in the back, assuming

that it will help to accelerate the birthing procedure. When women are in a lot of pain, the pressure and hitting was increased” (Regina).

The pregnant women were treated barbarically stated Hegar while watching her sister give birth in Ghana. When the labor is prolonged, the midwives and TBA hit more and scream at the mother “haven’t you had a baby before” push harder (Gianna). No anesthesia is available to help them go through the difficult time, and it is a “torture” said (Regina). They command you to do what is needed to be done (i.e., no compassion from the midwives and TBA). In summary, for some women childbirth becomes a death sentence, in which women die of hemorrhaging, sepsis, and lack of cesarean section procedures.

No Money...No Health Care in Ghana

All 25 of the participants mentioned that everything in Ghana revolves around how much money someone has because every type of service, including the health care system, requires a person to pay upfront in cash. The people in Ghana do not have medical insurance like the people in the United States. In Ghana, if a woman has money, she will be able to access better health care. Unless you “know someone like a doctor or you have a friend who is a doctor” (Sarah) so you can get “really good care or else it will be very hard” (Sarah). For example, Beatrice explained “a mother needed a C-section, and she did not have the money to pay for the medications and also for the extra blood she may need.”

ThemesRQ 1: Medical Care in the United States

The 25 women stated that they had a much more positive experience in delivering their baby in the US due to the professional manner of the doctors and nurses, the better equipment of the hospitals (equipped with ultrasound, fetal monitors, incubators, and pain management). Gianna stated, “you know everything that is going on; the baby’s heartbeat is monitored and so everything is on the screen.” The babies are delivered by medical doctors in the United States, both the doctors and the nurses “keep us informed throughout the nine months of pregnancy and the day we deliver our baby” (Miriam). The nurses in the United States communicate better with patients during the process of childbirth.

All 25 of the Ghanaian immigrant women stated that the US medical professionals are nice “because they talk to you real nice, and they encourage you to do your best to push” (Gianna). However, even though these doctors and nurses were very nice, they were not sensitive to or concerned about educating themselves about their culture. The doctors tried to get Ghanaian immigrant women to eat the foods that Americans consume without regards to the dietary background of the patients. Tracy implied that “nobody asked me about my background and what I eat.”

All 25 of the women stated that they would rather give birth in the United States rather than back home in Ghana. The women mentioned that medical personnel in the United States did not yell at them to push the baby out faster or hit them to shut up when they were screaming in pain. They had access to anesthesia for pain control and if the mother or baby was in distress, they could have emergency C-section, even if they could

not afford the pay for the service. Miriam stated that “labor in the United States is very comfortable here because they surround you.”

Eighteen out of 25 Ghanaian immigrant women experienced some type of complications during pregnancy in the United States. The complications mentioned by the participants were the following: not being able to conceive due to a small tumor in the pituitary gland (Portia) which she thought could be due to use of hormones in the food in the United States. Another participant stated she was having twins and had 15 pounds of weight loss during pregnancy which resulted in the loss of one twin due to a decreased food supply according to her obstetrician (Zahara). Nausea and vomiting were conditions that affected 11 participants: morning sickness during the first trimester in some and for others much longer and much more difficult symptoms. Gestational diabetes happened for some women: “being restricted to avoid certain food, was not pleasant and made pregnancy harder” (Felicia).

All 25 of the participants, mentioned their lack of family support in the United States (being immigrants and missing sisters and mothers). It was “just me and my husband” stated Ruth. They mentioned that if they had their babies in Ghana, they would have more social support from the women in their tribe, community members, aunts, sisters-in-law, cousins, mothers, and sisters. Jade mentioned that “when you are pregnant in Africa you don’t even have to cook” (Jade) and “you have more time to relax and less stress” (Jemila).

All the 25 participants mentioned the financial difference between Ghana and United States is that “in Ghana you practically pay for everything” explained Jemila. You

must have the money upfront or a portion of the money to receive services. Jessica explained that “there are women who die in labor because they did not have the money and women who died because the people in the clinics would not let them leave because of lack of payment” (Jessica). However, in the United States a pregnant woman has access to health insurance either private or governmental to help with medical expenses. Felicia stated in the United States “Medicaid in the United States is what helped me pay for my pregnancies.”

RQ 2: What is the lived experience of Ghanaian immigrant women regarding nutritional foods and fetal development?

In Ghana the participants said the food is organic and fresh because everything grows from the ground and trees. Several other women yet said that they ate both Ghanaian and American foods. However, they all said that when it comes to conceiving a baby and fetal development it is very important that they are careful and conscious of the foods they consume. They all believed that eating at home cooked meals are better for the development of the fetus because they know what is in it versus eating foods from outside, they can get from a drive through or other ethnic restaurants.

Themes RQ2: Perceive My Ethnic Food as Healthier

All 25 of the Ghanaian immigrant women stated that they perceived their foods as healthier than the US food. The reasons given why their ethnic food was healthier were: our foods are fresh, organic, and raw; more nutritious; how food is treated and grown back in Ghana versus the US; it is cooked at home verses bought in a store or restaurant; not processed; it does not have a lot of fat, less salt, less sugar, no preservative, and more

spices. Omara stated that “I believe my country diet is healthier solely based on how food is treated and grown in my country” and “it was all getting food from the ground; therefore, I do not think I would eat something that will affect my baby that is not like my Ghanaian food” (Lucy). Also, “my ethnic food some you cook without any sugar at all however, all the American diet you will taste something sweet in it” (Hegar). I believe that “you have to eat good nutrition without the sugar to make sure the baby gets good nutrition to grow and develop healthy” (Omara).

All participants explained that their ethnic diet is a healthier diet. Eating healthy means eating food that is organic and grown from the ground; the way the food is actually cooked if it is fried or boiled; if you eat just vegetables with carbs or even add a protein like fish, goat, beef, or sheep. Jessica stated, “dried fish in soups and stews which also contains garlic are very healthy for you.” All Ghanaian women preferred their ethnic food and thought it to be healthier, however, “I could not afford the ingredients in the United States because organic food is so much more expensive, so I needed to do whatever” (Jade). Zahara mentioned that “as much as we want to eat healthy it is not always that way because most of our foods are carbohydrates.”

Photographs of Ghanaian Dishes

In this section I used a research technique called photovoice (photographs that participants take that is used to show something that they do in their lives daily and in the case of this study cooking: (Wass et al., 2020) to show the examples of Ghanaian dishes my participants stated are healthy to eat. Three of my participants sent me unsolicited photographs of foods they cooked for their families. They wanted to show me in a

photograph why Ghanaian women stated that their traditional native dishes were healthier than the American food. Figures 1 through 7 show different types of Ghanaian dishes by three of my participants Ruth, Makena, and Zinab. Figures 8 and 9 are photographs sent by a Ghanaian midwife Esther Hannah (who was not one of my participants) to show the mortar bowl and stick Ghanaians use to make fufu.

Figure 1

Photo of WAAKYE



Note: Text photograph published with permission from Ruth on February 20, 2021.

Figure 2

Photo of Plantain, Eggs, Avocado, Tilapia, and Sauteed Spinach with Onions



Note: Photograph published with permission from Ruth on November 7, 2020.

Figure 3

Photo of Kenkey with Shito, Sardine and Shrimp



Note: Photograph 3-unsolicited text photograph published with permission from Makena on August 27, 2020.

Figure 4*Photo of Tea with Fried Egg and Bread*

Note: Photograph published with permission from Makena on August 27, 2020.

Figure 5*Photo of Rice with Gizadodo and Egg*

Note: Photograph published with permission from Makena on August 27, 2020.

Figure 6

Photo of Spinach Stew, Plantain and Egg



Note: Photograph published with permission from Makena on August 20, 2020.

Figure 7

Photo of Hausa Koko with Roasted Peanuts and Evaporated Milk



Note: Photograph published with permission from Zinab on June 7, 2020.

Figure 8

Photo of Mortar Bowl and Pestle



Note: Photograph published with permission on February 19, 2021.

Figure 9

Photo of Fufu Made from Boiled Plantain and Cassava Flour



Note: Photograph published with permission on February 19, 2021

Themes RQ2: I Like to Cook at Home Everyday

All 25 of the participants said that they like to cook because in their culture they are taught that making their own food enables them to make informed choices for healthy eating such as how much salt, sugar, oil, will be in their food. Omara stated that “the way food is prepared for consumption may be different based on a culture or background of the cook.” The women mentioned that even though they cook their own food the same way they would have cooked the food back in Ghana the food just did not taste the same way because the vegetables are not organic.

The participants explained that they make enough food to eat each day by measuring the content (Juanita) and we do not “throw away food from in the house” (Juanita). Therefore, “culturally Africans don’t cook food and leave it in the refrigerator” (Jessica). Rachel stated that “I cook every day for my family, I prepare my soups with fufu, cassava, plantain, beef, goat, pork or fish.”

Participants mentioned that their foods do not come out of a box or can. “We Ghanaians do not eat much canned foods in Africa or America” (Jemila). Omara indicated that “everything here you find in a can, and it tastes different. I was not trained to eat out of a can.” Therefore, “a lot of conditions that people in the country have you don’t find it very much in Africa buying something just out of a can and don’t even know how it was made” (Felicia).

Theme RQ 2: Ghanaian Food Nutrients

There are four starches in the Ghanaian diet, which include: banku, kenkey, fufu, and rice. These starches are eaten in soups and stews that consists of vegetables and

proteins. Not all the starches are consumed at the same meal. In Ghana, they eat these frequently “but they also walk a lot and its easier for them to lose the weight” (Miriam). However, it’s not that easy to lose weight in the United States. Therefore, during pregnancy some of the women stated they eat carbohydrates in moderation because they did not want to gain a lot of weight to prevent them from having a difficult pregnancy and delivery (Beatrice). Gianna mentioned that “eating a lot of carbs the end product is glucose (a type of sugar you get from foods you eat) and glucose affects the baby. The baby gets big because of the amount of the glucose in the baby.”

This is made of corn dough. However, there are several types of banku that Ghanaians consume depending on what tribe and part of Ghana that they live in. Akple is a form of banku which is made from corn dough and cassava dough together (Samira). ECEW is another type and that one is made from corn flour and has a rocky texture (Makena). Banku is eaten mainly with different types of stews and soups. The most popular is okra soup (Angela).

It is the food from the southern region of Ghana. The same ingredients are put in it, but it is cooked a different way. The only difference between kenkey and banku is that a cook does not put the banku in the corn husk and boil it again. Kenkey must ferment for 3 days. Therefore, most Ghanaians buy it from the African shops (Lucy). The participants stated that kenkey is mainly cooked with “fresh tomatoes, fresh peppers, fresh onions, and then blend it together and eat it with fish” (Miriam).

It is a dough made from plantain and cassava. It is a primary food in Western and Central Africa. Fufu is a carbohydrate which is eaten with soups, vegetables, proteins

such as fish and meat (Samira). In Ghana, fufu is made when a cook pounds plantain and cassava flour together. However, in the United States fufu is made out of a box because “we cannot pound it like they do in Ghana” (Rachel). Zahara explained that she would “cook plantain, blend it, and put it in the microwave and then cook some meat and put it over it.” All 25 of the participants said cooking fufu here in the United States does not taste like it did back home and when they do cook cassava and plantain it looks like mashed potatoes, but it is firmer and stickier (Gianna).

The type of rice that Ghanaians typically eat is Jasmine Rice (Portia). The participants cook the rice in several different ways. One popular type of rice that Ghanaians cook is Jollof rice which is made with tomato paste and a one pot dish (Ruth). Rice balls is another type of rice dish that Ghanaians make which is “a delicacy served on Sundays which is called OMO” explained Samira. A third type of rice dish the Ghanaian immigrant woman cook is called Waakye which is rice and beans (Ruth). The color of the dish is purple and brown color, and it is cooked in almost every household in Ghana. A fourth type of rice dish that Ghanaian women cook is Belotti. Serephina stated that “Belotti is cooked with tomato and the water turn to wine color and then we put the rice in there with the beans.”

Plantain and bananas look a little like each other, however plantain needs to be cooked before eating (Ruth). Zinab stated that “plantain is something that is very heavy when you are pregnant, but they encourage you to eat it in Ghana.” Sarah said Eat ripe (plantain), green; has a lot more nutrients in my opinion. It is rich in iron. People eat it with spinach soup or tomato stew eat it with vegetables.

Plantain has a lot of carbohydrates, but it has a lot of nutrients too because it has iron and all that, so we eat a lot of plantain.

Participants mentioned that they eat a lot of yams. This root vegetable is starchy. It is firmer than a sweet potato and is a staple food consumed in Ghana. Ghanaians eat the white yam, Gianna stated that she “cooks it with spinach and okra soup.”

The proteins consist of chicken, beef, pork, lamb, shrimp, and fish said Ruth. These proteins are eaten with carbohydrates and vegetables (Ruth). Jade mentioned that “some people do not eat pork” Juanita detailed the reason why pork is not good to eat. “Pork, they eat dirt, they have germs, cook it five to six hours (because) they have some germs.” Regina stated, “people should eat fish at least once a week.” Analia indicated that her doctor said, “fish has high mercury which could cause deformations in the baby therefore I could lose the baby, miscarry the baby in the first trimester.”

The main vegetables eaten by the Ghanaian women are green leafy vegetables, Kontomire, okra, plantain, garden egg (eggplant), tomatoes, pepper, garlic, ginger, and yam (Samira). The vegetables in the US are “sprayed with pesticides on it. Therefore, the taste of the vegetables changes” (Jessica).

The garden egg in Ghana is the color of a hen’s egg. Even though it is a small fruit people eat the garden egg as a vegetable. In the United States the garden egg is called eggplant and the color is purple. In Ghana, the garden egg is grown organic without preservatives and therefore it tastes different than the eggplant here in the United States (Portia). “When I get pregnant, I cook garden egg in my soup, and it takes the nausea away” (Serephina).

This is the leaf of the cocoyam also known as taro. These leaves contain minerals, enzymes, and are very nutritious (Mercy). The Ghanaian immigrant women said they use spinach which looks like Kontomire in the US and is the closest vegetables to what they ate in Ghana but is not as tasty nor nutritious (Miriam). They try to cook the spinach with the same ingredient they use to cook Kontomire in stew, but it does not taste the same. “I will wash spinach and cut it and cut it and will cook it in oil with chili sauce, beans, meat, in tomato paste or palm oil” (Regina). “Kontomire has more fiber in it than spinach” (Tracy). All 25 participants stated that Kontomire is not found in the United States where they live like it is found in the Ghana because of the health benefits for both the mother and the baby. “In the leaves contains folate, and it helps with the formation of fetal bone and teeth” (Tracy). “In the mother it helps with preventing pre-eclampsia” (Mercy). This plant in Ghana was not expensive therefore, it was accessible to all pregnant women.

Ghanaians make a soup with okra, and they can eat it with all proteins “such as goat meat and add the oil or bake it and just eat it like that it is really good and its very slimy” (Gianna). Mercy mentioned that “okra is one food they ask pregnant women to eat to eat a lot of because you know how slimy okra is even to me, they tell you when you eat okra you give birth quick.”

Zahara listed the Ghanaian foods that she likes “fufu and soup, banku and okra soup, rice and ground nut soup, and yam with spinach soup mostly white rice.” Angela said she prepared “peanut butter soup which is actually ground nut soup/ eggplant stew.” “Chicken soup is called light soup in Ghana” (Ruth). Angela mentioned “eggplant stew, yam, plantain there is a lot of fry fish did not change my diet while I was here. I cook

soup that has everything in it and add a lot of spice.” “We make tomato-based soups.” (Samira) “Okra soup our stews are made from chicken, beef, pork, fish” (Samira). Palm nut soup is another soup that they make explains Seraphina, “I would say vegetable soup will kind of give you some more energy than regular soup.” Ruth stated that “pork feet we add it to the soup for flavor and for a balanced diet we use it in the soup along with vegetables such as garden egg, tomatoes, onions. Kontomire which is high nutrient value.”

Themes RQ2: No Preservatives and More Spices

All 25 of the participants mentioned that Ghanaian food does not have preservatives in because they are organic and made fresh every day. The foods in America have preservatives in them so they can stay on the shelf. “We have ways of preserving our foods, but it does not have the chemicals or the preservatives like the American food have in them” (Omara).

The spices that Africans like to consume are pepper, cayenne pepper, japenero/habanero pepper, turmeric, nutmeg, hot pepper, and garlic (Serephina). “Garlic is a spice that gives food a little kick” (Samira). All 25 of the Ghanaian women mentioned that eating spicy food is healthier. It helps “to numb your tongue and it does not cause you to salivate which helps a pregnant woman not to feel nauseated” (Angela). It also just calms down the hormones when a person has heartburn” (Mercy). The participants stated that they had to go “to the ethnic shops to get spices (i.e., Indian food is very similar to ours)” (Miriam).

Themes RQ2: American Food is Bland, Fattier, and Empty Calories

All 25 of the participants mentioned that they realized that when they consumed American food that “American food is not food but has empty calories (i.e., Doritos and Cheetos). You can eat lunch and the next minute you have to have a snack and the cycle just continues because you are not satisfied” (Samira). American food is both “bland and fattier” (Analia). Thus, “because the food is fattier when I had to “buy things I had to check for the calories and sugar content” (Tracy). The women also stated that if a person does not have money to get healthy food, then “you eat everything you come across” (Jemila) even if it is not good for the mother or the fetus (i.e., I ate a lot of bad things like French fries and sweet tea and soda”). “I would eat whatever is in my house. Here you can say I want this today and not that, you have money you can get what you want, if you do not have money, you get whatever is in your pantry” (Beatrice). The women were concerned that when they consumed American food that they would develop health issues while they were pregnant. Omara explained that “manipulations that are done to the foods in America is actually causing harm to the mothers and their fetuses. Consuming American foods can cause a mother and her fetus to become obese and become diabetic, therefore it is very important that a mother is careful about the types of foods she eats (Jessica).

Theme RQ 2: What the Mother Consumes Affects Fetal Development

A woman’s body changes during pregnancy, for instances in some cases, the kind of food she used to crave during pregnancy, she may not want to eat it afterwards (Jemila). For example, “when I was pregnant, I craved pineapple with three of my four

daughters. I would eat the pineapple only when I was pregnant. When I gave birth to my baby, my craving would go away, and I did not want the pineapple anymore” (Hegar).

The food consumed by the mother is supporting the health, growth, vitality, and the general well-being of both the mother and child (Omara). The nutritional supplies transfer to the fetus via umbilical cord. I will ask myself Ruth stated, “what kind of food will be beneficial to the baby? That would guide me to eat or avoid it. My guess is if it is not good for the baby then it is not good for me either” (Ruth).

Theme RQ 2: Foods and Vitamins That Pregnant Women Eat While Pregnant.

The foods that are good for pregnant women “green plantain, broccoli, green vegetables, citrus foods (helps fight nausea) carrots, cabbage, apples, bananas, because of the sodium and potassium” (Juanita). Other foods that pregnant women should consume include “grains, wheat, starchy foods, potatoes, yams, cassava, and brown rice” (Gianna). Good balances of “vegetables, fruits, proteins, and fats, should be consumed” (Jade). Ghanaian immigrant women are encouraged to drink liquids while they are pregnant, not so much water as they were encouraged to drink lots of soups (Tracy). Portia explained that she would stay away from junk food because she was told that it would affect fetal development.

Healthy food sources are expensive and sometimes, extra vitamins need to be added to have sufficient nutrition needed for the mother and child. The prenatal vitamins like folic acid, vitamin C, and vitamin D prescribed at the time by medical profession is helping with the matter (Mercy). Deficiency of vitamin C and or vitamin D will in a long term, effect the wellbeing of the baby and at it starts in pregnancy (i.e., scurvy or bow

legged). Vitamin C deficiency can affect fetal brain which is not reversible after the baby is born (Mercy). Vitamin D is a vitamin that Africans do not get enough in their diets. “Therefore, if the mother does not take vitamin D supplements during pregnancy, the fetus will have poor neonatal development and growth. This deficiency will affect mother too, it will make them prone to have gestational diabetes and pre-eclampsia” (Mercy).

Theme RQ 2: Traditional Foods, Food Restrictions, and Pica in Pregnancy

Most of the food that the participants craved are avocado, pineapple, and Tuo Zaafi (a Ghanaian dish from Northern region of Ghana). “I ate avocado, but I got nauseated every time I ate it and my baby disliked avocado when he got older” (Beatrice). Hegar who craved pineapple stated that “I think that pineapple helped with the development of my children.” She also said after each pregnancy was over, her craving for pineapple was over too. Rachel craved Tuo Zaafi, “the recipe calls for cassava dough mixed with palm dough which is served with greens; it is slimy kind of soup and considered a healthy meal”. Analia said she craved for Juice Leaf that is only found in Ghana and grew in her backyard in Ghana. She craved it while pregnant in the US but could not find it. She said, “I got very emotional, and I cried for it.” Juanita craved hot peppers. She said it was not just any type of hot peppers but “really hot peppers, my mom told me to stop eating it while pregnant because it might cause a miscarriage.” (Juanita) A friend of hers had a miscarriage eating very pepper while pregnant. The “hot pepper affected the development of her fetus,” she said.

In Ghana, certain foods were restricted depending on the region or tribe to which they belong. Several participants believed that some of these foods might not be a restriction but more of a superstition. For example, Rachel explained that

If my dad didn't become a Christian; he would (say) all my children are not supposed to eat this type of food. It will go down in generations truly because of superstition. Like my dad didn't eat a type of food because he was the 10th born among his siblings born. In his tribe they believe when you are the 10th born you don't eat certain things. Twins also don't eat certain things. I think it is more a superstition thing.

Some people believe that something will happen to them if you go against food taboos, such as having an allergic reaction. Other people may think that if they eat that food, they are offending some God. Samira stated that "for me a food taboo is just something that you never had before, and you are not opened to have it." Samira mentioned that "I have not had it before like dog meat and that I will probably would not."

The foods that the participants mentioned that may be restricted in Ghana are white foods such as cheese and eggs, okra, animals such as snails, dogs, cats, lambs, sheep, pork, and snake. Analia stated, "I couldn't eat okra when I was in Ghana, but I could eat it in this country." For example, eggs are a food that is restricted in Ghana during pregnancy; "especially in my mother's tribe, when people are pregnant, eggs are not allowed to be eaten, because the people say that the baby will be born with an eye problem" stated Hegar.

“In one part of Ghana people eat animal meat while in other parts of Ghana people believe animal meat is disgusting” (Rachel). Juanita mentioned that “in Africa, my father would say you do not kill or eat them dogs. He would say you need to respect them as animals.” Samira stated that “I cannot bring myself to eat a dog. So, people eat it, and it is a delicacy in Ghana.” Cat meat is also an important type of meat and is seen as a delicacy but not eaten every day.” (Samira). Another type of animal that Ghanaians may consume are lamb and sheep. Snake is another animal that people in different tribes in Ghana eat (Rachel). There are also tribes in Ghana whose women will consume snails and others that will not. Several Ghanaian immigrant women explained why pregnant women should not eat snails during pregnancy. Zahara explained that “snails eating them during pregnancy your baby is going to drool.” Ruth stated that “my cousin won’t eat snails because my father said that it is not good because it lives close to the river.” While several other women mentioned that “I see nothing wrong with it because snails have calcium rather than iron” (Mercy). Other participants like Regina stated that she craved snails while she was pregnant. Regina said

I would not eat it if I was not pregnant. I really liked it the meat is white. So, there was something in the snail my body needed. In snails there must be a nutrient my body needed from that particular food. I guess it was iron because there is iron in snails that is why some people eat it. Once I gave birth to my daughter I did not like snails anymore. This is true not only for me but for other women who consume snails only while they are pregnant because after the baby is born the body rejects it.

Pica in Pregnancy

Several participants mentioned that the more education a person has, the less chance they engage in a practice of pica. Pica is a practice of a person who consumes nontraditional substances. This practice is passed down, and this is one of the reasons why people do not question the practice and why some people cannot tell you why they eat or do not eat food or these nontraditional items (Mercy). The untraditional items that people consume are chalk, dirt, clay, soap, and ice. Lucy mentioned that “probably morality played a role in that chalk or dirt” decision to consume them or not. Felicia stated, ‘as much as you crave for these nontraditional foods it is not healthy for you or your baby.’ Zinab explained that “chalk and dirt people would eat them to prevent nausea.” Rachel mentioned that “I have seen people eat dirt from bricks and they would go on and scrape some from their homes and eat it.”

Rachel mentioned that “I have seen some people eat a certain kind of clay it is whiteish all of these why they are pregnant, and it’s called limestone.” Some people eat the clay because they like the smell of it. White clay helps with nausea in some situations. Samira explained that “clay is not good for inside the body”. Therefore, as bad as my nausea was, I prayed it away.” Gianna stated, “I ate it before I was pregnant back home in Ghana.” Jade mentioned that the clay in Ghana is both molded and backed. The clay “I carved was called Ayeilo.” Shele is another type of clay that people who are pregnant in Ghana would eat. Analia explained that

The clay I craved was white and it was called Bentonite. I ate this clay when I was pregnant. However, it was only when I was pregnant and when I gave birth the

craving disappeared, and I would order it online and my husband did not know about it. So, it was kind of my little secret and after the baby was born, I throw it away.

Felicia believed she craved ice “because she was lacking iron in her body.”

Jemila stated that whenever she was not eating ice “I felt like I was suffocating but immediately I eat ice and it hit my mouth it was a comfortable and calming feeling. It was just during pregnancy and with all 3 of my children.” Sarah mentioned “I really liked the smell of soap we used at work. I would take the soap and wash my hands a bunch of times. I just looked forward to going to work because of that.” Ice was another item that several people craved while pregnant.

Discrepant Cases (Outliers)

RQ 1 had six discrepant cases; all of them had to do with the mother and what she can and cannot do. At the same time, she is pregnant, rejection of the baby when the mother dies, family support if a pregnant woman is not married, and listening to your mother even if you're a mother yourself. The Ghanaians believe that the mother should not sit on the floor when pregnant, and they should not go to funerals when pregnant (Zahara). Lucy explained that “when a mother dies, they reject the baby because this child becomes a bad omen, and the family abandons the child in the hospital.” In Ghana, “if you're not married, you cannot go to your husband's house, so you have to take care of your pregnancy alone and its tough” stated Makena. Lucy said, “you cannot disobey your parents even though your mamas tell you to do something even if you are a mom too.”

RQ 2 had two discrepant cases with things pregnant women should drink while pregnant. Raspberry leaf tea which Gianna described a type of tea that helps her during pregnancy. It is known to prepare the womb. “So, I drank it while I am pregnant from my second to third trimester”. Kola nut is good for pregnant women. This nut is not found in the United States so people who are pregnant or plan to get pregnant usually ask a friend from Ghana who is coming to bring them some. Angela stated, “it is something I used to drink. You hold it in your mouth and it’s a little bitter and it contains nutrients and vitamins”. In Africa this bitter nut is the best supplement for pregnant women because it helps a pregnant woman’s uterus become healthier as well as during pregnancy. “It helped with my nausea and vomiting” (Angela)

Summary

In this chapter, I discussed the results of two research questions. RQ1: What is the lived experience of Ghanaian immigrant women regarding medical care contrasting Ghana with the United States? The results of RQ 1 showed that Ghanaian immigrant women experienced a very traumatic situation while delivering their babies. Primarily due to the unsanitary conditions of the delivery rooms and the lack of necessary medical equipment needed to monitor the mother and the baby. Lack of trained medical professionals such as doctors or nurses was another added cause. The financial responsibility of all expenses laid on the women’s family needed to pay cash in advance. The Ghanaian immigrant’s family must provide or donate blood if a cesarean section is needed and hemorrhaging of the mother was predicted. Fortunately, women in Ghana have excellent family supports. In the United States, the women had a very different

experience; they had more support from the doctors and nurses while giving birth. There was a lot more medical equipment available. The family was allowed to support them in the delivery room. However, Ghanaian immigrant women stated that they felt all alone extended family members were not there. It was just them and their husbands. The women stated that they did not have to worry if they could not afford the cost of their healthcare upfront because they had insurance that would pay for their expenses.

In RQ2: What is the lived experience of Ghanaian immigrant women regarding traditional food and fetal development? All 25 Ghanaian immigrant women stated that they believed traditional Ghanaian food to be healthier than American food. The food is more organic, cooked with more spices, and contains less sugar and fat. The Ghanaian women also stated they like to cook their food every day for their families from fresh ingredients. They cook enough food for their family to eat without any leftovers. All 25 Ghanaian immigrant women stated that American food contains more salt and preservatives that they explained are not suitable for the mother and fetus's well-being. Also, Ghanaian immigrant women stated that it all depends on what part of Ghana and tribe the woman belongs to, the food restrictions, differences such as cheese, eggs, okra, or animal's restrictions as snails, dogs, cats, lambs, sheep, and snake. They also said the nontraditional foods depend on a women's tribe and her educational background as far as consuming such as clay, dirt, chalk, and ice.

In Chapter five, I discussed the key findings of this study, the interpretation of the findings in Chapter four, the limitations of this study, recommendations for further

research, implications for the impact of social change, and recommendations for practice in the field, and my ‘take-home message’ of the vital essence of this study.

Chapter 5: Interpretation of Findings

Women immigrate to the United States from their home countries for various reasons (i.e., to have a better life, go to school, or follow their husbands, etc.); they find themselves having to acclimate to many unfamiliar customs and traditions of their host countries. After settling into their new home, many immigrant women start a new family with their husbands. Some women already arrive in the United States with a child. Depending on the country they call home, their previous experiences in pregnancy and childbirth may have been unpleasant (i.e., lack of financial resources, traumatic pregnancy experiences, unsanitary birthing conditions, etc.).

Immigrant women, upon arrival, have to assimilate to the country that they have migrated to by learning a new language, new culture, and traditions. They may find it challenging to find a health care provider sensitive to the traditions, customs, and types of foods they are used to, who can guide them to have a safe and supportive pregnancy and childbirth. Thus, the purpose of this descriptive qualitative study was to understand those issues in the lives of Ghanaian immigrant women by conducting interviews about their beliefs regarding the effects of maternal nutrition, food taboos, and pica on the development of their fetus baby while residing in the United States.

I conducted a descriptive qualitative study in which I interviewed 25 Ghanaian immigrant women via phone, FaceTime, Google duo, WhatsApp, and Zoom meetings. I transcribed each interview and placed them into a matrix to find the themes for each of my two research questions:

RQ1: What is the lived experience of Ghanaian immigrant women regarding medical care contrasting Ghana with the United States?

RQ2 What is the lived experience of Ghanaian immigrant women regarding traditional food and fetal development?

Interpretation of the Findings

The Key Findings of This Study

This descriptive qualitative study was based on two research questions. Each research question had themes and subthemes. RQ1, related to Ghanaian immigrant women's beliefs about Ghana and United States health care resulted in the following themes: medical care in Ghana and medical care in the United States. Medical care in Ghana had three topics: unsanitary birthing facilities, medical professionals, and no money/no health care. Participants mentioned that they were sharing the birthing rooms with multiple people in them. They also mentioned that they were mistreated by the midwives and the traditional birth attendants because they were hit in the leg or back and yelled at to push harder. Participants stated that if their families were not able to pay their medical bills, they could not leave the hospital. Neither they nor their babies were fed, and in some cases, women lay on the floor in the corner, with the clothes they came to the clinic and may lay on just a towel soaked in their blood until they were able to pay. The delivery rooms lacked the medical technologies to monitor them and their babies.

Medical care in the United States had five topics: medical technology, medical professionals, easier delivery of the baby, pregnancy complications in the United States, family support, and financial viability. Participants explained that in the United States,

they had a much more pleasant and pain-free delivery. The doctors and nurses were kind and told them what was going on every step of the way. The hospital rooms were clean, and they were filled with medical equipment such as incubators, blood pressure cuffs, and even monitors to check the mothers' heartbeat and babies' health.

The participants explained that even though they only had their husbands with them in the United States, they had more family support in the delivery rooms than in Ghana. In Ghana, no one is allowed in the room when a woman gives birth because it is not a private experience (too many mothers giving birth simultaneously in the same room). My participants also stated they did not have to worry about not having enough money to go to the hospital because, in the United States, they were able to get health care when they go into labor. Then they could pay for the services they received later, or Medicaid paid for their deliveries. The doctors and nurses did not yell or hit them to push harder but supported and guided them to have a pain-free and safe delivery.

RQ2, related to Ghanaian immigrant women's beliefs regarding traditional food and fetal development had one theme: Ghanaian food versus U.S. food during pregnancy with eight subthemes. The subthemes included: perceive ethnic food as healthier; cooking at home every day; Ghanaian food nutrients; no preservatives and more spices; American foods are bland, fattier, and have empty calories; what the mother consumes affects fetal development; foods and vitamins during pregnancy; and traditional foods, food restrictions, and pica in pregnancy. Culturally, Ghanaian women were trained to cook for their family's organic foods and contained less sugar and salt than American diets; however, they add many spices in their food. Participants believed that their traditional

food was healthier and better for the development of the fetus and the health of the mother because they were in control of the ingredients they added to the vegetables, meats, and carbohydrates. Participants stated that once they tasted American food, their tongues and taste buds were in shock. The food in America contains more salt and preservatives, which were not suitable for either the mother or fetus's well-being.

Key Findings and Review of Literature

Theme 1: Medical Care in Ghana

The participants in the present study mentioned that pregnant mothers are “crammed into a room that does not have enough beds or cots in there” (Beatrice). Therefore, some women are “lying on the floor only on a towel” (Hegar). These findings are similar to a qualitative study conducted by Ismaila et al. (2019). The authors conducted semi structured interviews with midwives ($n = 33$) from 10 hospitals that have maternity wards in Greater Accra Ghana. The study showed that the midwives were “doing magic with very little” (Ismaila et al., 2019, p.214). In Ismaila et al.’s (2019) study, the midwives confirmed the current study’s findings that the labor wards do not have enough beds, which causes overcrowding; therefore, the midwives stated that they are forced to deliver on ordinary beds, on the floor, or on benches. This nonmedical bed compromises the midwife’s body and especially their backs are placed in a position that puts pressure on their spines it also traumatizes mothers and their offspring.

The participants in my study mentioned that “pregnant women are treated barbarically” (Hegar) when the pregnancy is prolonged the midwives and the TBA “hit and scream at the mother and say haven’t you had a baby before, push harder” (Gianna). This finding is similar to a sexual and reproductive health study conducted by Maya et al. (2018), which was a qualitative study of in-depth interviews and focus groups to examine the similarities of Ghanaian women giving birth in two health care facilities (Koforidua and Nsamwam). The study showed that there are various methods of mistreatment of gestational women who want to give birth in hospitals and clinics in Ghana (Maya et al., 2018). Both adults and teenagers reported that they experienced the same severity of mistreatment by the health care providers. However, the teenagers felt discriminated against because of their age. The abuses according to mothers ranged from physical (i.e., slapping, hitting their backs, and pinching their thighs). An example of physical abuse reported by a mother was “she used a cane to whip me so I could push...so she really whipped me with the cane and later used her hand to hit my thigh...” (Maya et al., 2018, pg. 76). Verbal abuse and psychological abuse (i.e., insults, yelling, shouting, belittling remarks, scaring, and intimidating the mothers) for things like not coming prepared for childbirth by bringing supplies (i.e., mama kit filled with soap and clothes for the newborn baby etc.) or not listening to their instructions by what position to give birth in that was easier for the nurse or midwife (i.e., lying on their backs with their legs apart instead of squatting). An example of verbal abuse “I did not know I had to lie on my right side so when she saw me turning, she said I’m stubborn” (Maya et al., 2018, pg. 75). In Ghana, age discrimination toward young pregnant teenagers is very prevalent among the

health professionals. The young teenage mothers felt humiliated and discriminated, going to clinic or facility when needing assistance in pregnancy or childbirth (Maya et al., 2018).

Another study in the pregnancy and childbirth literature that is similar to my study is an exploratory descriptive qualitative study using dialogues. Dzomeku et al. (2020) examined treatment (i.e., disrespect, physical abuse, which are humiliating and undignified) of midwives toward pregnant woman in Kumasi Ghana. The one result of this study showed that midwives understood how negative their behaviors were toward their patients. The similarity of Dzomeku et al.'s (2020) study and mine was the shouting, verbal abuse, and hitting and slapping the inside of the women's legs as physical abuse by the midwives of the pregnant women. Another similarity to my study was that the mothers were detained in the clinic or hospital if they could not pay their hospital bills. However, in the Dzomeku et al. (2020) study the mothers were discriminated based on their economic status.

The differences in the Dzomeku et al.'s (2020) study from the current one was Dzomeku et al.'s (2020) participants mentioned age discrimination (i.e., teenagers vs adults) was a factor if a midwife rejected a patient or not. Also, the mental health of a participant did not come up in the current study, but it was a factor of discrimination in the Dzomeku et al. (2020) study. Another difference between the Dzomeku et al.'s (2020) study and mine were those patients in Dzomeku et al.'s (2020) study were checked without their consent or treatments performed without the mother's prior consent which led to adverse conditions (i.e., bleeding, problems in using the restroom or experiencing

pain during intercourse) until after the baby was born. In the current study my participant explained that “they command you to do what is needed to be done with no compassion.” (Hegar)

A difference between this study and the Dzomeku et al.’s (2020) study was that the midwives did not like mothers to choose their preferred method of giving birth, which caused them to mistreat the ones who refused to give birth lying down. This caused the midwives to discriminate against the mother’s choice of giving birth (e.g., lying down on the bed or squatting on the floor) and in some case totally ignore the mother while she was trying to give birth to her baby (Dzomeku et al., 2020). The participants in the present study stated that “there may be 30 pregnant women in varies stages of labor.” These women are “crammed into a room that does not have enough beds or cots in there” (Beatrice). Therefore, some women are “lying on the floor only on a towel” (Hegar) in a “very filthy unsanitary conditions” (Lucy). However, in the Dzomeku et al.’s (2020) study, the midwives stated that they preferred the pregnant women gave birth on the bed or on the bench versus in a squatting position because it would be better for the midwives’ health not to hurt their spines and prevent injury to the mother and her offspring that can ultimately leave a mother paralyzed or dead.

Lorenze (2020) conducted an interpretive phenomenological framework study of a meta-synthesis of the literature of Ghanaian women giving birth in Ghana. Lorenze (2020) found that some midwives did mistreat their clients, which was consistent with what the participants in the current study stated. The midwives caused trepidation and, in some instances, bullied their patients into behaving the way the midwives wanted the

mothers to behave. Therefore, causing the mothers to be fearful and intimidated toward the midwives and not want to deliver their offspring in the hospital or clinic but at home with traditional birth attendants (TBA), which brings about its type of challenges (Lorenze et al., 2020). However, some mothers reported that "not all nurses were bad" (Lorenze et al., 2020, pg. 134).

Dalinjong et al. (2019) conducted a convergent parallel mixed-methods study with mothers receiving care at a facility in Ghana. The authors used structured questionnaires with the mothers and conducted focus groups with the mothers, nurses, and midwives who worked at the Kassena Nankana Municipality in Ghana. The results of this study were not consistent with the present study because it showed that both the mothers, nurses, and midwives were satisfied with the treatment they received and provided (Dalinjong et al., 2019). In the study done by Dalinjong et al. (2019), the participants' experiences were more positive; the mothers felt that the midwives and the nurses treated them with respect and upheld their dignity by talking with them in a way that provided them emotional support. Therefore, the mothers felt "respectful and...sympathy for human being" (Dalinjong et al., 2019, pg. 114; Lorenze, 2020, pg. 134).

The participants in the current study explained how medical care was traumatic for them. Regina said, "there was not monitors to listen to the baby's heart or me." Mercy explained "there was not any device to see the position of the baby while I was in labor."

In a qualitative study by Mugo et al. (2018), the authors stated a lack of medical supplies in Juba Municipality in the Republic of South Sudan because they are just

inaccessible or very poorly made. These supplies included such things as gloves, syringes, lab supplies to access HIV-positive mothers, and clips to cut the baby's umbilical cords, an old Pinard horn stethoscope to approach the fetus, etc. (Mugo et al., 2018). Juba had medical equipment, but they were not functioning correctly. This equipment included oxygen tanks that were not working correctly because of unstable electricity and water. Juba also had a shortage of up-to-date medical equipment to take care of the tiny babies born earlier than their gestational age (Mugo et al., 2018). Sudan also has a shortage of medications such as oxytocin needed to stop bleeding after childbirth (Mugo et al., 2018). Maternity ward "...units have one room and (are) overcrowded with many newborns with various types of complications. We do our best to help those newborn children, but without enough space, incubators, and medications, it is very difficult" (Mugo et al., 2018, p. 1601).

The participants in the current study stated that "in Ghana you practically pay for everything," explained Jemila. You must have the money upfront or a portion of the money to receive services. Jessica explained that "there are women who die in labor because they did not have the money and women who died because the people in the clinics would not let them leave because of lack of payment."

This finding contrasted with a review by Ansu-Mensah et al. (2021), who stated that in Africa, there is a free maternal health care financing policy that enabled gestational mothers to receive prenatal, expert delivery, and after childbirth assistance from a health care facility or clinic. The health care policy was done without having to pay cash before the services were rendered. However, the authors stated that they

discovered during the review that gestational women did not perceive the quality of care they received with the free health care financial policy to be good. The Ansu-Mensah et al. (2021) study showed that mothers were unhappy about the time they had to wait for services and not having enough healthcare professionals on staff to take care of them, such as midwives and TBA. These same mothers were also upset about the shortage of drink water and not accessing prescription medications when they needed them.

Ansu-Mensah et al. (2021) mentioned that Ghana is part of 19 countries in Africa that have tried to implement free maternal healthcare funding to help the high cost of medical care for gestational mothers. The authors mentioned that these mothers are asked to pay a certain amount each month (i.e., a premium) to help with alleviating the high cost of maternal healthcare. However, even when this type of program is put into place, the medical directors, and medical professional's (i.e., doctors and nurses) opinions of a mother who has this type of insurance may affect how the midwives and TBA treat that mother. Ansu-Mensah et al. (2021) study listed other challenges that the mothers in Juba faced to access healthcare. These challenges included not having enough medical facilities for the pregnant mothers in the area they lived in and the insufficient supply of vital medications and health care materials. Even the speed at which the medical professionals got reimbursed for their services became a challenge.

Theme 2: Medical Care in United States

The participants in the current study stated that the US medical professionals “talk to you real nice, and they encourage you to do your best to push” (Gianna). However, even though these doctors and nurses were very nice, they were not sensitive to or

concerned about educating themselves about their culture. This was also reported in a focus group study of African Americans and Latina women conducted by Janevic et al. (2020). The authors explained that in their study, the participants expressed that ethnic and racial identity doctors shown to their patients predisposed the way the practitioners treated their patients. Also, the way the patients' significant other or husband felt about the outcome of the way their wives or girlfriends received treatment greatly influenced the ethnicity patient (Janevic et al., 2020). The study by Janevic et al. (2020) showed that race-ethnicity of the provider was indeed a hindering factor in the conduct of healthcare practitioners regarding pregnant African and Latina women. Therefore, according to Janevic et al. (2020), what influenced patient-provider communication was perceived racial-ethnic discrimination. A participant mentioned, "just because you have ears does not mean you can hear. You can tell when people are listening to what you're sharing" (Janevic et al., 2020, pgs. 538-539). This is similar to what one of the participants in my study stated:

...Where would you call home instead where you from or where did you come from or how did you get here you know I thought that was profound. So that was really cool thought I never had it put that way before. I think I guess that's away of being sensitive to somebody... (Samira).

In a study conducted by Omenka et al. (2020), the authors stated that based on their literature review, African immigrants' involvement in the American medical system was not shared across these populations of people. They explained that African American immigrants tend to all be put into the classification of Africans or Blacks (Omenka et al.,

2020). Therefore, this becomes a problem for the health benefits of African-born black mothers and US-born black mothers (Omenka et al., 2020). Their cultural background and religious beliefs influence medical care for all immigrants. Also, the immigrants' cultural beliefs influence when and how they should be treated by medical professionals and what medications and herbs they should take to treat those conditions (Omenka et al., 2020). This review identified similar themes as the participants in my study, such as the absence of culturally competent medical providers and the medical care costs in the United States (Omenka et al., 2020).

My participants stated that they had access to pain medication (i.e., anesthesia) to control their pain. If the mother needed an emergency cesarean section (c-section), my participants stated that the doctor could perform the procedure even if they could not afford it at the time. The mothers in the US did not have to worry if they or their babies would live or die.

In a study conducted by Davis (2019), the author stated she interviewed over (n=50) parents whose offspring end up in the NICU (National Intensive Care Unit) in four different states. The author conducted an ethnographic observational analysis in (Connecticut, Louisiana, Minnesota, and New York) and collected oral birth stories (n= 17 people both mothers (n= 14) and fathers (n=3) The mothers (n=2) were Filipina, (n= 1) Caucasian, and (n=11) black. The Davis (2019) study participants were black women who possessed college degrees or fell into the middle- or high-income brackets (Davis, 2019). The author also interviewed people who helped deliver the babies (i.e., doulas who only provide support), midwives, labor and delivery nurses, medical justice

advocates, delivery nurses, neonatologists, neonatal nurses, and supervisors who work for March Dimes; Davis, 2019). African American women in the United States, according to Davis (2019), experienced what was called obstetric racism. Obstetric racism involves disrespect, abuse, intimidation, and cruelty while doing gynecological examinations of pregnant women during labor and delivery (Borge, 2016; Diaz-Tello, 2016). Also, the race of the patient influences the way the health care system treats the patient. According to Davis (2019), this is called medical racism.

Davis (2019) explained this type of violence to be things such as: desensitizing care, birth rape (raping the woman during and after she gives birth (i.e., violently pulling the placenta out, triggering pain, aggressively going into a women's vagina to pull out a blood clot, etc.; Davis, 2019). Therefore, it may threaten the mother and fetus's life, especially for African and American black mothers (Davis, 2019). The four cases that stood out to the author in this study shows that obstetric racism still is an experience that black women and women from other ethnicities experience without holding the health care providers who use them accountable for the violent behavior and adverse treatment of women of color (Davis, 2019).

One of my participants mentioned not being able to conceive due to a small tumor in the pituitary gland (Portia) which she thought could be due to use of hormones in the food in the United States. In an ethnographic study conducted by Davis (2020), the author built on the previous study on obstetric racism. Davis (2020) studied obstetric racism and infertility and the role that racism plays in treating black women in wanting to conceive a child with assisted reproductive technology (ART). One participant in Davis' (2020)

study stated that black bodies, she believed, were being used for experimental purposes for testing trials for reproductive treatments such as ART and gynecological procedures. The above conclusion is that the black body “is a site of racial experience” (Davis, 2020, pg. 63).

Alson et al. (2021). in their narrative review study and Slaughter-Acey et al. (2020), observational cohort study confirmed that unfortunate experiences of pregnant women due to structural racism in the United States have adverse outcomes in the health of mothers and unborn or babies. Structural racism affects women of color while pregnant or experiencing female cancers. Therefore, the color of their skin has an unfortunate effect on the treatment of black and brown people in the United States (Alson et al., 2021).

My participants stated that Ghanaians must have the financial means to pay for “...practically everything upfront” with cash (Jemila) this includes even medical care such as for a pregnant woman who goes to a rural clinic or the hospital to give birth in active labor. For example, according to Jessica “... women ...have died in labor because they did not have money” for services and “women ... died because the people in the clinics would not allow them to leave because of a lack of payment”.

In a qualitative cross-sectional design, Amoro et al. (2021) explained that Ghanaian pregnant women from low- and middle-income areas of the country (the Northwest part of Ghana) chose to avoid primary medical care in clinics and went straight to the hospitals. The authors stated that this had become a growing trend. According to Amoro et al. (2021), the issue is that these hospitals are farther away from

where they live. However, the clinics are close by, and they can receive vital healthcare to save the mother's and baby's lives. Bypassing the clinics, the hospitals get overcrowded, and the women may have to wait to be helped by a medical professional. The results showed that bypassing the clinics and going straight to the hospitals caused a significant increase in expenses for pregnant women. According to Amoro et al. (2021), this cost could be tragic for some women because they may have no choice but to "sell-off household assets or borrow money" (p. 556). to pay for the medical expenses.

In a multi-stage stratified cluster design using a secondary data analysis study by Ekholuenetale and Barrow (2021), the authors indicated that in Ghana, the disparities in out-of-pocket health expenditure among women of childbearing was high. Ekholuenetale and Barrow (2021) studied (n= 9,002) women. They found out that even though a person had an effective insurance card, she will not access any health services that she would need, such as maternal healthcare, without paying cash for it. Ekholuenetale and Barrow (2021) findings showed that medical patients who may have insurance are asked to pay for their health services and medications with cash upfront even though they have insurance coverage. The medical facilities are not reliable in having a stockpile of medications that pregnant women may need. For this reason, the patients need to go to a private drug company and buy that medication before they go to the clinic or the hospital to deliver their babies. If they have governmental insurance, then the services may be covered, but even with governmental insurance, the pregnant women will still be asked to pay for services in cash.

It appears that my study is the first where its participants have mentioned that their ethnic food is healthier. In my study, participants stated they preferred home-cooked meals because they could prepare the dishes the way they were cooked back in Ghana. Cooking home-cooked meals my participants stated were much healthier. Immigrant Ghanaian women cook their meals at home from fresh ingredients every day and control the amount of good and unhealthy substances in their meals like salt, sugar, and oil (Mazzonetto et al., 2020). For example, “cooking main meals meant cooking from scratch using raw and fresh ingredients, meat, vegetables, rice, beans, and homemade sauce” (Mazzonetto et al., 2020, p. 3).

Mazzonetto et al.’s (2020) study confirmed my results. However, the population is different from my study, in which I studied immigrant Ghanaian women living in the United States, the concept of liking to cook is the same. In a qualitative analysis using secondary data by Mills et al. (2020), the authors used data from two different countries, the United Kingdom (qualitative interview with a diverse in New Castle Upon Tyne: n= 71) and the United States (focus groups conducted in Baltimore Maryland from two sociodemographic populations: n= 53). The participants in the Mills et al.’s (2020) study revealed that “cooking at home” (a subgroup of cooking) primarily ethnic foods with original raw ingredients (i.e., “its buying fresh stuff, cooking it from scratch” Mills et al., 2020, pg. 203) encouraged the art of cooking skills. Also, help people in their respective countries become healthier not just physically but emotionally as well. To illustrate, in the current study, a participant stated, “it is like a culture, like my own culture, home cooking my food from back home where I come from” (Mills et al., 2020, pg. 204). The

Mills et al. (2020) study also stated that cooking symbolized the well-being of their people through psychological and community avenues, meaning being able to share their home cook foods with others.

In an exploratory study based on a mixed-method approach by de Carvalho et al. (2021), the authors indicated that when a woman prepared food that was traditional to her culture, she had to consider several things in preparing her dish. The things she needed to consider were how she could make the meal fulfilling and enjoyable to her family's nutritional needs. Therefore, women in households worldwide all have one thing in common: to construct a distinctiveness in the way that traditional cultural meals are made for their family and friends at home (de Carvalho et al., 2021). Thus, what a person likes to eat becomes another way that society, in general, can scrutinize them based on the food selections that a particular ethnic or cultural group likes to cook and eat regularly (de Carvalho et al., 2021; Quintero-Angel., 2019).

It appears that my study is the first where its participants have mentioned the types of food Ghanaian immigrants consume. It appears that my study is the first study where its participants have mentioned anything about Ghanaian food having no preservatives and more spices.

My participants mentioned that they do not eat sugar in their meals and the women stated that they thought the American diet was full of fat and sugar; this is why they perceived their diets as healthier. This finding is also consistent with previous nutrition studies. A quantitative linear mixed effect modeling study by Wrottesley et al. (2020) was conducted with Black South Africans. It showed that when a pregnant woman

consumed a high amount of sugar, it affects the mother's body causing her to gain weight, but it also affects the growth of her fetus. This study also found that diet affected the male fetus more than the female fetus because the male was more sensitive gender in utero (Wrottesley et al., 2020). One of the high sugar diet risk factors is excess fat that accumulates in the fetus's body and the mother's body, especially in the belly region. Therefore, a mother has a greater risk of having a fat baby, and that child growing up to become overweight with a high sugar diet (Wrottesley et al., 2020).

In the current study, the participant Ruth stated that "I will ask myself what kind of food will be beneficial to the baby? That would guide me to eat or avoid it. My guess is if it is not good for the baby, then it is not good for me either (Ruth)". In my study, the Ghanaian immigrant women's food choices while pregnant came from their beliefs of what constitutes a good food for them and their developing fetus in utero. This belief is different than what was reported in Leszko et al.'s (2020) study using descriptive statistics and hierarchical regression to examine whether there is a relationship between personality traits and the consumption of fruit and vegetables among expecting mothers. The authors stated that food selections a mother made while expecting might be based on her personality (Leszko et al., 2020). The sample was 602 women, most of the participants in that study were non-Hispanic white, and the rest were Hispanic or black. The study showed a positive correlation between the mother's age, how much education the mother had, and the mother's personality traits (i.e., being an extrovert or an introvert). However, it had a substantial correlation to a role in the choices in food

consumption and the number of vegetables, fruits, and even fish a mother ate during this time (Leszko et al., 2020).

Another factor that Leszko et al.'s (2020) study stated was consistent with my study: the mother's ability to afford good food (economic status) during pregnancy. If a person does not have money to get healthy food, then "you eat everything you come across" (Jemila), even if it was not good for the mother or the fetus. Therefore, Leszko et al. (2020) showed that women who had a personality that is open to experience tended to consume more fruits and vegetables than those that were not during fetal development. Mothers who had an outgoing personality were also more open (try) to eat foods that were also healthy but different than what they were used to eating (Leszko et al., 2020).

The participants in my study mentioned that fresh and organic vegetables should be consumed when a woman is pregnant. This finding is consistent with previous nutrition literature in a descriptive quantitative study using linear regression. Schlaff et al. (2020) conducted a pilot behavioral intervention program in Saginaw, Michigan, to study the links between diet value before a pregnant woman and how much weight she gains while pregnant at weeks 14-20 and 35 weeks (Schlaff et al., 2020). The results showed that when a woman consumed an insufficient number of vegetables and oils in her diet, she gained much weight during pregnancy. However, when a pregnant woman consumed a high number of vegetables in her third trimester, it reduced the weight she gained.

In an exploratory cross-sectional study by Dalaba et al. (2021), the authors wanted to know the citizens' perceptions of men and women in rural Northern Ghana concerning the foods that pregnant women should consume and what they needed to avoid during

their nine months of gestation. The population for the ten focus groups was: men (n = 4 focus groups) and women (n = 6 focus groups) for a total of (n = 83) participants in the whole study. Both men and women in Dalaba et al.'s (2021) study agreed on what pregnant Ghanaian women should consume and foods that were not good to consume in Northern Ghana.

The foods that the Dalaba et al. (2021) study said pregnant women should eat are similar to what my participants mentioned in this study. Mainly that pregnant woman should consume soups and stews made with green leafy vegetables. The green leafy vegetables in men and women in the Dalaba et al. (2021) study mentioned were Kenaf leaves and dry baobab leaves. They also mentioned ground nuts and palm nut soup, similar to the participants in my study. The participants in Dalaba et al. (2021) study stated that fermented African locust bean seeds made into a nutritious spice "dawadawa" (p. 39) and consuming dry peeled Herring fish called "Amani" were also good for pregnant women in Northern Ghana. For example, one of the participants in Dalaba et al.'s (2021) study stated, "Kenaf soup or groundnut and eat it with Tuo Zaafi or Banku... this will make them very healthy and be able to deliver a healthy baby" (p.40).

The participants in Dalaba et al.'s (2021) study stated that pregnant women should not consume fatty foods and fresh meat (uncooked or processed) because they will make the fetus grow large in the womb and the mother gain excess weight. The participants also mentioned that eating eggs was not suitable for a pregnant woman because "she would give birth to a child who will become a thief" (Dalaba et al., 2021; p. 6).

A person's racial and cultural background has been reported to be one factor that determined if a person was predisposed to vitamin deficiencies or not (Carr & Rowe, 2020). In the present study, my participants stated that deficiency of vitamin C and or vitamin D would, in the long term, affect the wellbeing of the baby and mother at the onset of pregnancy. Vitamin C deficiency can affect the fetal brain, which is not reversible after being born (Mercy).

Vitamin C deficiency can occur because of several different biological, demographic, dietary, disease, environmental, and health (Carr & Rowe, 2020). In my study, I focused on the dietary and the health aspect of maternal nutrition and fetal development. A narrative review (Carr & Rowe, 2020) explained that gestational mothers are known to have low levels of vitamin C compared to women who are not pregnant. One reason that gestational women have low levels of vitamin C is due to the spread of this vitamin from mothers to their offspring via breastfeeding (Carr & Rowe, 2020). Also, the authors stated that cultures that consume foods such as rice, millet, and cassava like Ghana as main foodstuffs tend to digest low levels of this vitamin (Carr & Rowe, 2020). Latin American and African people consume a lot of sweet potato or yam in their diet; therefore, these mothers may consume a high level of vitamin C (Carr & Rowe, 2020). Therefore, (Carr & Rowe, 2020) explained that the amount of vitamin C depends on the type of food the mother was consuming, which determined the level of vitamin C passed to her baby. However, cooking will destroy and alter vitamin C due to the heat (Carr & Rowe, 2020), and therefore the person consuming it was not getting enough benefits of

the vitamin. Vitamin C is a crucial nutrient that a mother regularly consumes to prevent deficiencies like scurvy (Rowe & Carr, 2020).

In a cross-sectional study (Hegazy et al., 2014), the authors explained that both vitamin E and C might significantly affect fetus development. Hegazy et al. (2014) used a multiple regression analysis to test vitamin C levels in cord blood. The results showed a positive correlation between the amount of vitamin C the mother consumed, and the amount found in a baby's cord blood. Therefore, vitamin C becomes essential in fetal development and the weight of the baby. Vitamin D is a vitamin that Africans do not get enough of in their diets. Mogire et al. (2020) stated that vitamin D deficiency is high in African newborn babies (Mogire et al., 2020). Therefore, if the mother does not take vitamin D supplements during pregnancy, the fetus will have poor neonatal development and growth. This deficiency will also affect the mother, making them prone to gestational diabetes and pre-eclampsia (Mercy). In a review (Jarvis & Geraghty, 2020), the authors stated that women from ethnic groups with more melanin (skin color) and women who wear cultural or religious clothes have vitamin D deficiency. The reason is that their skin is covered with clothing which makes them not get the sunlight directly onto their skin (Jarvis & Geraghty, 2020; Mitchell et al., 2019). It is important because it affirms why African American women may need to be supplemented with vitamin D to prevent gestational diabetes and pre-eclampsia, as Mercy stated in my study (Shao et al., 2019).

In a review (Ansari et al., 2020), the authors explained that vitamin D deficiency predisposed babies to some disorders such as hypocalcemia (lower levels of calcium) and rickets. The authors stated that African American women have a greater risk of vitamin D

deficiency than other women from other ethnic groups because of the amount of melanin in these women's skin and low nutritional consumption of healthy foods (Ansari et al., 2020). The fetus's bone development is based on vitamin D and calcium in the mother's body (Ansari et al., 2020). A review article (Zhao et al., 2021) mentioned that vitamin D deficiency could cause miscarriage (recurrent pregnancy loss; Zhao et al., 2021). Supplementation with vitamin D helps a mother avoid fetal death before her twentieth week of gestation (Zhao et al., 2021).

A case-control study in southern Ghana (Fondjo et al., 2021) explained that “vitamin D being a secosteroid that primarily regulates calcium, phosphate, and bone metabolism in the body” (pg. 332). The authors also stated that vitamin D “is essential for embryogenesis (development of an embryo), especially fetal skeletal development and calcium homeostasis (stability)” (Fondjo et al., 2021, pg. 332). Furthermore, low vitamin D during gestation has been connected to pre-eclampsia, low birth weight in babies, and babies born early (Fondjo et al., 2021, pg. 332). The findings of pre-eclampsia are consistent with reports from my study. Fondjo et al. (2021) reported a low level of vitamin D in women exposed to sunshine with or without symptoms of pre-eclampsia.

It appears that my study is the first study where its participants mentioned anything about Ghanaian traditional foods they eat when they are pregnant.

It appears that my study is the first study where its participants have mentioned anything about the traditional foods that were restricted or taboo in Ghana. However, in the literature on food taboos, there are studies done in Ethiopia and Zulu. In a descriptive cross-sectional study (Tela et al., 2020), the authors stated that pregnant women in

Ethiopia were not allowed to consume certain foods due to several factors. These factors the Ethiopian women believed that the baby would be born covered with white stuff (i.e., milk, yogurt, eggs, etc.). They also believed that the foods might lead to the growth of a big baby, which will possibly cause difficulty in childbirth, prompt impulsive abortion, pregnancy loss (miscarriage). Other factors Ethiopian women stated for not eating certain foods were the baby having an evil eye (eating eggs) or have fetal abnormalities at birth (i.e., honey, mustard, meat, fruits, vegetables, etc.). Depending on how the pregnant woman feels, foods can affect her pregnancy and menstrual irregularities (Tela et al., 2020).

In a survey conducted in rural northern KwaZulu-Natal Ramulondi et al. (2021) (n= 140), for the Zulu pregnant women, foods they considered taboo included fruits such as peach, papaya, orange, naartjie (mandarin soft, loose skinned tangerine, and mango. Foods like eggs, honey, chili, and ice were also taboo for pregnant women to consume. The Zulu people believed that when food was not allowed for pregnant women to consume, they would not eat unhealthy foods. However, the foods suggested for Zulu pregnant women to eat are fish, fruits (not orange and yellow color), liver, and leafy vegetables (Ramulondi et al., 2021).

My participants in this study, for example, Rachel, mentioned that “I have seen some people eat a certain kind of clay it is whitish all of these while they are pregnant, and it is called limestone.” Some people eat the clay because they like the smell of it. White clay helps with nausea in some situations. Samira explained that “clay is not good for inside the body. Therefore, as bad as my nausea was, I prayed it away.”

In a quantitative study conducted by Kortei et al. (2020), the authors gathered Kaolin samples from Anfoega (in the Volta Region of Ghana) and ground them into samples (grounded with mortar and pestle in powder) and mixed them with water that they could analyze. Kortei et al. (2020) tested the number of heavy metals in the clay that Ghanaians would ingest. The result showed that exposures to heavy metals (i.e., arsenic, lead, mercury, etc.) in the clay while a mother was pregnant, could affect her and the fetus. Kortei et al. (2020) mentioned that it affected the functional deficits to the fetus's growth restrictions and or death. If the baby survived, he or she might exhibit neuro-cognitive developmental issues, increasing death as a fetus or after birth (Kortei et al., 2020).

In my study, Zinab explained that “chalk and dirt people would eat them to prevent nausea.” Rachel mentioned that “I have seen people eat dirt from bricks and they would go on and scrape some from their homes and eat it.”

In a review of pica by Jackson et al. (2020), the authors explained that pica is not just a practice among pregnant African women in Africa. It also occurred in the United States, but it goes unnoticed and unreported, even though it causes people who ingest the items much harm. Jackson et al. (2020) stated that pica affected a person in three different ways: emotionally, physically, and psychologically. The authors were social workers who advocated that pica should be added to the list of questionnaires about pregnant African women and their questions about drinking, using drugs, during an intake session. Jackson et al. (2020) mentioned that people who consumed nontraditional substances did not realize that it was a syndrome that was typically associated with

pregnant women. However, pregnant women in Africa do not associate pica with being harmful. However, according to Jackson et al. (2020), this practice can be harmful to the developing fetus and the mother due to the high content of harmful chemicals like lead. The dirt does not affect a baby's growth, but it also causes problems such as sadness (depression), dental problems, digestive problems, anemia, and childbirth difficulties (Jackson et al., 2020). According to Jackson et al. (2020), dirt may act as a sponge (absorption) and absorb human nutrients necessary during gestation.

Key Findings and Biopsychosocial Model

The theoretical framework that I used in this study was the biopsychosocial model. This model best explained the responses of the Ghanaian immigrant women in this study about their beliefs about maternal nutrition and fetal development in Ghana and the United States. These responses fit into one of the three parts of this model biology, psychology, and sociology. Together these three parts have explained the lived experiences of Ghanaian immigrant women in the United States.

The Ghanaian immigrant women stated they had medical complications: gestational diabetes, nausea (morning sickness), and vomiting. One participant mentioned a problem with conception due to the tumor in the pituitary gland. Another lost 15 pounds during the gestation of twins resulting in the loss of one twin. Regarding the medical care in the United States, my Ghanaian immigrant participants mentioned easy and pain-free labor versus the one they experienced in Ghana.

According to most of my participants, medical care in Ghana was abusive (i.e., verbal, and physical toward the mothers). Instead of getting the help, the mothers felt that

they were yelled at, and they felt humiliated while struggling to give birth with no pain medications, lack of medical equipment to monitor the mother and the baby. The effect of the psychological trauma stayed long with the mother giving birth in Ghana. In the United States, Ghanaian immigrant mothers had different psychological experiences. They felt more supported by doctors and nurses and cared for with medical equipment needed regardless of their financial status.

The theme of medical care in Ghana was related to the unsanitary birthing facilities where the Ghanaian immigrant women explained the conditions of the clinics and how many women were giving birth at the same time. The treatment of medical professionals' midwives and TBAs of the Ghanaian women while trying to give birth without any medical equipment necessary to help a mother and the baby be born safely.

The social aspect of medical care in United States hospital rooms was that they were clean. However, they also were equipped with medical equipment (i.e., incubators, blood pressure cuffs, heart monitors for mother and baby). RQ 1 discussed that medical professionals, doctors, and nurses, were friendly and would tell the mothers what was going on every step until the baby was born. Even though the mothers had their husbands with them in the United States, they had more family support in the delivery room in Ghana. RQ 1 financial viability the mothers stated that they did not have to worry if they did not have money to pay their medical bills. The reason is that they had insurance of some type to help pay for medical services (i.e., Medicaid, etc.).

The theme of what the mother consumes affects fetal development. It is a theme that the rest of the other topics in this section fit. Ghanaian food nutrients consist of four starches, banku, kenkey, fufu, and rice starches. Vegetables such as plantain, yam, Kontomire, garden egg, and okra. Proteins such as chickens, beef, fish, and shrimp. These foods nourish the body and help the fetus to grow. No preservatives and more spices like garlic, pepper, and hot pepper are what Ghanaian add to their food. “Manipulations that are due to the foods in America is causing harm to the mothers, and the fetuses” (Omara) and “consuming American foods can cause a mother and her fetuses to become obese and become diabetic...” (Jessica). Foods that the Ghanaian women said that pregnant women should consume are green plantain, citrus foods (fights nausea), and proteins. Vitamins that pregnant women take while pregnant are vitamins like folic acid, vitamin C is good for the fetal brain, vitamin D neonatal development and growth mother, gestational diabetes, and pre-eclampsia. The typical foods are avocado, pineapple, and Tuo Zaafi.

The psychological aspect of the theme I perceive my ethnic food healthier is that Ghanaian immigrant women believe that their foods are fresh, organic, and raw back home. In Ghana, the foods are treated differently versus in the United States; here, most foods might be processed or come out of a box. In Ghana, the foods are not processed, do not have a lot of fat, less salt, less sugar, no preservatives, and more spices. The food restrictions that Ghanaian immigrants mentioned are white foods because, in some tribes, they believe eating eggs can cause eye problems, okra, and snails which can cause the baby drool. Other foods that might be taboo are snakes, pork, sheep, sheep, dogs, and cats. Also, Ghanaian immigrant women stated that pica in pregnancy has a lot to do with

the psychological aspect of what the mother is thinking about substances with no nutritive value, such as chalk, dirt, clay, soap, and ice cubes.

. The social aspect of the theme of medical care in the United States was that the rooms were cleaner and more equipped with medical equipment (i.e., incubators, blood pressure cuffs, and heart monitors for mother and baby). The medical professionals were friendly and would answer the questions every step until the baby was born. In Ghana, the mothers had more family support in the delivery room, while in the US, their husband could stay in the delivery room with the women.

Concerning financial viability, the mothers stated that they did not have to worry about being neglected or expelled from treatment because of lack of money. My participants stated they could get help through some insurance in the United States to help to pay their bills. (i.e., Medicaid, etc.) was available.

Limitations of the Study

A limitation that occurred while I conducted this study was that I did my interviews with the aid of electronic devices such as my cell phone and computer. Covid 19 shelter in place orders took away from the face-to-face encounter of conducting the interviews sitting across from each other. Another limitation was the zoom conference meeting emails not going through or the service interruption due to a lack of internet connectivity. It made hearing their voices much less clear and impersonal. I had a hard time understanding how they were feeling compared to how I would have if I were sitting across from them in an in-person setting. The problem with interviewing via cell phone was connections with statics, dropping the call due to the location of the participants who

were at home or while picking up their kids from school after the stay-at-home orders were lifted might pass through a location with not a good reception. The immigrant women had accents talking in English, making it hard to understand when we experienced some technical difficulty.

Another limitation of my study had to do with my interview guide. I had a set of 15 questions and had not thought about any potential probing questions for each question. If I had a couple of questions prepared, it would have helped to gain more information from my participants. For example, after consulting with my peer collaborator, she told me if I would have changed the word taboo and replaced it with restrictions of foods that she thought I may have gotten more rich information instead of a yes or no answer. Several of my questions could have been combined and possibly been asked a different way.

Another limitation of my study had to do with recruiting my participants. I started out getting help from my cultural broker, who introduced me to people he knew. Once, I conducted a couple of interviews with my first few participants then those participants referred their friends and family. As a result, the majority of the participants were college-educated (i.e., nurses, midwives, etc.), or the Ghanaian immigrant women were related to highly educated spouses.

Recommendations for Further Research

A recommendation for further research is that someone could take my interview guide into the rural areas of Ghana and interview native women. The majority of my study participants were college-educated and had a basic knowledge about how the fetus

develops in the womb and the impact of the food they ate during pregnancy. If I interview women who may not come from affluent areas and have not been educated but learned things intergenerationally may give a different perspective to what the native Ghanaian women believed would impact the foods, they consume daily during pregnancy. The results of this study may be different if I go into those rural clinics and interact with the women in those clinics in Ghana and spend time with the midwives and the TBA. The results may differ from the immigrant women who have their babies in the United States.

Also, it would be interesting if research could be done in other countries in Africa to see if the women believed in the same ways as the Ghanaian immigrant women or different and why. This information would help healthcare providers build a culturally relevant prenatal clinic in Africa and the United States. Furthermore, to expand the study, one could replace Ghana with another country in the world and see if the results would be the same (i.e., China, India, Iran, France, Mexico, Trinidad, and Tobago, etc.). It would be interesting to learn if education plays a significant part in the women's knowledge of what to consume during pregnancy or if it is all up to intergenerational knowledge that women worldwide get by cooking with their mothers, grandmothers, and aunts in the kitchen.

Implications for the Impact of Social Change

The implications for social change would be to build a prenatal clinic that would be culturally relevant to all women of the world. A clinic that would be sensitive to the needs of diverse women and can tailor to their specific cultural and ethnic needs. By

devising a healthcare plan specifically for the pregnant women's individual needs, who go to these facilities to be assisted in prenatal services and being educated nutritionally to deliver a healthy baby. Unfortunately, there is a high rate of maternal and infant mortality in third world countries due to poverty, malnutrition, lack of education for women, and the lack of trained medical professionals, medical equipment, and resources like running water or stable electricity. Understanding the implication of these issues may help save the lives of both mothers and their babies no matter in what part of the world these women live.

Recommendations for Practice in Health Psychology

My study could be used as an educational tool to educate health care practitioners in the United States and Ghana. It could help health care practitioners understand that they need be cognizant in whom they tailor their nutritional advice to pregnant women from other countries. Therefore, I recommend that these specialists take some time to educate themselves about the people who come for support and guidance in having a healthy and safe pregnancy.

Not all people who have a dark melanin pigment are African Americans or Blacks born in America. There is another category of dark skin people consisting of Caribbean people (i.e., Trinidad and Tobago, Jamaica, Bahamas, Haiti, etc.). Therefore, the health care practitioner must ask their patients, "where do you call home?" as Samira mentioned in my study where one of her health care practitioners asked her. In the United States, we have citizens from different parts of the world. It would be doing them all a disservice if they were grouped into just seven categories: African, Asian, European, North American,

Native American (Indigenous), South American, and biracial people. Within these groups, people can be further characterized into cultures, ethnicities, traditions, beliefs, clothing types, and cuisines (i.e., Chinese food, Ghanaian food, Persian food, French food, etc.).

Each culture and ethnicity use different ingredients for cooking their food, and the people may lack the enzymes to digest a particular food that may be on the food pyramid (Facioni et al., 2020; Robles & Priefer, 2020). For example, Africans tend to be lactose intolerant, and they lack this enzyme to digest dairy products. So, recommending daily servings of milk to a pregnant woman from Africa may cause health issues for the mother rather than mentioning she could get her calcium from eating broccoli or spinach (Robles & Priefer, 2020). Ultimately, my study showed that education is vital for pregnant mothers and girls and crucial for midwives, TBA, nurses, and doctors, in what foods he or she may recommend to their patients. In my opinion, this may be one way to help prevent maternal mortality and infant mortality in rural prenatal clinics and obstetrics and gynecology offices in the United States. Therefore, education and awareness are the keys to the health of the mother and her developing fetus.

Conclusion

The majority of the cultures, ethnicities, and tribes believe that a man and women should marry and procreate. Many of these cultures go to great lengths to make sure that women can conceive, carry a baby to full term, and deliver the baby safely. However, some cultures go to extremes, and they blame the women for any obstacles that come up

in adding offspring to a newlywed home. In some cultures, family members, such as mothers-in-law and sisters-in-law, put pressure on the young newlywed.

This whole process in some cultures, ethnicities, and tribes becomes very stressful to the point that some pregnant women see the miracle of bringing a baby to the world as “a life sentence.” This time of great joy and happiness suddenly becomes a time of fear and uncertainty of “am I am going to survive this ordeal,” as my participants in my study explained. No woman should have to go through this feeling no matter in what part of the world she resides. I believe that this social injustice regarding pregnancy, nutrition of the mother, and the fetus can be dealt with when there is a shift in the mindset of health care providers, husbands, and in some cases, chiefs of villages, in understanding that ultimately the young girls grow up and become mothers. These mothers become the first educators of their children. What the mother eats, how she is treated, and the environment she lives in all become a part of her DNA passed down to the fetus from the moment of conception through epigenetics and fetal programming.

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Appendix A: Demographic Questions

RQ: What is the lived experience of immigrant Ghanaian women regarding their beliefs about maternal nutrition, food taboos, and fetal development?

IQ 1: Where were you born? What part or ethnic group of the county are you from?

IQ 2: Tell me about coming to the US.

When did you come? Why did you come (marriage, pursue education etc.)?

IQ 3: Were you pregnant while you were in Africa or in the United States?

Appendix B: Interview Guide

RQ: What is the lived experience of immigrant Ghanaian women regarding their beliefs about maternal nutrition, food taboos, and fetal development?

IQ 1: Where were you born? What part or ethnic group of the county are you from?

IQ 2: Tell me about coming to the US.

When did you come? Why did you come (marriage, pursue education etc.)?

IQ 3: Were you pregnant while you were in Africa or in the United States?

Tell me about that experience?

IQ 4: Tell me about any pregnancies you had in the US.

IQ 5: How would your pregnancy have been different if you were still in Africa?

IQ 6: How was your diet experience different from the American diet?

IQ 7: When you moved to the United States did you stick to the dietary laws in your home country or adopt the American diet? Why was that? What laws do you feel are important to follow?

IQ 8: When you were pregnant did you stick to the dietary laws in your home country; adopt the American diet or both? Why is this?

IQ 9: Do you perceive your ethnic diet or the American diet as healthier? Tell me why you think that diet in your opinion is healthier?

IQ 10: How do you believe the foods you eat before and while you are pregnant affect the development of your fetus (baby) in your womb?

IQ 11: What foods do you believe that pregnant women should eat?

IQ 12: Are you familiar with the term food taboo?

IQ 13: Tell me your beliefs about why food taboos were created.

IQ 14: Tell me what foods are considered taboo for pregnant women to eat in your culture?

IQ 15: Sometime people feel they need to eat nontraditional foods such as chalk or dirt. Did you desire to or feel like you had to eat these nontraditional foods? I have never desired to eat any nontraditional food as mentioned in this question. Did that happen in the United States? Did you share that with your doctor?

Appendix C: Themes and Subthemes

RQ 1: What is the lived experience of Ghanaian immigrant women regarding medical care contrasting Ghana with the United States?

Themes and Subthemes

Medical Care in Ghana	<ul style="list-style-type: none"> A. Unsanitary Birthing Functions B. Medical Professionals C. No Money...No Health Care
Medical Care in United States	<ul style="list-style-type: none"> A. Medical Technology B. Medical Professionals C. Easier Delivery of the Baby D. Pregnancy Complications in the United States E. Family Support F. Financial Viability

RQ 2: What is the lived experience of Ghanaian immigrant women regarding nutritional foods and fetal development?

Theme and Subthemes

Ghanaian Food vs US Food During Pregnancy	<ul style="list-style-type: none"> A. Perceive My Ethnic Food Healthier B. I like to Cook at Home Everyday C. Ghanaian Food Nutrients D. No Preservatives and More Spices E. American Food is Bland, Fattier, and Empty Calories
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	<p>F. What the Mother Consumes Affects Fetal Development</p> <p>G. Foods and Vitamins that Pregnant Women Eat While Pregnant</p> <p>H. Traditional Foods, Food Restrictions, and Pica in Pregnancy</p>
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