2020

Mothers with Diabetes and the Effects of the Disease to their Offspring

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Walden University
2020

Abstract

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by

Rachel Smart-Fadairo

MA, Southern Illinois University, 1990

BS, Northern Illinois University 1989

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

Walden University

November 2020

Abstract

The purpose of this phenomenological was to understand the lived experiences of mothers who were diagnosed with gestational diabetes mellitus and had a child who had been diagnosed with a speech disorder. Despite educational and medical interventions having increased to reduce gestational diabetes, the growing incidence of gestational diabetes signals a disconnect between education, intervention, and prevention. Previous studies have shown that mothers with gestational diabetes mellitus can experience high-risk pregnancies. The long-term effects of the disease on the mother and her newborn child in terms of soaring healthcare cost, loss of work productivity, education, and the emotional health of both mother and child. The multi-theory model was used as the theoretical foundation. The primary research question examined the lived experiences, coping techniques, and perceptions of mothers with gestational diabetes mellitus who had a child diagnosed with a speech disorder. Semi-structured interviews were conducted with 10 mothers with children that was diagnosed with a speech delay (5 Black, 4 Hispanic, and 1 African) who were diagnosed with gestational diabetes mellitus living in Houston, Texas. The data from the interviews were analyzed using NVivio 12 software which yielded four themes (a) the feelings of the participants, (b) lifestyle changes, (c) medical counseling, and (d) understanding the potential risks to the unborn child. Social implications from the findings of this study included the employment of focused and targeted methods to decrease the incidence of the disease and to provide a better understanding of the societal, medical, educational, and emotional lived experiences of mothers and their offspring.

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Dedication

This dissertation is dedicated to my loving and kind husband, Bola, Immanuel, my inspirational and talented son, my dad, family, and friends who have supported me throughout this journey. In loving memory of my mother, Nannie Smart, who encouraged me to embark on this journey. I thank God for His grace, love, and merciful kindness.

Acknowledgements

I would like to acknowledge my wonderful husband, Bola, who encouraged me throughout this journey. Thank you for your prayers, help, patience, and encouraging words. I could not have completed this journey without you.

I would like to acknowledge my son, Immanuel; thank you for your encouragement and understanding.

I would like to acknowledge my best friend, Pastor Marsha; thank you for your prayers.

I would like to acknowledge my Pastors, Brother Faluade, Margaret Faluade, and Pastor Usanga; thank you for your prayers and love.

I would like to acknowledge my brother, Orlando; thank you for your help and support.

I would like to acknowledge my dad, family, and friends; thank you for your encouraging words.

I would like to acknowledge my dissertation chair, Dr. Clarence Schumaker; thank you for your guidance and encouragement. I will never forget your motto, “Onward and upward!” My dissertation committee members, Dr. Stewart and Dr. Schulzer, thank you for your guidance.

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Chapter 1: Introduction to the Study

Introduction

In this study, I explored how gestational diabetes mellitus (GDM) affected mothers and their offspring who have a speech disorder. GDM is a form of diabetes mellitus (DM) that occurs in a woman during pregnancy who did not have DM before pregnancy (Centers for Disease Control and Prevention [CDC], 2018). GDM typically occurs during the 24th and 28th week of pregnancy (CDC, 2018). The diagnosis of GDM can have long-term effects for both the mother and her child (American Diabetes Association [ADA], 2013). GDM affects more than 10% of the pregnancies in the United States each year (ADA, 2013). GDM can result in high-risk pregnancies, cesarean births, hypertension, preeclampsia, macrosomia, perinatal depression, premature birth, shoulder dystocia, and stillbirths (ADA, 2013; CDC, 2018). Diabetes can also cause additional health complications in the offspring after birth such as respiratory distress syndrome (RDS), jaundice, hypoglycemia, Type 2 diabetes occurrence later in life, and obesity (ADA, 2013). A diagnosis of GDM can result in a seven-fold increase in the manifestation of diabetes to the mother as opposed to normoglycemic pregnancies (Melchior, Kurch-Bek, & Mund, 2017). GDM during pregnancy can affect future pregnancies.

The effects of diabetes a result in adverse birth complications and experiences and result in neurological disorders for the offspring (Clausen et al., 2013). Additionally, effects of GDM can result in a need for lifestyle modifications such as diet, exercise, medication regimens, frequent visits to a clinical specialist, and additional financial

expenditures for families (ADA, 2013). Offspring who are affected by GDM may experience delayed expressive, receptive, speech, and swallowing skills (Whitehouse, Shelton, Ing, & Newnham, 2014; CDC, 2015). The benefits of the study include information regarding the lived experiences of GDM mothers' perspectives, barriers, decision-making processes, and strategies that employed in their everyday life. This study fills an important gap in the literature because the incidence and prevalence of the disease continue to increase each year despite clinical and medical interventions. The potential benefits of the results of the study further provide justification for the need to examine how gestational diabetes mellitus (GDM) affects mothers and their offspring who have a speech disorder.

Background

Summary of the Research Literature

The literature that I reviewed for this study included studies, articles, and clinical information related to GDM and offspring development. The scope of the study included the association between diabetes during pregnancy and offspring developmental growth as a result of the GDM. In the literature review, I examined variables of GDM risk such as weight, prior pregnancies, family history, and lifestyle. The summary of the literature also included the long-term effects of GDM for both the mother and offspring. I examined the barriers related to compliance of medical advice, lifestyle changes, and diet management.

The literature review provided information on how GDM during pregnancy can affect a mother's offspring . For example, long-term developmental effects of the

offspring can include receptive, expressive, cognitive, hearing, and swallowing delays (ADA, 2013; Cai et al., 2016; CDC, 2018; Clausen et al., 2013). The literature review provided information related to current approaches to address GDM such as pharmaceutical medications, physical exercise, lifestyle changes, and universal screenings. The literature showed that GDM affects both mothers during pregnancy and their newborns.

Gap in GDM Effects on Mothers and Their Offspring

There was a gap in the literature regarding women who experience GDM and speech language development of their offspring (Cooper-Duffy & Eaker, 2017; Finley, 2012; Gordon, Walker, & Carrick-Sen, 2013). My findings from this study provided an understanding of the lived experiences of GDM mothers and the developmental impact of their newborns. The literature review did not provide information on GDM lived experiences and the impact a speech and language disorder can have on a child (ASHA, 2018). Previous literature focused on the association between GDM and its effect on offspring who were diagnosed with autism and hearing disorders (Cooper-Duffy & Eaker, 2017; Finley, 2012; Gordon et al., 2013).

Why the Study is Needed

The study is needed to fill a gap in literature related to the lived experiences of mothers and the impact that gestational diabetes can have on their offspring. This study is distinctive because it specifically looks at the lived experiences of GDM mothers and the developmental speech and language disorders of their offspring. The study could provide pertinent information related to rehabilitative follow-through of clinical recommendations

and the developmental of treatment protocols for therapy. Additionally, results could provide a strategic roadmap for families in the areas of implementation of home carryover programs, addressing scheduling conflicts, coping techniques, and rehabilitative compliance with therapeutic exercises for their children. Finally, the results could provide information on the decision-making process and the lifestyle choices a GDM mother may make.

Problem Statement

Diabetes can have detrimental health consequences for both a pregnant woman and her unborn child. Health effects for the mother include high risk pregnancies, hypertension, and the occurrence of Type 2 diabetes later in life (ADA, 2013). Previous research includes studies of women who experience diabetes during pregnancy, resulting in a higher incidence of children having autism and hearing disorders (Cooper-Duffy & Eaker, 2017; Finley, 2012; Gordon et al., 2013). The CDC (2015) noted more than one in 12 children has a speech disorder. Speech disorders can affect a child's ability to develop normal speech and developmental norms (Whitehouse et al., 2014). Examples of speech disorders include receptive, expressive, cognitive, swallowing, and pragmatic delays. Speech disorders can be detrimental for children secondary to their inability to communicate their wants and needs, understand basic communication function, as well as affect their ability to tolerate an oral diet due to decreased oral motor functioning (Whitehouse et al., 2014).

Consensus of the Problem

The health effects of DM can have long-lasting medical and developmental results for mothers and their offspring (ADA, 2013; American Speech-Language-Hearing Association [ASHA], 2018). Additionally, GDM affects minority women at a disproportionately higher rate than White mothers (Bower, Butler, Bose-Brill, Kue, & Wassel, 2019). Black women have a 63% higher risk of obtaining GDM than White women (Bower et al., 2019). Hispanic and other ethnic groups also have double the risk of having GDM than White or non-Hispanic White women (Bower et al., 2019).

The ability to communicate and understand language is a fundamental human interaction that can be impeded by speech and language delays (Rudolph, 2018). GDM is noted to be a prenatal risk factor for newborns which can result in delayed language emergence and development (Taylor, Rice, Christensen, Blair, & Zubrick, 2018). Torres-Espinola et al. (2015) noted brain development can be adversely affected by metabolic diseases such as GDM, which can negatively affect the offspring. An offspring's micronutrient status, birth anthropometrics, and neurodevelopmental functioning could also be affected by a mother's diabetes during pregnancy (Torres-Espinola et al., 2015). The effects of GDM to newborns can result in speech disorders, decreased motor development, and neuropsychological impairments at various stages in childhood (Clausen et al., 2013). Torres-Espinola et al. (2015) postulated DM in newborns may be a critical predictor of intelligence quotient (IQ), executive function issues, and psychological problems later in life.

Purpose of the Study

The purpose of this study was to develop an understanding of the lived experiences of women with GDM, who had a child with a speech and language disorder. I explored the type of coping techniques, if any, used by mothers with GDM with their child's home carryover therapy program and examined if they considered them to be beneficial. I explored compliance with clinical recommendations provided during therapy sessions, home carryover programs, and appointment adherence. Therapy compliance is an integral part of rehabilitative success (Whitehouse et al., 2014). Attending speech therapy appointments can result in faster progress toward therapeutic goals (Whitehouse et al., 2014). Clinicians noted that poor attendance could result in slow progress, regression of skills, and additional time to reteach previously learned therapy skills (Whitehouse et al., 2014). Therapy compliance is comprised of attending appointments with their child, facilitating therapeutic exercises outside of the visit, and following up with clinical recommendations from the clinician. Examples of follow up recommendations may include hearing evaluations one time per year, well-child visits with a medical doctor, vision evaluations one time per year, and adherence to medication regimen, if prescribed. Parents' participation in home carryover visits is an integral part of compliance with a speech regimen. An examination of the perceptions, attitudes, coping techniques, and decision-making of GDM mothers occurred to obtain an understanding of their lived experiences.

Research Questions

Research Question 1 (RQ1): What are the lived experiences, including coping techniques and perceptions of mothers with GDM who have speech disordered offspring?

Research Question 2 (RQ2): What are the lived experiences related to speech-language compliance of program recommendations of mothers with GDM who have speech disordered offspring?

Theoretical Foundation Framework

The basis of the theoretical framework for examining the lived experiences of mothers with GDM with speech disordered children was the multi-theory model (MTM) for health behavior changes. Theoretical models that are composed of social and behavioral sciences are more effective in public health interventions that require a change in behavior (Glanz & Bishop, 2010).

In this retrospective qualitative phenomenological study, I utilized the MTM as a theoretical framework for interpreting understanding or meaning, with specific attention to the context and original purpose. I used this theoretical approach to identify recurring patterns, which I used to establish summaries, explain occurrences, and provide lived experiences Themes from the experiences included parental expectations, barriers, compliance issues, and program implementation problems.

MTM is a model developed for health education and promotion (Sharma et al., 2016). The model is used to explain and predict behavioral health changes that can be applied to individuals, groups, and communities (Sharma et al., 2016). MTM is composed the initiation of the health behavior changes and the sustenance of the behavior

change (Sharma et al., 2016). In the initiation phase, the transition from one behavior to a different one occurs. In the sustenance phase, the long-term performance of the behavior change occurs (Sharma et al., 2016). The initiation of the health behavior component is composed of three constructs: participatory dialogue, behavioral confidence, and changes in the physical environment (Sharma et al., 2016). MTM's participatory dialogue is derived from components of the health belief model's perceived benefits and barriers constructs (Sharma et al., 2016). The sustenance of behavior change component constructs focuses on how change may happen in the future (Sharma et al., 2016). The theoretical foundation framework will be addressed in Chapter 2.

Nature of the Study

In this qualitative phenomenological qualitative study, I explored the lived experiences of mothers with GDM who had an offspring with a speech and language disorder. Qualitative studies can be instrumental in obtaining information related to lived experiences of participants who have been diagnosed with diabetes (Hennink, Kaiser, Sekar, Griswold, & Ali, 2017). I conducted in-depth semi-structured interviews with mothers with GDM to obtain information for the research study. I used purposeful sampling to capture the diversity of the population for the research. I employed snowball or chain sampling to recruit participants. I audiotaped or videotaped the interviews to avoid missing any relevant information from the participant. I transcribed and coded the data from the interview to obtain themes. I asked the participants open-ended questions which are instrumental in providing lists, short answers, and narratives.

Definitions

A list of definitions is provided for a better understanding of the terminology that was used in this research study.

Autism spectrum disorder (ASD): a developmental disorder that affects communication and behavior. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) noted autism as a difficulty with communication and interaction with other people, restricted interests and repetitive behaviors, and symptoms that hurt the person's ability to function properly in school, work, and other areas of life (Xiang et al., 2018).

Developmental delays: slow to meet or reach the milestone in one or more areas of development (communication, motor, cognition, social-emotional, or adaptive skills) in an expected way for a child's age (ASHA, 2018).

Dysphagia: also known as a swallowing disorder can occur in the four phases of swallowing and can result in aspiration-the passage of food, liquid, or saliva into the trachea-and retrograde flow of food into the nasal cavity. Consequences of dysphagia can include food aversion, aspiration pneumonia, malnutrition, dehydration, gastrointestinal complications, poor weight gain, and psychological effects on the child and family that can persist into adulthood (ASHA, 2018).

Expressive language: difficulty asking questions, naming objects, using gestures, putting words together into sentences, learning songs and rhymes, using pronouns, knowing how to start a conversation and keep it going, and changing how to communicate with different people in different places (ASHA, 2018).

Gestational diabetes mellitus: defined as any glucose intolerance with the onset or first recognition during pregnancy (ADA, 2013).

Home carryover programs: defined as the patient's ability to take an individual speech skill learned in the therapy session and to apply it broadly in all communicative speaking opportunities (Marshalla, 2010).

Receptive language: difficulty understanding what people mean when they use gestures, shrug or nod, follow directions, answering questions, pointing to objects and pictures, and knowing how to take turns when talking with others (ASHA, 2018).

Speech-language disorders: an impairment of the articulation of speech sounds, fluency, and/or voice (ASHA, 2018).

Assumptions

In this study, I focused on exploring the lived experiences of mothers who were diagnosed with GDM who had children with speech and language disorders. Diabetes can have various adverse health effects and can affect the development of offspring (ADA, 2013; ASHA, 2018). Diabetes management can be challenging, costly, and time-consuming for families (Jarvie, 2017; Mackillop et al., 2014). I made several assumptions regarding the study. First, I assumed that when mothers were given the diagnosis of gestational diabetes, they would consider a lifestyle change related to diet and exercise. Second, I assumed that the participants would answer questions honestly and to the best of their ability. Finally, I assumed the sample size and participant participation would provide a true depiction of the perceptions, decision-making, and strategies of mothers with GDM.

Scope and Delimitations

The primary focus of the study was to explore the lived experiences of mothers with GDM who had offspring with speech and language disorders. Due to time, cost limitation, and significance of the study, I limited the population sample to mothers with GDM who had children with speech disorders. There were no educational or income requirements for the participants. The construct variables of the MTM model are composed of the social and behavioral changes. I chose the MTM model second to the ability to identify recurring patterns, explain occurrences, and provide a mechanism to understanding lived experiences. I used this approach to gather information related to parental expectations, barriers, compliance, coping techniques, and home carryover program implementation.

Limitations

A limitation of the study included the limited sample size of mothers in the Southwest area of the United States. I targeted 10 to 20 mothers who live in the Southwest region of the United States . A second limitation is the challenge to achieve a good representation from minorities or ethnic groups who typically have a higher occurrence of GDM than Whites. Creswell (1998) noted a good representation in a phenomenological study is between five to 25 participants. Morse (1994) noted that at least six participants in a phenomenological study would be considered a good representation. A third limitation is the transferability of the findings to other communities or study populations.

Significance of the Study

The significance of the study is that I developed findings from the lived experiences of mothers with GDM and the impact the disease had on their offspring. The literature review revealed limited information related to the lived experiences of mothers with GDM and their offspring who have speech and language disorders. The findings could provide information for health care professionals and future mothers who may be at risk for GDM. Second, the results could provide health care professionals with vital information in establishing programs that are instrumental in assisting with children meeting their speech and language goals in therapy. Third, the results of the study were informative in understanding mothers' perspectives related to GDM and their offspring's development, compliance issues, positive strategies that are employed, coping techniques, and barriers that may be a factor in their child's speech and language rehabilitative program. Finally, the findings from the study may lead to a positive social change in the development of home carryover programs and the development of a comprehensive rehabilitative speech and language program for mothers with GDM and their offspring.

Significance to Social Change

There are several social implications for studying the lived experiences of women who are diagnosed with GDM. First, the identification of the disease could result in the timely employment of precautionary methods to decrease or avoid GDM (Ramírez-Torres, 2013). Second, controlled glucose levels during pregnancies increase the chances of a woman producing a healthier child (Parsons et al., 2018). A third social implication

is the prevention or delayed acquisition of T2D later in life for both the mother and offspring (ADA, 2013; CDC, 2018; Melchior et al., 2017). Fourth, healthy pregnancies can result in lower medical costs and a healthier society (Clausen et al., 2013).

Summary

The diagnosis of a disease during a pregnancy can be harmful for both the mother and her offspring (ADA, 2013; ASHA, 2018). In this chapter, I discussed the purpose of the study, the theoretical framework for the study, the nature of the study, pertinent definitions in the study, assumptions of the study, and the scope, limitations, and significance of the study. Additionally, I identified the research questions and the implications for positive social change. In Chapter 2, I will discuss the literature review to explore the lived experiences of mothers who with GDM who have offspring with speech and language disorders. Chapter 3 will include a comprehensive review of the research methodology of the study. Chapter 4 will include the findings of the study, the setting for the research, the demographics of the participants, the data collection process, the information, and the results of the study. Chapter 5 will include my discussion of the key findings of the study, an interpretation of the findings, the limitations of the study, the recommendations for further research, and the potential impact for positive social change.

Chapter 2: Literature Review

Gestational Diabetes Mellitus

GDM affects offspring's speech, language, swallowing, hearing, and neural development (ASHA, 2018). The effects of diabetes on offspring can result in short-term and long-term disorders (ASHA, 2018). Examples of short-term disorders include insulin sensitivity and impaired glucose tolerance (Damm et al., 2016). Autism and hearing loss are examples of long-term disorders caused by GDM (Clausen et al., 2013).

The purpose of this study was to understand how GDM affects mothers and their offspring who have a speech disorder. A GDM diagnosis during pregnancy can result in long-term adverse health effects as well as in changes in lifestyle for a mother and her offspring (ADA, 2013). GDM during pregnancy is a diagnosis that occurs during the 24th and 28th week of pregnancy, a critical time during which the baby's brain begins to develop (ADA, 2013). Mothers with GDM can experience high-risk pregnancies, emergency C-sections, and respiratory distress syndrome (ADA, 2013). Two examples of significant health problems that can develop as a result of GDM are macrosomia and hypoglycemia (ADA, 2013; CDC, 2018). Macrosomia means the baby is considered larger than normal developing babies (ADA, 2013; CDC, 2018). This health problem occurs when there is too much glucose in the mother's blood (ADA, 2013; CDC, 2018). The extra blood sugar results in the offspring changing the glucose into fat, resulting in a larger weight baby (ADA, 2013; CDC, 2018). A larger weighing baby may have nerve damage or require a cesarean birth (ADA, 2013; CDC, 2018). Hypoglycemia during pregnancy is a second example of a significant result of GDM. Hypoglycemia is the

occurrence of low blood sugar in the mother with GDM or the newborn (ADA, 2013; CDC, 2018). Additionally, reduced levels of calcium or magnesium can also occur in the offspring resulting in adverse effects of the newborn (ADA, 2013; CDC, 2018).

As a result of GDM, newborns can experience speech and language delays, hearing loss, and neurodevelopmental disorders (Clausen et al., 2013). Mothers who are diagnosed with GDM can also experience lifestyle changes throughout the pregnancy (ADA, 2013). For example, treatment of GDM can be costly before, during, and after pregnancy, which can result in financial strains for a family (ADA, 2013). Taber (n.d.) noted weight, physical activity, and diet modifications could be effective lifestyle changes in reducing GDM during pregnancy. Women who lost weight after a GDM diagnosis, using a gestational weight guideline measure, were more likely to exhibit a statistically significant intervention result (Taber, n.d.). Yamamoto et al. (2018) noted an offspring birth weight was within normal guidelines when a mother implemented a glycemic controlled diet. Di Biase et al. (2019) studied the effects of physical exercise related to insulin sensitivity and plasma levels of glucose. Four significant positive results were: decreased fetal overgrowth weight, decreased effects of GDM in certain ethnicities, delayed use of insulin therapy, and increased cardio-respiratory levels during pregnancy.

Problem Statement

The CDC (2015) noted that one in 12 children has a speech and language disorder. Speech and language disorders can often affect children's ability to communicate their wants and needs, tolerate an oral diet, use appropriate pragmatic skills, and obtain cognitive development milestones (ASHA, 2018). I failed to find

research on the lived experiences of mothers with GDM and the impact the disease has on their children with a speech disorder (ASHA, 2018). The existing literature focuses on an association between GDM autism, and hearing impairments (Cooper-Duffy & Eaker, 2017; Finley, 2012; Gordon et al., 2013). There is a significant gap in the literature about the lived experiences of mothers with GDM and the effects on the speech and language development of their offspring (Cooper-Duffy & Eaker, 2017; Finley, 2012; Gordon et al., 2013).

Purpose of the Study

The purpose of this study was to understand how GDM affects mothers and their offspring who have a speech disorder. With the increase in speech disorders, it is essential for public health professionals to understand the experiences of diabetic mothers and how this metabolic disorder affects the offspring (ASHA, 2018). Through this study, I examined the experiences of mothers who used or did not use coping techniques with their child's rehabilitative therapy services. I also examined compliance with therapy visits, home carryover programs, and appointments. Home carryover programs are exercises that are given to the child after a therapy session to reinforce skills that were worked on during a therapeutic session (ASHA, 2018). I also examined the perceptions of the mothers, their attitudes toward clinical recommendations, and the influences related to rehabilitative services concerning the decision-making choices and compliance with therapeutic recommendations.

Summary of Introduction

The short-term and long-term effects of GDM during pregnancy and its effects on offspring are an important area to study. GDM can have long-term health effects on mothers, such as the occurrence of Type 2 diabetes in the future. Offspring of mothers with GDM have a higher incidence of obtaining speech, language, and swallowing delays. Understanding the lived experiences of mothers with GDM can provide important clinical findings for health professionals and future mothers who may be at risk for the disease.

Literature Search Strategy

For the purposes of this research, I used a comprehensive online search for the literature review, which involved peer review journals, library periodicals, and case studies. I used databases from 2011 to 2019. I used American Speech-Language-Hearing Association databases, American Journal of Speech-Language Pathology, Journal of Speech, Language, and Hearing Research, Language, Medline, PubMed, Google Scholar, PubMed, Thoreau, SAGE full-text collection, Annual Reviews, and current peer-reviewed journal articles published within the past 5 years. Additionally, I utilized government documents and reports to gain contextual and background information.

Key terms and phrases for this study included: *gestational diabetes mellitus, lived experiences of GDM mothers, speech-language disorders, parents of offspring with speech disorders, parents' perspectives on speech disorder disabilities, speech treatment,* combined with *diet, diabetes, and decision-making of parents with children with disabilities.* To these key terms I added: *barrier*s, *knowledge of diabetes, influences of*

behaviors, depression, health beliefs, health literacy, socio-economic, and *environmental factors.* I noted from literature research an association that focuses on parents and children with autism (Cooper-Duffy & Eaker, 2017; Gordon et al., 2013; Marrero, 2016; Paro, Vianna, & Lima, 2013).

Theoretical Foundation Framework

I based the theoretical framework for examining the lived experiences of mothers with GDM with speech disordered children on the multi-theory (MTM) for health behavior changes developed by Sharma et al. (2016). Theoretical models that are composed of social and behavioral sciences are more effective in public health interventions that require a change in behavior (Glanz & Bishop, 2010).

In this retrospective qualitative phenomenological study, I utilized the MTM which provided a theoretical framework for interpreting understanding or meaning, with specific attention to the context and original purpose. The use of this theoretical approach allowed me to identify recurring patterns and establish summaries, explanations, and occurrences along with lived experiences. Themes from the participants' experiences included parental expectations, barriers, compliance issues, and program implementation problems.

The MTM is a model developed for health education and promotion (Sharma et al., 2016). The model is used to explain and predict health behavioral changes, which can be applied to individuals, groups, and communities (Sharma et al., 2016). The MTM is composed the initiation of the health behavior changes and the sustenance of the behavior change. In the initiation phase, the transition from one behavior to a different one occurs.

In the sustenance phase, a long-term performance of the behavior change occurs (Sharma et al., 2016). The initiation of the health behavior component is composed of participatory dialogue, behavioral confidence, and changes in physical environment (Sharma et al., 2016). The MTM's participatory dialogue is derived from components of the health belief model's perceived benefits and barriers constructs (Sharma et al., 2016). The sustenance of behavior change component constructs focuses on how change may happen in the future (Sharma et al., 2016).

Additionally, the MTM has three additional components which are important in health behavioral changes that include emotional transformation, practice for change, and change in the social environment (Sharma et al., 2016). The emotional transformation phase, which uses emotions to facilitate a health behavior change, is derived from emotional intelligence theory (Sharma et al., 2016). The practice for change phase is based on constructs from Freire's active reflection and reflective behavior components (Sharma et al., 2016). Within the practice for change component, behavioral deliberations focus on modifications to effective approaches and address barriers (Sharma et al., 2016). The primary focus of the change in the social environment is to create social support, develop relationships, and environment concepts (Sharma et al., 2016).

There were four primary rationales for utilizing MTM in the study. First, I explained behaviors in individuals such as at-risk women. For example, the MTM was useful in explaining risk factors in individuals such as obesity, diet, glucose control, and lifestyle choices. Second, the model was instrumental in predicting behaviors such as exercise, diet modifications, and adherence to medical and therapeutic recommendations.

Third, the phases of the model (initiation and sustenance) can be utilized by health care professionals to develop and execute programming for at-risk women who may experience GDM during pregnancy. Finally, the model is based on theoretical research used in prior studies (Sharma et al., 2016).

Literature Review

Synopsis of the Current Literature

GDM during pregnancy can have an adverse effect on the offspring's speech, language, swallowing, and development (ADA, 2013; Cai et al., 2016; CDC, 2018; Clausen et al., 2013). Developmental delays and an increase in speech/language therapy are secondary to medical risks and complications during pregnancy as an effect of GDM (Anthopolos, Edwards, & Miranda, 2013). Decreased neurodevelopmental outcomes in offspring have also been associated with maternal diabetes (Xu, Jing, Bowers, Liu, & Bao, 2013). The ADA (2013) found that infants of diabetic mothers continue to remain at risk of medical and developmental delays despite the advances in medical care.

An association between GDM and autism has been found in cohort studies (Burstyn, Sithole, & Zwaigenbaum, 2010; Lyall, Pauls, Spiegelman, Ascherio, & Santangelo, 2012; Xu et al., 2013). The influences of GDM resulted in neurodevelopment disorders, decreased receptive language skills, and attentional task memory deficit. (Burstyn et al., 2010; Lyall et al., 2012; Xu et al., 2013). The severity of a mother's GDM during pregnancy influences the risk of ADHD in their offspring (Bytoft et al., 2017; Xiang et al., 2018). Researchers notated a positive relationship between GDM and childhood cognitive development in children less than 12 years of age (Adane, Mishra, &

Tooth, 2016). An effect of maternal pregnancy GDM in infants is dysphagia (feeding disorder) in terms of delayed swallow and suck development (Barlow, Poore, Zimmerman, & Finan, 2010). The effects of dysphagia-swallowing disorder in infants can lead to delayed or decreased developmental functioning (Barlow et al., 2010). Whitehouse et al. (2014) noted an association between GDM and a specific language impairment in the areas of nonverbal development and hearing impairment. Walther et al. (2017) noted an association between verbal speech development and mothers with diabetes and metabolic disorders during pregnancy. The offspring's speech, swallowing, cognitive, and neurodevelopment have been found to be adversely affected by mothers who experience diabetes during pregnancy (ADA, 2013; ASHA, 2018; Clausen et al., 2013; Xiang et al., 2018).

Association of GDM and Speech Disorders in Offspring

The incidence of GDM and the effects on offspring continue to be a medical concern for women (ADA, 2013). GDM is the most common medical issue noted during pregnancy (CDC, 2018). The CDC (2018) reported that more than 84 million adults have some form of diabetes. GDM increased by 56% from 2000 to 2010 (CDC, 2018). There are various risk factors that can increase a woman's chance of developing GDM during pregnancy. For example, minority women who have a family history of diabetes and are overweight have a higher chance of obtaining GDM (Wong, Ross, Jalaludin, & Flack, 2013). A woman's age, previous delivery of a stillborn or macrosomia baby, and health history (example-hypertension) can also increase the incidence of GDM during pregnancy (Wong et al., 2013). Mothers with GDM also have an increased risk of a high-

risk pregnancy and a need for a caesarean section, and the newborn may suffer a birth injury during delivery (CDC, 2018). Children of GDM women have an increased risk of obesity, diabetes, and neurodevelopmental risks later in life (Clausen et al., 2013). There is an increased risk of the offspring developing autism spectrum disorder due to GDM (Xiang et al., 2018). GDM and the incidence of offspring disorders results in long-term effects that can have long-term health issues for future generations.

Long Term Effects of GDM for Mothers

Mothers with GDM and their offspring have a higher incidence of developing diabetes and other health issues later in life (ADA, 2013). Additionally, the offspring of mothers with GDM often have many years of rehabilitative services, which require time, money, and commitments from the parents (Clausen et al., 2013). The increased prevalence of GDM continues to be a medical concern, which requires additional research to address long-term health effects and lifestyle changes (ADA, 2013). Women who experience GDM during pregnancy have a higher incidence of giving birth to a child with a metabolic communication disorder and neurological delay (Clausen et al., 2013). Hinkle et al. (2016) reported in their prospective study of GDM and depression, there was an association between depressive symptoms early in pregnancy and the incidence of diabetes.

Long-Term Effects of GDM for Offspring

More than seven million children have some form of language disability (ASHA, 2018). Neurological speech disorders associated with mothers with GDM include autism, dysphagia, hearing impairments, developmental delays, speech and language disorders,

and metabolic disorders (Clausen et al., 2013). Additionally, children with neurodevelopmental disorders may experience many years of rehabilitative interventions and surgeries often resulting in years of therapeutic and clinical services which can contribute to lifestyle changes for families in the future (Clausen et al., 2013).

Hearing loss complications in newborns have also been associated with women who experience GDM during pregnancy (Selcuk, Terzi, Turkay, Kale, & Genc, 2014). Selcuk et al. (2014) studied the association of GDM and cochlear damage in offspring. The researchers noted an association between cochlear dysfunction in infants and mothers diagnosed with GDM (Selcuk et al., 2014). Stanton-Chapman, Chapman, Kaiser, and Hancock (2004) noted in the study of hearing loss and prenatal risk factors, GDM was a risk factor associated with hearing impairment and delayed language development. Distortion-product otoacoutic emission hearing screening failure rates and decreased early development (intellectual and psychomotor impairments) were higher in offspring of mothers of GDM (Stanton-Chapman et al., 2004).

Women at Risk of GDM During Pregnancy

The diagnosis of gestational diabetes during pregnancy can be devastating information for a mother (ADA, 2013). GDM during gestation cannot only increase the possibilities of complications during pregnancy but also increase the chance of complications with future births (Cooper-Duffy & Eaker, 2017). GDM can occur in any woman, but some women have a greater risk than others (ADA, 2013). The ADA (2013) noted the following factors that may increase the risk for GDM: age (over 25 years), family history (parent or sibling with a precursor or Type 2 diabetes), and previous

pregnancies in which a baby weighed more than nine pounds. Additional risk factors include unexplained stillbirth, body mass index (BMI) of 30 or higher, and non-white race. Blacks, Hispanics, Native Americans, or Asians are at a higher risk of understand risk factors of GDM to increase their chances of having a healthy pregnancy.

Previous Research Approaches to GDM

Glucose Management

Researchers approached GDM management utilizing various modes of intervention. Glycemic control (maintaining adequate blood glucose levels) was typically the primary management intervention used for GDM treatment (ADA, 2013; Alfadhli, 2015; CDC, 2018; Di Biase et al., 2019; Yamamoto et al., 2018). Glycemic control measures include diet modifications and physical exercise programs (ADA, 2013; Alfadhli, 2015; CDC, 2018; Di Biase et al., 2019; Yamamoto et al., 2018). Blood glucose monitoring is a second approach utilized for GDM management. Glucose monitoring requires self-monitoring four times a day (in the morning prior to meals and post meals) (ADA, 2013; Alfadhli, 2015; CDC, 2018, Di Biase et al., 2019; Jovanovic, Savas, Mehta, Trujillo, & Pettitt, 2010; Yamamoto et al., 2018). Glycemic targeting is a third approach in which GDM levels adhere to a fasting level and post-meal level (ADA, 2013; Alfadhli, 2015; CDC, 2018). Medical nutritional therapy is noted as a keystone in GDM management. A medical nutrition therapy (MNT) plan can be an integral and strategic approach in treating GDM management (Hernandez, Friedman, Van Pelt, & Barbour, 2011; Moreno-Castilla et al., 2013). The utilization of a prescribed MNT program yielded improved perinatal outcomes (Deveer et al., 2013). Additionally, Deveer et al. (2013)

noted better outcomes in birth weight, number of large for gestational age babies, and maternal weight gain during pregnancy compared to women who did not receive dietary recommendations. The focus goal of MNT was to achieve and maintain normal blood glucose levels without ketosis (Moreno-Castilla et al., 2013). Pharmacological approaches utilizing insulin therapy is typically the last approach used to treat GDM (ADA, 2013; Alfadhli, 2015). Insulin therapy is used if other intervention measures fail to achieve adequate glucose levels (Alfadhli, 2015). Insulin therapy management requires monitoring of the fasting glucose levels prior to daily meal consumptions (ADA, 2013; Alfadhli, 2015). Recently, Glyburide and Metformin were two non-insulin antihyperglycemic medications used as an alternative to insulin (Alfadhli, 2015). Glyburide use yielded fewer hypoglycemic episodes than insulin therapy (Alfadhli, 2015). However, a 20% failure rate with Glyburide resulted in continued use of insulin therapy (Alfadhli, 2015). The use of Metformin in pregnancy is not associated with hypoglycemia or weight gain in women (Alfadhli, 2015). The failure rate for Metformin (46%) was higher than Glyburide, which also required the supplemental use of insulin (Alfadhli, 2015; Swaminathan, 2013).

Exercise

Exercise is another modality approach used to address GDM. Medical professionals recommend that women with GDM should do both aerobic and resistance exercise at a moderate intensity, a minimum of three times a week for 30 to 60 minutes each time (ADA, 2013; Alfadhli, 2015; CDC, 2018; Padayachee & Coombes, 2015). Sedentary lifestyle has also been noted as a risk of GDM (ADA, 2013; Padayachee &

Coombes, 2015). Women who were sedentary had a greater risk of developing GDM (Padayachee & Coombes, 2015). Tobias, Zang, van Dam, Bowers, and Hu (2011) found that an early exercise regimen can lower the risk of women developing GDM. Tobias et al. (2011) also found that physical exercise resulted in increasing glucose disposal, improving insulin sensitivity, and delaying the onset of Type 2 DM later in life. Physical exercise has been noted to be beneficial for the offspring development and cardiac autonomic nervous system (Bacchi, Mottola, Perales, Refoyo, & Barakat, 2017; Barakat, Perales, Cordero, Bacchi, & Mottola, 2017; Kintiraki & Goulis, 2018). Exercise is also noted to decrease the risk of late onset of metabolic and chronic disease in offspring (Moyer, Reovo, & May, 2016; Tibana, Franco, Pereira, Navalta, & Prestes, 2017). Bo et al. (2014) noted that women who implement a daily exercise program have lower complications in the areas of gestation, perinatal, and neonatal. The type, frequency, duration, and intensity of the exercise can be a beneficial mode in reducing GDM, its complications, and long-term health effects during pregnancy (Padayachee & Coombes, 2015).

The utilization of approaches to address GDM in pregnant women have both strengths and weaknesses. For example, obtaining and maintaining adequate glycemic control levels despite interventions such as diet, exercise, and pharmaceutical management can often be difficult to ascertain and maintain (ADA, 2013; Alfadhli, 2015; CDC, 2018; Deveer et al., 2013; Di Biase et al., 2019; Moreno-Castilla et al., 2013; Yamamoto et al., 2018). However, the primary strength of diet, insulin, and exercise management can result in decreased risks of GDM and safer deliveries (ADA, 2013;

Alfadhli, 2015; CDC, 2018, Di Biase et al., 2019; Yamamoto et al., 2018). One primary weakness of using pharmaceutical medication is the risk to the offspring during gestation and delivery (Alfadhli, 2015; Swaminathan, 2013).

Literature Justification of Selected Variables

There is an association between GDM and long-term health effects to offspring (ADA, 2013; Cai et al., 2016). Associations between GDM and offspring development provide justification for the research topic (Cai et al., 2016). The variables that put women at risk for GDM have been identified and reviewed. It is essential women know what risks put them and their offspring at risk for adverse health effects. Carolan-Olah and Sayakhot (2019) found that educational interventions resulted in a positive impact on GDM mothers' weight management and attendance in GDM health programs after postpartum. The review noted the long-term effects of GDM for mothers and their families. For example, a GDM diagnosis during pregnancy will result in lifestyle changes for a family, such as additional financial expenditures for food, an understanding of the need for more exercise, and the increased use of pharmaceutical medications (Clausen et al., 2013). The aforementioned variables can adversely affect low income families who may have limited resources. Women reported the following limited resources which resulted in barriers to behavioral health changes: the cost of health care insurance, medical supplies, carbohydrate-controlled food, and physical education (Collier et al., 2011; Mersereau et al., 2011; Nielsen, Kapur, Damm, de Courten, & Bygbjerg, 2014). Additionally, barriers noted by mothers included lack of social support, the time

consumption of insulin injections, glucose monitoring, and lack of motivation to adhere to diet and exercise regimens (Mersereau et al., 2011; Nielsen et al., 2014).

Selected variables for the research also included the effects of GDM on the offspring. The long-term effects can be devastating to the development of a newborn (Whitehouse et al., 2014). Cochlear damage and hearing loss in infants are two types of auditory effects that have been associated with GDM. Speech and language disorders, such as receptive, expressive, and cognitive delays occurred in offspring as a result of GDM during utero (Clausen et al., 2013). Speech and language disorders can delay a child's ability to express his or her wants and needs and prevent functional communication skills (Whitehouse et al., 2014). Oral, pharyngeal, and esophageal dysphagia phases have also been associated with a mother's diagnosis of GDM during a pregnancy. Dysphagia can result in poor swallowing skills and inadequate nutrition consumption of the newborn (Whitehouse et al., 2014). The chosen variables justify the rationale for the literature review by denoting the adverse effects a GDM diagnosis can have on an offspring.

Synthesis and Review of Study

GDM during pregnancy adversely affects a mother and her offspring (ADA, 2013; Clausen et al., 2013). The developmental disorders in the infant such as speech, swallowing, autism, and hearing can occur as a result of GDM (ADA, 2013; Cai et al., 2016; CDC, 2018; Clausen et al., 2013). A synthesis of studies related to GDM and offspring development includes personalized treatment programs comprised of diet, pharmaceutical medications, and exercise (Hasdemir, Terzi, & Koyuncu, 2014). The use

of oral anti-diabetic (OAD) medication during pregnancy is considered controversial and requires additional study (Hasdemir et al., 2014). OADs (Glyburide and Metformin) have both advantages and disadvantages for the mother with GDM (Hasdemir et al., 2014). The primary benefits of OAD agents include easier administration than insulin, better compliance with therapeutic recommendations, and less education required for the use of the product (Hasdemir et al., 2014). The disadvantages of using OAD agents include lack of safety of the drugs and the efficiency of Glyburide and Metformin (Hasdemir et al., 2014). The long-term effects of using OAD agents, beginning in the second trimester through the third trimester, and their effects to the offspring remains to be studied (Hasdemir et al., 2014). The aforementioned studies provide a synthesis of studies related to GDM and its long-term effects.

The debate for universal screening or performing screening only for women at increased risk for GDM is a second controversial topic related to GDM management (Benhalima, Devlieger, & Van Assche, 2015). The International Association of Diabetes and Pregnancy Study Groups (IADPSG) advocated testing for women who present with a 75-g glucose test at 24 to 28 weeks (Waugh, Pearson, & Royle, 2010). Exceptions to the recommendations were abnormal glucose levels prior to testing or women who were already diagnosed with DM (Waugh et al., 2010). Additional controversial issues related to screenings included: (a) the appropriate time for a screening, (b) over identification of women at-risk, (c) the appropriate evaluation tools and diagnostic criteria values, (d) cost-effectiveness, and (e) administration of screenings (one or two steps) (Benhalima et al., 2015). The ADA adopted the IADPSG protocol and recommendations of using a two-

step screening for non-fasting glucose challenge test (Benhalima et al., 2015; Waugh et al., 2010). In 2013, the ADA recommended continued research related to the IADPSG screening strategy recommendations (Benhalima et al., 2015).

Review and Synthesis of the Research Questions

RQ1-What are the lived experiences, including coping techniques and perceptions of mothers with GDM who have speech disordered offspring?

RQ2-What are the lived experiences related to speech-language compliance of program recommendations of mothers with GDM who have speech disordered offspring?

The research questions are an integral component of a dissertation study. The questions assist the scholar in staying focused on the central focus of the research and prevent distractions of digressions (Cai et al., 2016). In this study, the questions focused on the various lived experiences of mothers with GDM who had children with a speech and language delay. The research questions are essential because the obtained data can offer meaningful information related to the effects of diabetic pregnancies. Cai et al. (2016) studied the adverse effects of diabetes on offspring development in the first two years of life. The researchers emphasized the importance of understanding how diabetes affects a mother's offspring as the incidence of GDM increases. Hay (2011) noted diabetic pregnancies result in adverse perinatal effects as well as poor cognitive outcomes. Ge, Wikby, and Rask (2017) studied the lived experiences of women with GDM and healthcare management. The researchers emphasized the significance of asking lived experience research questions to improve healthcare practice, update GDM guidelines in the areas of humanistic and psychological care, and train medical providers

in a patient-centered approach. Additionally, findings from the study may provide a blueprint for health policymakers related to the effects of diabetic pregnancies and improving patient-centered quality care (Ge et al., 2017).

Obesity during pregnancy is a health risk that can contribute to obtaining GDM during pregnancy (Jarvie, 2017). Jarvie (2017) explored the lived experiences of obese women related to their social and economic stress management during pregnancy. Financial constraints are noted as a reason why women could not buy healthy food and follow a dietary recommended plan (Jarvie, 2017). The researchers indicated that participants expressed issues with maintaining a positive relationship with care providers when they were unable to maintain a suggested lifestyle change. Having a positive and open relationship with care providers is essential in order to foster greater compliance with the recommended medical changes (Jarvie, 2017). Secondary to travel and parking costs, poor appointment compliance is noted as an obstacle for women with low incomes (Jarvie, 2017; Mackillop et al., 2014). Mackillop et al. (2014) noted that frequent antenatal appointments contributed to stressors during pregnancy.

Understanding the lived experiences can help policymakers and multi-disciplinary teams in reducing disengagement and improving health system outcomes (Jarvie, 2017). The phenomenological study of Araújo, Pessoa, Damasceno, and Zanetti (2013) on GDM hospitalized mothers' experiences provided information to assist in planning and implementing intervention programs for a high-risk pregnancy. Studying the lived experiences can provide helpful information for healthcare providers, parents, and

policymakers, which could lead to compliance of recommendations, thus resulting in a decrease of the adverse effects of GDM during pregnancy.

Summary and Conclusions

There are three major themes related to mothers with GDM and their offspring. The themes on GDM management address the effects of diabetes during pregnancy. The first theme is the risk factors associated with gestational diabetes. The ADA (2013) noted age, family history, weight, and race could increase the chances of a woman obtaining GDM during pregnancy. Glucose management was the second theme found in the literature review. Factors such as glycemic control, diet modifications, and medical nutritional therapy are examples of glucose management (ADA, 2013; Alfadhli, 2015; CDC, 2018, Di Biase et al., 2019; Jovanovic et al., 2010; Yamamoto et al., 2018). Exercise was the third major theme obtained from the literature review of mothers with GDM and their offspring (ADA, 2013; Alfadhli, 2015; CDC, 2018; Padayachee & Coombes, 2015). The implementation of an exercise program yielded improved glucose management and insulin sensitivity (Tobias et al., 2011). All three themes were integral components of the management and effects of GDM during and after pregnancy.

The review of studies noted that the effects of GDM for a mother and her offspring could be devastating (ADA, 2013; ASHA, 2018; Clausen et al., 2013). For example, a woman can experience high-risk pregnancies and develop Type 2 DM later in life (ADA, 2013). The offspring can experience speech and language disorders such as language delays, autism, hearing disorders, and autism (ASHA, 2018). GDM management can decrease the risk of a woman developing DM during pregnancy and her offspring from

experiencing speech disorders as an effect of diabetes (ADA, 2013; ASHA, 2018; Clausen et al., 2013).

There are several factors that are not known about the long-term impact of GDM. First, there are limited studies that have been conducted by researchers to examine the association between the effects of GDM and speech disordered children. Second, the long-term effects of metabolic disorders, dysphagia, and hearing impairments have not been studied from birth to adulthood (Clausen et al., 2013). Third, the long-term effects of medical nutrition therapy using non-insulin antihyperglycemic medications (Glyburide and Metformin) have not been studied (Alfadhli, 2015). Fourth, Damm et al. (2016) queried if maternal hyperglycemia can have an effect on the prognosis of the child's long-term development.

The current study will fill a gap in the literature regarding the lived experiences of GDM mothers and the short-term and long-term effects of DM on their offspring. The findings from the study can provide information for speech language pathologists when treating speech disordered children, for audiologists treating hearing impaired infants, and for healthcare professionals related to GDM management. The findings can also provide pertinent information related to decision-making skills of GDM mothers, coping techniques, as well as perceived obstacles to recommended medical advice from medical professionals. The results from the lived experiences of GDM mothers could also provide information that could be useful in establishing home carryover programs for speech therapy and creating protocols for DM management and treatment.

In the next chapter, the methodology of the study will be examined in detail. In Chapter 3, I will provide the detailed the research design, my role as the researcher, and the study methodology, which involved the participant selection, instrumentation, and data collection for the study. Additionally, issues of trustworthiness and ethical procedures of the study will be discussed.

Chapter 3: Research Method

Introduction

The purpose of this study was to understand the lived experiences of women with GDM who had a child with a speech and language disorder. I explored the experiences a mother with GDM who had with a child who diagnosed with a speech-language disorder, which included expressive, receptive, cognitive, pragmatics, hearing disorders, and dysphagia-swallowing dysfunctions. I obtained Information related to coping techniques and strategies that mothers with GDM employed on a daily basis with their child. I examined the perceptions, coping techniques, and strategies that mothers with GDM employed to obtain a better understanding of their experiences. Therapy compliance with scheduled sessions, appointments, and home carryover programs are essential in a rehabilitative program (Whitehouse et al., 2014). Consistent attendance can result in quicker progress toward therapeutic goals (Whitehouse et al., 2014). The home carryover program, which is an integral component in the rehabilitative speech process is noted as an asynchronous element in speech-language remediation therapy (Sohlberg, Lemoncello, & Lee, 2011). Researchers indicated that inconsistent practicing of techniques from therapy sessions may result in more extended stays in therapy, which can be time consuming and become a costly impairment (Sohlberg et al., 2011; Stuckey & Lorraine, 2010). Poor attendance may result in slow progress, regression of skills, and extended time to reteach previously taught skills (Whitehouse et al., 2014).

The information from the study will provide professionals and policy developers with information that could be integral in establishing protocols and guidelines for

therapeutic service. Additionally, the results will fill a gap in the literature related to the lived experiences of mothers with GDM and their offspring. In this chapter, I will cover the research design, the role of the researcher, the methodology of the study, and the issues of the trustworthiness of the study.

Research Design and Rationale

Research Questions

RQ1-What are the lived experiences, including coping techniques and perceptions of mothers with GDM who have speech disordered offspring?

RQ2-What are the lived experiences related to speech-language compliance of program recommendations of mothers with GDM who have speech disordered offspring?

In this study, I utilized a qualitative phenomenological approach to understand the lived experiences of mothers with GDM and their offspring. I chose a phenomenological approach as the research design because it provides a theoretical tool for understanding people's perceptions of the selected phenomenon. I used a phenomenology study to understand how and why a person may react or respond to an experience. Additionally, a researcher can use a phenomenological approach to examine the transferability of a participant's responses to another participant study (Burkholder, Cox, & Crawford, 2016). Therefore, a qualitative phenomenological study approach was the most appropriate research design for understanding the phenomenon of mothers with GDM and their offspring.

Research design and the rationality of an approach are crucial components in a study. I considered two other research designs for this study before deciding on a

phenomenological approach. I considered the grounded theory design, which is composed of data that are analyzed for its relevancy within the area of study. The goal of grounded theory is to produce a theory rather than generate themes (Burkholder et al., 2016). In this study, a primary goal was to generate themes and recurring patterns that could be obtained by using a phenomenological study. I considered a case study research design for this research project. A case study is typically composed of a specific situation that is noted in detail related to an event (Burkholder et al., 2016). Limitations of a case study include the inability to generalize to broader populations, difficulty replicating the study, and it can be time-consuming (Burkholder et al., 2016). After the analysis of researching qualitative study designs, I determined that a qualitative phenomenological study design approach was the most appropriate, which provided a detailed and thorough understanding of the lived experiences of the participants.

Role of the Researcher

In qualitative research, the researcher's role is to explore the feelings and thoughts of the participants (Sutton & Austin, 2015). It is essential to understand the thought process of participants regarding how and why a behavior takes place, which provides an understanding of the experiences in a meaningful context (Sutton & Austin, 2015). Fink (2000) noted the role of the researcher is to ensure that integrity, credibility, dependability, and transferability are presented in qualitative research. Corbin and Strauss (2008) noted that qualitative research is co-constructed and depends on both the researcher and participants in a study. One primary role of the researcher is to succinctly describe the intersecting contextual association between the participant and the researcher

(Dodgson, 2019). This is known as reflexivity, which affords credibility to the study (Dodgson, 2019).

In this study, a principal goal of understanding the lived experiences of mothers with GDM was to (a) explain the information obtained from the participants without bias, (b) conduct the semi-structured interviews utilizing the perimeters in the research design, (c) relay pertinent field observations from the study, (d) provide notations of journaling that may be pertinent, (e) systematically analyze the collected data, and (f) interpret the data obtained from the participants.

In this study, the participants I chose for the analysis did not have a personal or professional relationship with me as the researcher. A critical role of the researcher is to manage bias throughout the study. I utilized reflexive journaling to provide transparency and assist in self-reflection of the study. I incorporated the reflexive journaling into the research and focused on the following points: what was learned, how it was learned, and why was it learned. If clearly articulated to the readers of the study, bias and subjectivity are not negative, but provide a transparent perspective of the presented information in a qualitative study (Corbin & Strauss, 2008; Dodgson, 2019). To ensure the research adheres to an ethical, non-bias, and transparent study, I employed a continuous self-examination and assessment throughout the analyzation of information . Applying the noted strategies as well as ensuring transparency throughout the study provided a safeguard against biases and ethical concerns.

Methodology

Participant Selection Logic

In determining the participant selection logic, I utilized the underpinnings of a phenomenological study. The inclusion criteria for this study were women diagnosed with diabetes during pregnancy, 18 of age residing in the Southwest region of the United States, who had a speech and language disordered child. Women excluded from this study were mothers who diagnosed with German measles, rubella, and syphilis during their pregnancy. The sample size was 10 to 20 participants or until saturation. Van Rijnsoever (2017) postulated that when a researcher finds no new codes, saturation is obtained. To capture the diversity of the target population for this qualitative study, I employed purposeful sampling. I used a snowball approach to obtain various perspectives of the participants. A snowball sample approach is composed of a two-step process (Patton, 2015). The first step is the identification of units within the population target (Patton, 2015). The second process step is to identify additional units until the sample size is met (Patton, 2015). Using the snowball approach ensured an appropriate participant sample.

Procedures for Recruitment and Participation

I distributed flyers (See Appendix B) to recruit participants in the following sites: five pediatric physician offices in the inner city of Houston, Texas that serve minority patients, two pediatric medical clinics in the Southwest region of Houston, Texas, four speech-language pathology private practice clinics that provide services to clients that are not English dominant, and two local community churches that provide services in

Spanish, Vietnamese, and African languages. Minority representation among participants in the quality study occurred by recruiting in areas that serve at-risk populations for diabetes. The recruitment of participants also involved field-based strategies involving community outreach at local organizations (daycares and early childhood centers) that provide services to minority populations. The flyers utilized for the study were culturally sensitive and displayed pictures of mothers of diverse backgrounds. The flyers provided information about the study, the risks of participating in the study, the benefits of being a participant in the study, and my contact information. I screened potential participants who expressed interest in being part of the study by phone or email to determine if they were viable candidates for the study. For example, I asked demographic information (See Appendix C) for screening purposes (for example: birth date, medical history, the highest level of education, and marital status). Participants of the study received a $25 dollar gift card to cover the cost of commuting to the interview and other expenses for the study.

The flyers provided information about the study, the risks of participating in the study, the benefits of being a participant in the study, and my contact information. All potential participants received a phone call and an email to ensure that I relayed the recruitment information properly. For example, prospective participants had to understand the purpose of the study, their time commitment to the interview, and why I selected them. I provided participants with detailed information in order for the mothers to make an informed decision regarding their participation as well as their right to refuse to participate. It was important for the participants to understand their participation was

voluntary, and that they could refuse to answer questions and withdraw from the study at any time.

I used semi-structured interviews to obtain data information. The semi-structured interviews had seven open-ended questions that allowed the participant to have an opportunity to extensively express their answers. Semi-structured interviews encompass skills of facilitation that are composed of (a) establishing the purpose of the study, (b) finding the appropriate participant, (c) contemplating ethical concerns, (d) creating a comprehensive interview guide, (e) establishing rapport, (f) conducting the interview, (g) analyzing the participant's responses, and (h) presenting the study's finding in a trustworthy report (DeJonckheere & Vaughn, 2019). For this study, I completed interviews via phone and the Zoom platform. The participants of the study met one time for a semi-structured interview lasting from 30 to 60 minutes.

Procedure for Data Collection and Instrumentation

I audiotaped all interviews utilizing two recording devices: a digital audio recorder and a Livescribe Smartpen transcriber. I used a password-protected laptop to store the responses from the participants. I informed all participants that the interviews would be recorded. The purpose of the recorder was to accurately capture the participants' responses which were subsequently transcribed from the interview. After the interview, the participant had an opportunity to review the transcription for the accuracy of the information. I told the participants that the interview would last 30 to 60 minutes. The review of the transcript after the interview took 15 to 20 minutes. However, I emphasized that they (the participants) could refuse to have their responses recorded. I

informed participants in the study about how the information would be processed, stored, and kept confidential. For example, I informed the participants that the data would only be used for this study. I used ID alphanumeric code encryptions for the identification of participants and the privacy of information. I informed the participants that only authorized personnel for the study would have access to names and other identifiable data. Additionally, I informed the participants that after the study, all data would remain confidential and maintained for 5 years before disposing of the information. All participants would have 1 week to decide if they would participate in the study. When a participant confirmed she would participate in the study, I established an interview date and time. I informed the participant again about the purpose of the study, benefits, and time commitment. The participant selection logic was an integral part of the study; therefore, it was essential to utilize the appropriate sampling and approach for the efficacy of the study.

Instrumentation

The data collection instruments and sources of the collection were central to ensuring that the participants' responses were appropriately captured and documented. For this study, I created an interview protocol guide to document responses from the participants adequately. The questions I developed for the study derived from guided question methodology (See Appendix A). I utilized an observation form and two audio recording devices for each interview. I used the observation form to capture visual (example facial expressions) and nonverbal information, which an audiotape could not document.

Data Analysis Plan

I utilized a modified Van Kaam methodology for the data analysis plan. In the first step of the data analysis plan, the researcher uses the horizontalization concept of denoting essential information from the interview (Moustakas, 1994). The second step involves the reduction and elimination concept of determining important responses from the participants from the horizontalization level (Moustakas, 1994). The third step is comprised of the coding and thematizing of the participant's responses (Moustakas, 1994). The fourth step is the final identification step in which themes assessed to determine if they should be eliminated or if they are pertinent (Moustakas, 1994). The fifth step involves the idea of textural descriptions that utilize the participant's verbatim responses (Moustakas, 1994). The last step is used to develop a composition description of all the participants' responses (Moustakas, 1994). I created a data collection and analysis chart to denote the summary of information, which included the date of the interview, observations, interview, and the analysis of the data. I used NVivo computer software for transcriptions and coding. Employing a modified van Kaam methodology approach assisted with in providing me with a detailed analytical summary of the participant's responses.

Issues of Trustworthiness

Credibility

Credibility is a core component of the validity criteria in a qualitative study (Ravitch & Carl, 2016). Guba (1981) defined credibility as the researcher's ability to present the complexities of the study findings and to explain the patterns from the data. I

Triangulation is employed to ensure the credibility also known as internal validation of the study (Ravitch & Carl, 2016). Triangulation is used in qualitative studies as a methodology to challenge or confirm interpretations of a study (Ravitch & Carl, 2016). Participant validation strategies, also termed member checks, are used to add credibility to the study. Member check is defined as the process to validate the participant's feelings and thought processes related to the data information from the study in which they provided to the researcher (Ravitch & Carl, 2016). Additionally, reflexive validity questions are used throughout the methodology process for the areas of credibility, transferability, dependability, and confirmability (Ravitch & Carl, 2016).

Transferability

Transferability (external validity) is noted as the ability of the findings to be used in other settings (DeJonckheere & Vaughn, 2019). Guba (1981) stated using thick descriptions will help achieve transferability by allowing the researchers to make comparisons to other contexts. Employing thick descriptions can assist researchers in transferring key aspects of a study in a contextual mode instead of the replication of the study design (Guba, 1981; Ravitch & Carl, 2016). I used reflexive validity questions to create transferability in this study which involved (a) the description of contextual factors of the study, (b) the interpretation of the data findings for other researchers, and (c) the relevance of the study analysis. Utilizing thick descriptions and reflexive validity questions are strategies that can be employed to assure the transferability of the study (Guba, 1981; Ravitch & Carl, 2016).

Dependability

Dependability in qualitative studies is defined as the stability of data over time (Guba, 1981; Lincoln & Guba, 1985; Ravitch & Carl, 2016). Ravitch and Carl (2016) emphasized using triangulation and sequencing of methods to ensure the dependability of a study. Utilizing the appropriate research design in a study also assures the dependability of the study (Ravitch & Carl, 2016). An audit trail is also used as a strategy to ensure the dependability of a study. An audit trail strategy involves the use of detailed notes on the decision-making research process, reflective thoughts, materials that are used in the study, sampling, and the data organization of the information to ensure dependability as well as transparency (Korstjens & Moser, 2018). Additionally, using the reflexive validity questions the choice of the research methodology, study design, data collection process, and analytical process assisted in the dependability of the study (Ravitch & Carl, 2016).

Confirmability

Confirmability measures the objectivity of the study results (Patton, 2015). Patton (2015) emphasized if the findings of a study can be corroborated, inappropriate biases cannot be noted. The confirmability process involves assuring the data are based on the participants' responses and not the researcher (Patton, 2015; Ravitch & Carl, 2016). To achieve confirmability of the study, I employed two strategies: triangulation and researcher reflexivity. I used reflexivity to analyze the chosen methodology, analyzation of data, interpretation of the findings, and the conclusions of study. The primary goal of

confirmability in my study was to explain the rationales for the decision-making process utilized in my study.

Ethical Procedures

I utilized ethical considerations and procedures throughout the study to ensure the efficacy of the study. The first ethical procedure began with submitting a request to the Walden University Institutional Review Board (IRB) to obtain approval to conduct the research. After I received approval from the IRB, the data collection process began for the study. I utilized the Walden University consent form which included the following: (a) background information, (b) procedures of the study, (c) voluntary nature of the study, (d) risks and benefits of being in the study, (e) payment information, (f) privacy information (data security measures), and (g) contact information. I only allowed individuals to participate after signing the informed consent form. I maintained an ethical attitude throughout the interview process, secondary to the sensitivity of the information obtained from the participants. As the researcher, I made sure I provided participants with a safe interview space to decrease anxiety and emotional feelings. As previously stated, all data will remain confidential and protected via data storage procedures. Only the researcher and other authorized individuals have access to the participants' data. All data will be confidentially stored for 5 years. Utilizing these strategies will ensure ethical principles are followed and adhered to throughout the study.

Summary

Chapter 3 detailed the research methodology for the study. First, I rationalized and analyzed the research questions, design, and methodology that were used for the

study. Second, I denoted the role and responsibilities of the researcher. Third, I provided the participant selection logic: inclusion, exclusion, sample size, and sampling approach for the study. Fourth, I outlined the procedures for recruitment and participation in the study. Fifth, I defined the procedures for data collection and instrumentation. Sixth, I explained the data analysis plan utilizing a modified van Kaam's approach for the study. Seventh, I outlined the issues of trustworthiness using the areas of credibility, transferability, dependability, and confirmability. Finally, I discussed the ethical considerations for the study. I reviewed the methodology components of the study in preparation for the next steps, which were data collection, organization of information, and the reporting of data collection in Chapter 4.

Chapter 4: Results

Introduction

The purpose of this study was to explore and understand the lived experiences of mothers with GDM who have an offspring with a speech disorder. Gaining an understanding of the experiences of mothers can provide information that can be instrumental in developing and formulating policies and procedures for future mothers with GDM. The study provided an in-depth look into the experiences of women with DM and the developmental occurrences which their children encountered. I employed a qualitative phenomenological approach using semi-structured interviews to provide a comprehensive perspective of their lived experiences. The presence of GDM can have detrimental health effects, which can have long term medical issues for both the mother and child (ADA, 2013).

Every year, GDM affects more than 10% of pregnancies in the United States (ADA, 2013). Women who experience GDM during pregnancy may experience high-risk pregnancies, hypertension, stillbirths, and Type 2 diabetes mellitus (T2DM) later in life (ADA, 2013; CDC, 2018). Offspring of diabetic mothers may also experience speech, swallowing, hearing, and developmental growth disorders (ADA, 2013). Despite health and medicinal interventions, the incidence and prevalence of the disease continues to increase each year (CDC, 2018). Understanding the lived experiences of mothers with can provide a unique perspective for health care providers and future mothers to meet health care challenges.

In this chapter, I will discuss five areas to address the following research questions:

RQ1: What are the lived experiences, including coping techniques and perceptions of mothers with GDM who have speech disordered offspring?

RQ2: What are the lived experiences related to speech-language compliance of program recommendations in mothers with GDM who have speech disordered offspring?

The first area of discussion is the setting of the semi-structured interviews with the participants. The second area is the demographics of the participants, which includes ethnicity, the current age of participants, age at the time of pregnancy, family history of diabetes, educational levels, marital status, and employment status. The third area of discussion is the data collection process of information. The fourth section will discuss the data analysis of the semi-structured interviews. The fourth area is an in-depth review of how I interpreted, coded and analyzed the data or categories and themes. Finally, in the fifth area, I will discuss the area of trustworthiness to include credibility, transferability, dependability, and confirmability will be addressed.

Setting

The projected setting for this research project changed as a result of the COVID-19 pandemic. The Walden University IRB recommended recruiting material and consent forms should comply with the CDC and local Houston, Texas government guidelines. Therefore, I reformatted recruiting materials to include “video conference or phone interview” language. The original setting for the semi-structured interviews was to be in person. However, due to the pandemic, Walden University recommended face-to-face

interactions should not be conducted unless the following guidelines could be used with recommendations from the CDC and the local government in the Houston, Texas area: (a) social distancing, (b) gathering restrictions, (c) leaving home only for essential activities, and (d) use of masks. However, due to the COVID-19 pandemic, alternative formats for the semi-structured interviews, as well as obtaining consent forms from participants, had to be implemented. First, I sent consent forms to participants via email or mail. Participants who received consent forms through mail received two consent forms and a stamped envelope to return a copy to me. Participants who received the consent form via the email had to reply to the email with the phrase "I consent" before interviews could be conducted. Therefore, I conducted all semi-structured interviews via phone and video conference. For this research study, one participant opted to conduct the interview using the video conference platform, Zoom, the nine other participants preferred to use the phone for the interview.

Demographics

In this study, the 10 participants lived in the metropolitan area of Houston, Texas (See Table 1). There were five (50%) Blacks, four (40%) Hispanic mothers, and one (10%) West African. The current age of the participants ranged from 18 to 60, (50%) were between the ages of 31 to 40, (30%) were between the ages of 41 to 50, and (10%) between the ages of 18 to 30. The average pregnancy age of the participants was between 19 to 30 years old (70%). The participants' dominant educational level was a high school diploma or less (70%), 20% had a college diploma, and 10% finished middle school or less. Seven of the participants were single and three of the participants were married. All

of the participants had a family history of diabetes (parent, sibling, or grandparent). Four of the mothers with GDM were employed, four participants were unemployed, and two were currently disabled.

Table 1

Participants' Demographic Information

Demographic	Black	Hispanic	*African
Current age			
18 - 30	1		
31 - 40	1	4	
41 - 50			1
51 -60	3		
Pregnancy age			
14 – 18	1	1	
19 – 30	4	3	
31 - 41			1
Ethnicity			
Hispanic		4	
Black	5		
African			1
Educational level			
Middle school or less		1	
High school or less	3	3	
College	2		1
Marital status			
Married		2	1
Single	3	1	
Divorced	2	1	
History of DM			
Parent	4	3	1
Siblings	3	2	1
Grandparents	5	2	
Employment status			
Employed	2	1	1
Unemployed	2	2	
Disabled	1	1	

Note. * Future references to West African ethnicity will be stated as African

Participant Demographics Summary

Participant 1-is a Black mother of one child who was 58 years of age at the time of the interview; her pregnancy age was 26. She was diagnosed with GDM during pregnancy only; she did not have DM at the time of the study. She did not take medication during the pregnancy; however, she modified her diet. She is divorced, has a master's degree, and is currently employed. She has a family history of diabetes (grandmother). Participant 1 has one child who had ADHD and attended special education services one time per week. The child was discharged from special education services in middle school and is currently a third-year medical resident student.

Participant 2 is a Hispanic mother of two who was 37 years of age at the time of the interview; her first pregnancy was at age 27. She was diagnosed with GDM during pregnancy only; she did not have DM at the time of the study. Participant 2 did not take medication during the pregnancy; however, she modified her diet. She is married, completed middle school (sixth grade), and is currently unemployed. She has a family history of DM (siblings). Participant 2 has one child who had a speech, language, and vision disorder. The child attended private speech therapy for 2 years and continues to receive special education services at the elementary school.

Participant 3 is a Black mother of two who was 32 years of age at the time of the interview; her first pregnancy was at age 29. She was diagnosed with GDM during pregnancy and currently has DM. Participant 3 took medication (Metformin) during pregnancy and also modified her diet. She is single, completed high school, and is employed. She has a family history of DM (mother, father, and grandparents). Participant

3 has two children with speech and developmental disorders. She reported that both children received speech therapy services for their speech and developmental delays.

Participant 4 is a Black mother of three who was 60 years of age at the time of the interview; her first pregnancy was at age 28. She was diagnosed with GDM during pregnancy and currently has DM. Participant 3 stated she modified her diet and took a combination of medications ("shots and pills") during the pregnancy. She is divorced, completed her 2 years of college, and is currently disabled. She has a family history of DM (mother, father, sibling, and grandparents). Participant 4 has one child who received special education services several times a week in school for speech, language, and developmental delays.

Participant 5 is a West African mother of two who was 49 years of age at the time of the interview; her pregnancy was at age 41. She was diagnosed with prediabetes before her pregnancy and GDM throughout the pregnancy. She stated she modified her diet but did not take medication during her pregnancy. She is married, completed an associate of science degree, and is currently employed. She has a family history of DM (father and sibling). Participant 5 has two children with sensori-neural hearing and speech disorders. Both of her children had a cochlear implant and extensive speech therapy. They attended a Regional Day School Program for the Deaf before they were mainstreamed into the general public-school district. Both children continue to receive speech therapy services.

Participant 6 is a Black mother of three who was 54 years of age at the time of the interview; her first pregnancy was at age 18. She was diagnosed with GDM during pregnancy and had DM at the time of the interview. She stated she took medicine during

the pregnancy and modified her diet. She is single, completed the 10th grade of high school, and is currently unemployed. She had a family history of DM (mother). Participant 6 has two children with speech disorders. Both of her children received speech services three times a week in the local school district. The two children who received speech therapy have been diagnosed with DM and have offspring with speech disorders.

Participant 7 is a 35-year-old Hispanic mother of three; her pregnancy was at age 14. She experienced GDM during her pregnancy and had DM at the time of the study. She did not take medication, but she modified her diet. She is single, completed the ninth grade of high school, and is disabled. She had a family history of DM (father). She has two children with speech disorders and autism. Both children continue to receive speech therapy four times a week.

Participant 8 is a 26-year-old Black mother of two children; her first pregnancy was at age 22. She was diagnosed with GDM during pregnancy and had DM at the time of the study. She did not take medication during the pregnancy; however, she modified her diet and exercised. Participant 8 is single, completed high school, and is unemployed. She had a family history of DM (mother and siblings). Both of the participant's children were diagnosed with a speech disorder. One child is currently receiving therapeutic services for speech and developmental disorders, the other child receives support services in the local school district.

Participant 9 is a Hispanic mother of three, who was 37 years of age at the time of the interview; her first pregnancy was at 25 years of age. She was diagnosed with GDM

during pregnancy and had DM at the time of the study. She did not take medication during the pregnancy; however, she modified her diet. Participant- 9 is divorced, completed high school, and is employed. She had a family history of DM (mother and father). All three of her children were diagnosed with speech disorders and received therapy twice a week for 3 years. None of the children received speech therapy at the time of the interview and are mainstreamed in the public-school district.

Participant 10 is a Hispanic mother of two, who was 36 years of age at the time of the interview; her first pregnancy was at 24 years of age. She was diagnosed with GDM during pregnancy and had DM at the time of the interview. She did not take medication during the pregnancy; however, she modified her diet and exercised. She is married, completed the ninth grade, and is disabled. She has a family history of DM (mother and grandparents). Both of her children were diagnosed with a speech disorder and currently receive speech therapy twice a week for 30 minutes.

Data Collection

A total of 10 women who experienced GDM during pregnancy participated in the semi-structured interviews: five Blacks, four Hispanics, and one West African. All of interviews took place using video conferencing (1 participant) or by the telephone (9 participants). The average interview lasted for 15 minutes. The participants met with me once for the semi-structured interview. I audio-recorded all of the interviews using a digital voice recorder. I completed all of the semi-structured interviews in June 2020. After the interviews were conducted, I uploaded all recordings to a password-protected computer. I used member checks, which are also called participant validation strategies,

to ensure the credibility of the study. Participants checked the transcripts to ensure the accuracy of their responses. I transcribed all transcriptions using the NVivo 12 transcription service. I downloaded the semi-structured interviews into a password protected computer and will remain secure until destroyed, utilizing the Walden University's data guidelines. Additionally, I took observational notes during the interview related to physical movements, facial expressions, and extended pauses. There were no unusual circumstances encountered during the data collection.

Data Analysis

The data analysis process began by uploading the transcriptions of the semi-structured interviews into the NVivo 12 software system, which is a computer-assisted data analysis software. Next, I employed the van Kaam methodology, as described by Moustakas (1994), to analyze the information from the participants. First, I documented the horizontalization concept of obtaining essential information from the interviews in terms of categories, themes, and patterns. Second, I completed the reduction and elimination concept of determining the most important responses. Third, I created nodes to assist in the coding and the thematizing of the participant's responses. Fourth, I identified the final identification of the most pertinent themes. Fifth, I implemented the analyzation of the textual descriptions from the mothers with GDM verbatim responses. The sixth and final step entailed developing a composition description of the participants' responses. I notated five pertinent themes: (a) feelings of the participants, (b) lifestyle changes the mothers with GDM utilized during the pregnancy, (c) medical counseling

from the participant's doctors, (d) compensatory strategies of the mothers, and (e) the implementation of the home carryover program.

Evidence of Trustworthiness

Establishing the evidence of trustworthiness in a qualitative study is critical to ensure the efficacy and credibility of the data, interpretation, and methodology of the research study. In this research study, I used four areas (credibility, transferability, dependability, and confirmability) to ensure trustworthiness. First, to ensure the credibility of the study, I used triangulation as the internal validation system to confirm the interpretations of the study. Next, I used member checks, which are also called participant validation strategies, to ensure the credibility of the study. Participants checked the transcripts to ensure the accuracy of their responses. Second, the transferability or external validity was the criterion I used to assess the study. I used three reflexive validity areas to evaluate the transferability of the study (a) the description of contextual factors of the study, (b) the interpretations of the data, and (c) the relevance of the study analysis. Third, I assessed the dependability of the study by using the audit trail strategy. To ensure dependability, I reviewed the decision-making process, sampling, and the data organization of the participants' information to ensure transparency. Finally, I evaluated the confirmability of the study, which measures the objectivity of the study results. I used triangulation and reflexivity to analyze the methodology, evaluate the data, interpret the findings, and draw the conclusions of the study, which contributed to the rationale for decision-making process of the study.

Results

To address the results of the study, I analyzed the two research questions using the themes, categories, and patterns from the participants' semi-structured interviews. The first research question explored, " What are the lived experiences, including coping techniques and perceptions of mothers with GDM who have speech disordered offspring? To answer the first research question, I asked four interview questions to the participants, which yielded four themes (a) the feelings of the participants, (b) lifestyle changes, (c) medical counseling, and (d) understanding the potential risks to the unborn child. The first question asked the participants to explain how they felt when they were told they had diabetes?

The first theme that emerged was the feelings of the participant (Table 2). Five of the mothers stated that they were concerned. Participant 1 noted, "I was concerned and frightened at the same time." Participant 5 noted, "I didn't feel bad just concerned about my health." Participant 6 stated, "I was really uncomfortable, really kind of concerned…" Participant 7 said, "I didn't understand, I was worried, this was really serious." Participant 10 stated, "I cried, I thought what does this testing really mean for me, I didn't know what to do."

Table 2

Semi-structured Interview Themes

Theme: Feelings	Black	Hispanic	African
Concerned	3	1	1
Disbelief	1	2	
Scared	1	2	
My Fault	3		
Nervous	2	1	

I coded the second feeling theme as disbelief. Three of the participants expressed feelings of disbelief when they learned of their medical diagnosis of GDM. Participant 2 noted, “I was kinda stunned” when she was first informed because she was confused about what diabetes was. Participant 6 stated she was “shocked” that diabetes could happen to her. She noted her mom had the disease, but she didn’t think it could happen to her. Participant 7 said, “…at first I didn’t think it was serious, …didn’t understand, and then I didn’t really believe it.”

Four of the participants stated that they were scared. Participant 1 stated she was “frightened”. Participant 2 stated, “I didn’t know how to manage things, …didn’t know if would stay with me after my pregnancy, …I was already four months pregnant; I was already with the belly, I didn’t know what to do now.” Participant 8 stated, “It was scary at first.” Participant 10 noted it was “scary” to find out that she had diabetes.

The fourth feeling theme expressed by the participants was my fault. Three participants felt that the acquisition of GDM was their fault. Participant 1 stated she felt “guilty” and felt that the diagnosis was her fault because of her diet and weight. Participant 3 stated that she would not have acquired GDM if “I ate better.” Participant 4 said, “…I was upset; this is my life; I was so disappointed.”

The feeling of being nervous was the fifth feeling. Three participants stated they felt nervous when they found out their diagnosis. Participant 1 stated she “…felt uneasy.” Participant 4 noted that she was “…nervous, what about complications?” Participant 7 said, “I was really worried…” when she was diagnosed with GDM.

All the participants experienced the feelings theme after receiving the diagnosis of GDM. There were five types of feelings coded in this study (concerned, disbelief, scared, my fault, and nervous). Many of the mothers experienced more than one type of feeling when they learned of their diagnosis. Based on the responses from the participants the feelings theme was a significant experience during their pregnancy. This theme was significant in understanding the lived experiences which the mothers with GDM felt.

The second interview question asked how did GDM affect their lifestyle during their pregnancy (See Table 3). All of the participants stated that they modified their diet throughout their pregnancy. Participant 3 said, "I ate better." Participant 7 stated, "I drank more water and changed my food." Four of the participants reported they exercised during their pregnancy. Participant 8 stated she "…would go for a walk." Participant 10 stated she became "more active." All of the participants noted that they changed their diet in one area, whether it was a modification of food or making better food choices. Only four participants stated that they exercised or became more active. Three participants (3, 4, and 6) noted that they monitored their glucose level because they utilized medication during their pregnancy. Participant 3 stated that she kept a journal each day to document her glucose level for herself and her doctor. The summary of themes in Table 3 notes that all participants incorporated at least one lifestyle modification during pregnancy.

Table 3

Semi-structured Interview Themes

Theme: Lifestyle changes	Black	Hispanic	African
Diet Modification			
Yes	5	4	1
No			
Exercise			
Yes	2	2	
No	3	2	1
Glucose Monitoring			
Yes	3		
No	2	4	1

The next interview question asked, "Did anyone explain to you the potential for developing diabetes later on? All 10 participants stated that their primary care doctor told them that their diagnosis of GDM could continue after their pregnancy (See Table 4). Participant 2 stated that she "really didn't understand" what her doctor meant when he said that DM could continue after her pregnancy. The next interview question asked, "Did anyone explain the potential risks to your unborn child?" All of the participants noted that their doctor spoke to them about risks to their unborn child. Participant 2 stated, "…yes, he might be big because of diabetes if I didn't control my diabetes." Participant 3 stated, "…yes, watch what I eat, …it would kill the baby." Participant 4 stated, "…yes, he said you can have a large baby." Participant 7 stated, "…he said I could have a stillborn…" Participant 8 reported, "The doctor said I could have a really large baby born."

Table 4

Semi-structured Interview Themes

Theme: Medical Counseling	Black	Hispanic	African
Risks for unborn			
Yes	5	4	1
No			
T2DM			
Yes	5	4	1
No			

All of the participants noted medical counseling regarding obtaining T2DM and the risks to the unborn child (See Table 4). All of the participants noted that they had some form of medical counseling with their doctor. The mothers with GDM reported being informed of the medical risks to their unborn child (still born, "large-big baby," and birth defects). The participants also reported that they received counseling regarding obtaining DM after their pregnancy.

The first research question assisted me with exploring the lived experiences, the coping techniques, and the perceptions of mothers with GDM who have a child with a speech disorder. The four interview questions were instrumental in understanding the mothers lived experiences which produced specific themes related to their GDM diagnosis. The feelings theme provided insight into how mothers felt when they were first diagnosed with GDM. The lifestyles theme provided examples on strategies that the mothers incorporated into their life after receiving the GDM diagnosis. The medical counseling theme provided insight into the experiences of the participants after their DM diagnosis. All of these findings were informative in understanding the lived experiences of the participants in the study.

The second research question asked: What are the lived experiences related to speech-language compliance of program recommendations in mothers with GDM mothers who have speech disordered offspring? To address this question, I asked three interview probes to the participants. In the first query, I-asked the participants to describe their experiences as a mother who had a child with a speech disorder. Participant 1 described an experience that changed their family life. One day, Participant 1 walked into the kitchen of their home and found her son with a knife to his throat. She stated her son was crying because he didn't want to be a "problem child"; he didn't want to be different than the other kids at school… "why am I always getting in trouble." Participant 1 (cried throughout the retelling of this event) stated she knew they needed additional help. Participant 1 stated, "…I became anxious about my son's life for a long time." Participant 1 also noted she began to take courses to understand how to help her son. Participant 2 recounted she often felt unsure about what would happen to her and her child "…I didn't know what it was, he needed help to speak, it was my first child, …would it affect him later on or not, …didn't want him to be bullied*."* Participant 3 recounted feeling "…nervous and worried about birth defects." Participant 5 noted that having a child with a speech disorder was "…so frustrating and time-consuming …I had to cut down my hours at work." Participant 7 noted that "…a depression fell on me for 2 years …I have a lot of blank memories when I became depressed, …it took a toll on me …I had to learn sign language to talk to my child."

In the second query, I asked the participants to describe how they organized their day when they had a speech appointment. Participant 1 noted she would organize her day

the night before an appointment. Participant 2 stated, she would "…wake up early, cook early, …knowing I would stay for one hour." Participant 7 said, "…I would make afternoon appointments to fit my schedule, …made sure the kids had a nap before going." Table 5 summarizes the findings on how the participants organized their day and incorporated strategies into their lifestyle when they had a speech-language appointment.

Table 5

Semi-structured Interview Themes

Theme: Compensatory	Black	Hispanic	African
Implementation of organizational strategies			
Yes	1	2	
No	4	2	1

For the third interview question, I asked the participants to describe how they implemented the home carryover exercise program into their weekly schedule (See Table 6). The majority of the participants (90%) noted that they implemented the home carryover program throughout the week in their homes. Participant 3 was the only mother who stated she did not implement the home carryover exercise program; she did not provide a reason. Participants 1, 2, 5, 6, and 8 reported they would try to do exercises at least four to five times per week. Participant- 4 stated she limited "…outings" to make sure she completed the compensatory exercise program. Participant 7 noted that she had to reduce the amount of television in which the family watched to make sure they completed the home carryover exercises. Participant 10 stated she tried to complete all the exercises before dinner.

Table 6

Semi-structured Interview Themes

Theme: Home Carryover	Black	Hispanic	African
Implemented			
Yes	4	4	1
No	1		

Summary

The results of the first research question noted four specific "lived experiences" encountered by the participants: (a) specific feelings (concern, disbelief, scared, my fault, and nervousness), (b) lifestyle changes (diet and exercise), (c) glucose monitoring throughout the pregnancy, and (d) medical counseling (risks to newborn and T2DM). The participants did not state specific coping techniques in the semi-structured interviews. However, the perceptions of the GDM diagnosis varied with the participants. These experiences denote that the lives of the participants changed after the diagnosis of GDM. Additionally, participants who currently have DM continue to deal with the effects of the disease.

The three interview questions were beneficial in answering the second research question related to the lived experiences regarding the speech-language compliance of program recommendations. Several participants relayed experiences associated with having a child with a disorder. Thirty percent of the participants used compensatory strategies (waking up early, cooking early, scheduling of appointments, and making sure children had naps before appointments). Ninety percent of participants implemented the home carryover exercise program. The results indicate that the lived experiences of the

participants affected their compliance with the speech-language recommendations for their speech disordered offspring.

In this chapter, I discussed the demographics of the participants, reviewed the data collection process, noted the data analysis of the semi-structured interviews, presented the evidence of the trustworthiness of the study, and discussed the results of the research questions in detail. The information presented in this chapter conveyed the lived experiences of mothers with GDM who have offspring who had a speech disorder. In Chapter 5, the interpretation of the findings, limitations of the study, recommendations, and the implications of the study will be discussed.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of the study was to develop an understanding of the lived experiences of women with GDM who have a child with a speech and language disorder. Given the increase in speech and language disorders, it is critical for health care providers to understand the lived experiences of mothers with GDM and how this disease may affect their offspring (ASHA, 2018). A speech-language disorder includes expressive, receptive, cognitive, pragmatics, hearing, autism, and dysphagia-swallowing dysfunctions. I explored (a) coping techniques used by mothers with GDM, (b) compliance with the home carryover program, and (c) perceptions and decision-making choices. Understanding the lived experience will provide health professionals and future mothers with a better insight into the everyday lives of a family dealing with a diagnosis of GDM. The information could also provide policy developers and health care administrators with information that could be beneficial in creating protocols and guidelines for GDM management.

The nature of this study was a qualitative phenomenological study, and I explored the lived experiences of mothers with GDM in the Houston, Texas, metropolitan area of the United States. Utilizing qualitative research contributes to understanding the lived experiences of people with DM (Hennink et al., 2017). Due to the COVID-19 pandemic, recommendations from the CDC, and the local government in Houston, Texas, I did not conduct any face-to-face interviews. I used semi-structured interviews via video conference platforms and phone interviews.

Summary of Key Findings

I queried the lived experiences, including coping techniques and perceptions of women with GDM, who have a child with a speech disorder via the first research question. I obtained four themes from the interview questions (a) the feelings of the participants, (b) lifestyle changes, (c) medical counseling, and (d) understanding the potential risks to the unborn child. I noted that all of the mothers had a specific reaction upon learning that they had GDM (concerned, disbelief, scared, feelings of my fault, and being nervous). Many of the mothers' perceptions noted disbelief when they received the diagnosis; they never thought GDM could happen to them. I used the second interview question to obtain information about the specific lifestyle change that the participants incorporated into their lives after receiving the diagnosis. For example, all of the participants modified their diet, some exercised, drank more water, and three monitored their glucose levels. All of the participants revealed they received medical counseling from their primary care physician. All of the participants were informed about the possible adverse effects of having a child with GDM (stillborn and "large baby"). Additionally, the mothers were advised that acquiring GDM during pregnancy could put them at a higher risk for obtaining T2DM later in life.

For the second question, I queried the lived experiences related to speech-language compliance of program recommendations in GDM who have a child with a speech disorder. The participants implemented changes into their everyday schedule to comply with the program recommendations. For example, Participant 1 sought counseling to deal with her child's issues of being a "problem child" and different than

the rest of the kids at school. Participant 1 also took courses and planned for her day the night before. Two of the mothers learned sign language to learn to communicate with their children. One mother stated she would complete housework early before appointments, schedule appointments, and decrease activities such as television, to implement the completion of the home carryover program. The key findings from this question found that 90% of the mothers changed their daily routines and incorporated specific strategies to comply with the speech-language compliance program recommendations. The study results helped bridge the gap in the literature by providing insights into the lived experiences of mothers with GDM who have a child with a speech disorder.

Interpretation of the Findings

The key findings from the research study confirm as well as extend knowledge in the areas of speech pathology and diabetes. There are 10 findings from the study that support the confirmation and extension of knowledge when comparing them with the information from the peer-reviewed literature in Chapter 2. GDM can result in speech, language, swallowing, and developmental delays to their offspring (ADA, 2013; Cai et al., 2016; CDC, 2018; Clausen et al., 2013; Walther et al., 2017). The study participants noted the following adverse effects in their offspring: sensory delays, receptive and expressive language delays, pragmatic delays, cognitive delays, hearing disorders, swallowing delays (oral phase), and developmental growth delays. The second finding from the study that provided confirmation and extension of knowledge is the association between GDM and autism. Two of the participants reported that they have children who

had been diagnosed with autism. Both of the mothers noted their children experienced neurodevelopmental disorders, decreased receptive language skills, and attention task memory deficits. Six of the mothers reported their child had ADHD. Eight of the mothers noted cognitive development delays with their children.

A fourth confirmation and an extension of knowledge is the hearing association with GDM. The mothers in this study reported hearing impairments of offspring; two children had cochlear implants. Hearing loss complications in newborns have been associated with women who experience GDM during pregnancy (Selcuk et al., 2014). Several of the mothers reported that their children had surgeries (two cochlear implants) and years of therapeutic and clinical services. Fifth, all of the study participants noted that they had a family history of DM. Sixth, one mother reported both of her daughters were diagnosed with GDM during pregnancy and now have children with speech and language delays. Seventh, I noted an association between GDM and depression; one of the mothers stated she became depressed during the pregnancy and still experiences depression.

Eighth, glucose management is critical for mothers with GDM during pregnancy. Three of the mothers confirmed they used medications during their pregnancy to control their glycemic levels. The ninth example is the recommendation of incorporating exercise into their daily lifestyle. Four mothers stated they began to exercise when they were diagnosed with GDM. Tenth, diet modification is noted as an approach to manage glucose levels. All of the mothers stated that they modified their daily diet. All 10 references denote the confirmation of knowledge, as referenced in the peer-reviewed literature in Chapter 2.

Analyzation of Findings-Theoretical Framework

I based this study's theoretical framework on the MTM for health behavior changes. The MTM can be instrumental in interpreting information for understanding or meaning, health education and promotion, and identifying recurring patterns (Moustakas, 1994; Patton, 2015; Rubin & Rubin, 2012). One of the model's facets is explaining and predicting behavioral changes (Sharma et al., 2016). The initiation phase is composed of transitioning from one behavior to a different one (Sharma et al., 2016). In this study, when the participants were diagnosed with GDM, all of them changed their diet, and some of them incorporated exercise into their lifestyle regimen. Some of the mothers also changed their daily routines to comply with therapy appointments. Other mothers learned sign language to communicate with their children, reduced their work hours, and limited outside activities to comply with therapeutic recommendations. Finally, I noted recurring patterns in establishing summaries and explaining occurrences for lived experiences. The findings from the research support the MTM theoretical framework for the study for behavioral health changes.

Limitations of the Study

The analysis of a qualitative study is essential because it allows the researcher to assess if there were characteristics that may impact the interpretation of the findings (King, King, Nayar, & Wilkes, 2017). I used a reiterative process to corroborate confidence in the results of the research study. In Chapter 1, I forecasted the limitations of the study in the areas of sample size, representation of minorities, and the transferability of the findings. I noted three limitations. The study's first limitation was

the limited sample size of participants: the sample size for this study was 10 mothers with GDM. The second limitation was the representation of participants. In this study, five Blacks, four Hispanics, and one West African participated in the study. The sample size did not have participants who were White, Asian, or American Indian. It is important to note that I screened two White mothers, but they did not qualify for the study. I screened one Vietnamese mother, but she was unable to participate in the study. The third limitation of the study was the transferability of the finding to other communities or study populations. The transferability of the results secondary to the sample size and participants is a limitation of the study.

Recommendations

The recommendations for further research are grounded in the strengths and limitations of the study. There are four recommendations for further research. The first recommendation for further research is related to the rehabilitative follow-through of clinical recommendations in terms of frequency of visits and therapeutic exercises. For example, a researcher could explore the lived experiences of a mother with GDM with a child with a speech disorder concerning the compliance with well-child visits, medication regimen of both the mother and child, the frequency of therapy services, and completed the home carryover program. A second recommendation for further research could explore the lived experiences of mothers with GDM who utilized specific coping techniques with their child's rehabilitative therapy services. A third recommendation would be to explore the lived experiences of GDM mothers (perceptions and decision-making choices) who have more than one child with a speech disorder. A fourth

recommendation would be to explore the lived experiences of mothers with GDM who incorporated specific lifestyle changes into their daily schedule.

Implications

The significance of social change is derived from the findings of the study results. The first implication is the early identification of the at-risk population for GDM. All of the participants had a family history of DM; however, the majority of the mothers were surprised when they obtained the diagnosis. Given the responses of the participants (shock, disbelief, fear, and nervousness), a program that targets child-bearing women who are at-risk could be implemented in yearly well-woman health visits by doctors. Community centers and health care facilities could offer programs promoting "healthy moms, healthy child" classes or programs to educate future moms. A second social implication recommendation could be the development of a support program with a mentor for mothers who use medication to control their glucose levels. The mothers in the study noted that medication management was time consuming and often overwhelming (Participants 3 and 4). The third social implication is the promotion of a healthier society, which can result in lower medical costs and expenditures. All of the social implications can be promoted at the local, state, and federal levels.

Conclusion

The birth of a child is a universal cause for celebration that transcends race, ethnicity, and culture. It is simply a miracle, with many expecting parents proclaiming that they do not care about the gender, just that the child is healthy. However, a diagnosis of GDM for expectant, wishful mothers can be devastating news. The disease can be

managed with lifestyle changes, medications, and medical management, resulting in a healthy or healthier newborn. Thus, it cannot be overstated that early identification of at - risk factors of GDM is paramount to the health of the mother and infant. A mother's family history of metabolic disorders, her compliance with diet and exercise, and adhering to medical guidance creates waves of positives for a mother and child that can be measured in healthcare dollars saved and emotional health, too. Creating and promoting social change begins with knowledge, understanding, and compassion, that extends from one person to the many within a society.

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Appendix A: Semi-structured Interview Questions

RQ1-What are the lived experiences, including coping techniques and perceptions of gestational diabetes mellitus mothers who have speech disordered offspring?

1. I would like to find out about your experiences of having gestational diabetes during your pregnancy.
    - Please explain how you felt when were told you had diabetes?
    - How did it affect your lifestyle during your pregnancy?
2. After you were diagnosed with gestational diabetes …
    - Did anyone explain to you the potential for developing diabetes later on?

        -If yes, what of information were you provided?
    - Did anyone explain the potential risks to your unborn child?

        -If yes, what information were you provided?

RQ2-What are the lived experiences related to speech-language compliance of program recommendations in gestational diabetic mellitus mothers who have speech disordered offspring?

3. I would like to find out about your experiences of having a child with a speech and language disorder.
    - Describe your experiences as a mother who has a child with a speech disorder.
    - Describe how you organize your day when you have a speech-language appointment.

- Describe how you implement the home carryover exercise program into weekly schedule.

Appendix B: Marketing Flyer

GESTATIONAL DIABETES

MELLITUS

Participate in a Research Study

The aim of the study is to explore the lived experiences of mothers who were diagnosed with Gestational Diabetes during pregnancy and now have a child with a Speech-Language Disorder

QUALIFIED PARTICIPANTS MUST:

- Must Be 18 years old
- Have been diagnosed with Gestational Diabetes
- Reside in the Houston, Texas Metropolitan area
- Have a child who has been diagnosed with a Speech-Language Disorder

Qualified participants receive a $25 gift card for time and travel

Appendix C: Demographic Data Questions

Name: _____ Date: _____

1. Age: What is your age? _____

2. How old were you when you became pregnant? _____

3. Ethnicity: What is your ethnicity? (ex. White, Hispanic or Latino, Black or African American, Native American or American Indian, other). _____

4. Education: What is your highest degree or level of school you have completed?

_____

5. Household Composition: What is your marital status? _____

6. Medical History: Do you or family members have a medical history of diabetes or gestational diabetes? Yes _____ No _____

7. Professional or Employment Status: Are you currently…? (ex. Employed for wages, self-employed, un-employed, out of work but not currently looking for work, a homemaker, military, retired, unable to work, other). _____

Speech Therapy:

8. How often did you or do you attend speech therapy? _____

9. What type of Speech/Swallowing disorder was your child diagnosed with?

_____

Notes: _____