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African American Women's Perceptions of a Group Based, Diabetic Medical Nutritional Therapy Intervention: A Qualitative Study

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Abstract

Background: African American women exhibit lower rates of attaining recommended diabetes management goals such as optimal blood sugar, cholesterol, and blood pressure numbers compared to other racial and gender groups. As a result, they bear a disproportionate burden of the adverse outcomes associated with poorly managed type 2 diabetes, including increased complications and mortality rates compared to other demographic groups. Despite favorable qualitative findings regarding group-based interventions for African American women with other chronic diseases, a notable gap in the literature exists regarding the women's perceptions of a group-based medical nutritional therapy tailored to type 2 diabetes. ***Purpose:*** This scholarly project explored African American women's perceptions of and experiences with the impact of the Sisters Inspiring Sisters To Engage in Relevant Diabetes Self-Care (SISTER) group-based medical nutrition therapy program on their type 2 diabetes management. ***Methods:*** Nineteen SISTER study participants completed individual, semi-structured interviews via Zoom. Nine women were interviewed twelve months after starting the SISTER study, and ten women were interviewed three months after starting the SISTER study. Researchers analyzed the interviews using line-by-line open coding, leading to the identification of themes, categories, and properties. ***Results:*** Analysis of in-depth interviews revealed two distinct sets of results for the twelve-month cohort and the three-month cohort. The major findings of the twelve-month cohort can be described as (1) *Group*, (2) *Program*, and (3) *Change*. The major themes revealed in the three-month cohort interviews emerged as (1) *Group*, (2) *Motivation*, (3) *One Size Fits All*, and (4) *Program.* ***Conclusion:*** The participants' experience with the SISTER study highlights the value and impact of peer support and increased access to health education specifically for African American women with type 2 diabetes. The results of this scholarly project emphasize

the participants' expressed need and desire for additional research and targeted interventions specifically tailored to this population.

Introduction and Background

Type 2 diabetes mellitus is a chronic disease characterized by pancreatic beta-cell dysfunction and insulin resistance, leading to persistent hyperglycemia (Borse et al., 2021). Type 2 diabetes is a complex, multifactorial disease that combines genetic predisposition with environmental factors, such as high-sugar diets, sedentary lifestyles, and increased stress levels (Borse et al., 2021). Globally, diabetes ranks as the ninth leading cause of death and the seventh leading cause of disability and years of life lost across all age groups (Khan et al., 2020). In 2022, the Centers for Disease Control and Prevention (CDC) reported approximately 37 million Americans, or one in ten, were affected by type 2 diabetes. African American women experienced higher rates of type 2 diabetes diagnoses, with a morbidity rate of 12.1% compared to non-Hispanic white women at 6.9% (Office of Minority Health).

Despite increased research into most effective management and evidence-based guidelines for managing type 2 diabetes, studies have shown disparities in diabetes control and outcomes among African American women (Borse et al., 2021; CDC, 2020; Kirk et al., 2018). In general, African Americans with diabetes experience higher rates of complications than non-Hispanic white patients, including a 46% increased prevalence and severity of diabetic retinopathy and an increased risk of developing kidney failure requiring hemodialysis (Kirk et al., 2018). Compared to other racial and gender groups, African American women exhibit lower rates of achieving recommended blood sugar, blood pressure, and cholesterol targets (CDC, 2020). Consequently, African American women are disproportionately burdened with the adverse outcomes of unmanaged type 2 diabetes, including higher complications and increased mortality rates compared to other demographic groups (CDC, 2020; Kirk et al., 2018). Research suggests that the intersection of genetic factors and environmental influences, such as cultural food

practices, general stress, and multiple caregiver roles, contributes to the elevated morbidity and mortality rates among African American women with diabetes (Miller et al., 2023).

Given the increasing morbidity and mortality associated with type 2 diabetes mellitus, focusing on detection, prevention, and disease management is imperative. Current management strategies aim to prevent complications by achieving optimal blood sugar levels (Borse et al., 2021). Blood sugar control is attained through various pharmacologic and nonpharmacologic interventions, including lifestyle modifications, oral medications, and insulin therapy (Borse et al., 2021). Lifestyle modifications serve as the cornerstone of treatment for all individuals with type 2 diabetes (ADA, 2023; CDC, 2022). These modifications emphasize dietary adjustments and increasing physical activity to help regulate blood sugar levels and mitigate associated comorbidities, including hypertension, obesity, and metabolic syndrome (CDC, 2022). Patients who adhere to these dietary guidelines experience reduced medication requirements and improved health outcomes (Borse et al., 2021).

Traditional approaches to diabetes care such as pharmacologic interventions, medical nutritional therapy and self-guided diet and exercise programs, while largely effective in some populations, have not fully mitigated morbidity and outcome disparities among African American women (Miller, 2023). Alternative therapies and strategies tailored to the specific needs and circumstances of African American women with type 2 diabetes must be explored and developed to improve their health outcomes. Group therapy, although initially used in psychiatry, has been used in conjunction with traditional approaches for a multitude of medical diagnoses (Garrison et al., 2023; Henderson & Davis, 2003; John et al., 2021; Okoro, 2020; Tattersall, 1985). Delivering medical nutritional therapy in a group setting has shown preliminarily

quantitative improvements among African American women's type 2 diabetes management (Miller, 2013).

Problem Statement

Group-based nutritional therapy has shown positive outcomes in quantitative measures of type 2 diabetes management, including reducing A1c, LDL, BMI, and blood pressure (Oz & Buyuksoy, 2022; Pourisharif et al., 2010; West et al., 2007). Group-based interventions have received positive reviews from African American women participants across various chronic conditions, including addiction and cancer (Garrison et al., 2023; John et al., 2021; Washington & Moxley, 2003). Despite these favorable findings, a notable gap in the literature exists regarding participant's experience and perceived efficacy of a group-based medical nutritional therapy tailored to African American women with type 2 diabetes. Therefore, further research is needed regarding the experiences and perceptions of African American women who participate in group-based nutritional therapy for the management of type 2 diabetes.

Purpose

This study aims to describe African American women's perceptions of and experiences with the sisters inspiring sisters to engage in relevant diabetes self care (SISTER) group-based medical nutrition therapy program on their type 2 diabetes management. Qualitative data regarding the participants' experiences with the program may lend itself to the expansion or alteration of the program in future iterations.

Review of Literature

Group therapy has proven to be an effective intervention within the African American women's community for promoting health behavior changes and supporting chronic disease

management (Garrison et al., 2023; John et al., 2021; Washington & Moxley, 2003). Many African American women with chronic conditions reported feeling isolated in their disease management (Garrison et al., 2023; Henderson & Davis, 2003; John et al., 2021; Sumlin & Brown, 2017). Qualitative studies examining health-related group therapy have consistently highlighted vital themes, including the sense of community and peer support, the provision of advice and accountability, and the integration of culture (Garrison et al., 2023; Okoro, 2020). Members of group therapy sessions have reported heightened feelings of support and an increased ability to support others within the group (Garrison et al., 2023). One finding from a study involving African American women diagnosed with breast cancer showed that participants actively sought out groups tailored explicitly to African American women (Henderson & Davis, 2003).

African American women have reported a more positive perception of feedback received from group members compared to conventional standard-of-care approaches and feedback froom healthcare providers (Dellasega et al., 2012; Garrison et al., 2023). These women reported feeling more accountable to their peers and the group compared to their sense of accountability to themselves or their healthcare providers (Dellasega et al., 2012; Garrison et al., 2023; John et al., 2021). Participants in some studies also reported significant benefits from brainstorming ideas with fellow group members, which enhanced their adherence to treatment plans (Lee et al., 2020). Peer support extended to advising on accessing community resources and customizing healthcare provider recommendations (Lee et al., 2020; Okoro, 2020).

Culture emerged as a prominent theme in most studies involving group-based therapies for African-American women (Garrison et al., 2023; Henderson & Davis, 2003; Sumlin & Brown, 2017). Culture manifested in various forms, including specific dietary preferences,

stigmas within the community, and the overarching significance of food within the African American culture (Garrison et al., 2023; Henderson & Davis, 2003; Sumlin & Brown, 2017). African American women often acknowledged the influence of culture on their individual food choices but struggled with reconciling nutritional guidelines with cultural preservation (Garrison et al., 2023; Henderson & Davis, 2003; Sumlin & Brown, 2017). Integrating culture into group therapy interventions received positive feedback as it allowed for personalized, culturally sensitive care (Garrison et al., 2023; Henderson & Davis, 2003; Sumlin & Brown, 2017). The integration of culture can be accomplished via many avenues including, but not limited to, choosing a facilitator of the same gender and race, validating participant's experiences and emotions, and encouraging participants to remain true to themselves and their goals (Garrison et al., 2023). One study highlighted the unique cultural experience of perceived systemic racism and healthcare distrust as potential barriers to obtaining standards of medical care within this community of African American women (Ochieng & Crist, 2021). African American women's group therapy sessions may serve as a platform for participants to discuss the distinct cultural aspects of their community and share ideas for culturally sensitive care.

Project Design

This study utilized qualitative descriptive design to address the purpose and aim. Qualitative descriptive methodologies are frequently employed to explore patient experiences related to healthcare interventions (Doyle et al., 2019). This study utilized one-on-one interviews to gather data about African American women's experience with the SISTER study (Miller et al., 2023). This study received approval for expedited review by Belmont University's Institutional Review Board (IRB).

Clinical Setting

Interviewees of this study included African American women with Type 2 Diabetes who had completed the active intervention phase of the SISTER study and who willingly agreed to participate. Interviews were conducted over the video communication platform Zoom and recorded utilizing the platform's mp4 feature. The selection of Zoom's meeting platform was based on its real-time audio and video capabilities, audio recording functionality, and the convenience of one-click access for participants, eliminating the need for account creation or application download (Lobe, Morgan, & Hoffman, 2020). As technology and video conferencing applications have become more widely accessible, in-person interviews are no longer seen as the gold standard for qualitative interviews but rather a default option (Lobe, Morgan, & Hoffman, 2022). Despite offering in-person interviews as an alternative, all participants expressed a preference for Zoom interviews, and as a result, no in-person interviews were conducted.

Participants were encouraged to select a private and quiet location for the interviews. The principal investigator conducted interviews in a private, locked room to ensure participant privacy. A representative from the SISTER study joined the Zoom calls during the interviews to introduce the participant and principal investigator. Following introductions, the SISTER study representative remained on the Zoom meeting with audio muted and video turned off.

Sample

Participants selected for inclusion in the current study were women who had successfully completed the three-month active intervention phase of the SISTER study. Two cohorts were identified for participation in the qualitative interviews. The first cohort included women who had participated in the study 12-months prior, known as the '12-month follow-up' group. The

second cohort included women who had just finished their three-month active intervention phase, known as the 'three-month follow-up' group.

SISTER participants included African American women aged 21 and older in the Nashville area with a clinical diagnosis of type 2 diabetes for at least six months prior to starting the active intervention phase. Participants of the SISTER study must have been at risk for diabetes complications, described as having at least one of the following: HbA1c > 7.0%, systolic blood pressure > 130, LDL > 100, or a BMI > 30. Exclusion criteria for this current study were non-English speaking participants of the SISTER study. Inclusion and exclusion criteria for the SISTER study may be found in the protocol for the SISTER study (Miller et al., 2023)

The recruitment approach adopted convenience sampling, targeting individuals who had successfully completed the active intervention phase of the SISTER study. A member of the SISTER study research team marketed and offered interviews to participants of the SISTER study's first cohort during their 12-month follow-up. The principal investigator marketed and offered interviews to the participants of the SISTER study on the last day of the second cohort's active intervention phase. Although the interview opportunity was offered to all the first and second cohort participants of the SISTER study, participants were able to self-select. Self-selection is a form of convenience sampling in which participants can volunteer or decline to participate in a study (Stratton, 2021). Convenience sampling is a form of non-probability sampling (Stratton, 2021).

Following the methodology outlined by Corbin and Strauss (2015), data collection aimed for saturation but was capped at 20 participants total due to time constraints. Prior to the data collection process, researchers capped the participation for each cohort, the twelve- and three-

month cohorts, at 10 participants respectively. As a result of time limitations, data saturation cannot be claimed for this current study.

Data Collection

The principal investigator conducted and audio recorded in-depth, one-on-one interviews. The researcher transcribed the interview using NVIVO's transcription software. The principal investigator validated each transcript against the original audio recording to ensure accuracy. The principal researcher utilized NVIVO to transcribe, store, and manage the data. Interview transcripts served as raw data which were analyzed and categorized into concepts and themes by the principal investigator and research advisor. In addition to interview transcripts, the principal investigator collected field notes during each interview to assist in data analysis. Field notes are utilized in qualitative research to aid in the documentation of contextual information and inform data analysis (Phillipi & Lauderdale, 2017).

Instrumentation and Methods

Prior to implementing the interview process, a pilot interview was conducted by the principal investigator with the assistance of the principal investigator of the SISTER study and a member of the SISTER study advisory board. The pilot interview ensured proper video conference and recording functions as well as an opportunity for formative feedback on the principal investigator's interviewing technique and interview questions. Following the pilot interview, participant recruitment began in September of 2023 with data collection and analysis beginning in October of 2023 and ending in November of 2023.

Consent forms were emailed to participants before interviews, with verbal consent obtained at the start of each session. (Appendix A). Participants were not required to sign the consent form or reply to the email. After obtaining verbal consent, the principal researcher

followed the interview script asking five open-ended questions (Appendix B). Identifiable information was not collected during the consent or interview process to ensure participant anonymity. Audio recordings were saved and transcribed by the principal investigator. Video recordings of the interviews were not saved or utilized for the transcription process. The principal investigator developed the interview questions which were reviewed by an experienced qualitative research advisor in conjunction with the principal investigator and advisory board members for the SISTER study. The principal investigator reflexively added probing questions based on each participant's answers. Reflexivity and probing questions can be used in qualitative research to aid in the rigor of the data collection process by reducing assumptions and preventing inaccurate interpretation of the data (McNair, Taft, & Hegarty, 2008).

Data Analysis

Line by line open coding was manually carried out by the principal investigator and project advisor (Corbin & Strauss, 2015; Belotto, 2018). In addition to open coding, the process of naming data, incident to incident coding was performed by the researchers to compare similar circumstances that interviews may have conveyed. Codes were created based on the frequency and relevance of words or phrases mentioned in each interview and assigned a memo to explain the researcher's analysis (Corbin & Strauss, 2015). Memos served to create an audit trail of the principal investigator's decision making while coding (Carcary, 2020). Open codes that were highly relevant were elevated to the level of themes. Open codes that described a theme were labeled as categories of the respective theme. Properties, the most specific label within the thematic structure, were named from codes that further described the respective category. Methods of rigor in this study included the pilot interview, assistance from a second reader,

memo audit trails, the creation of codebooks after coding sessions, an external auditor and adhering to the Standards for Reporting Qualitative Research (O'Brien et al., 2014).

Theoretical Model

The socio-ecological model is a comprehensive framework that was utilized to assesses the impact of African American women's experience of the SISTER group-based diabetic medical nutritional therapy intervention across various levels of impact. Urie Bronfenbrenner developed the socio-ecological model in the 1970s to describe the interplay between an individual and their relationships and environment (Kilanowski, 2017). While initially designed to understand human development, this model has found application in diverse health contexts, as demonstrated in prior research (CDC, 2022; Kilanowski, 2017; Wang et al., 2023). According to the socio-ecological model, health outcomes result from a complex interplay of factors at multiple realms, including the individual, interpersonal relationships, community, and societal levels (Kilanowski, 2017).

The model consists of four nested levels, with the circle representing the individual positioned at the center of the diagram within the innermost circle (see Figure 1). This configuration posits that individual, including factors such as age, genetics, behaviors, and attitudes, exert the most profound influence on health outcomes (Kilanowski, 2017; Olaniyan et al., 2021). Regarding the current study, the women's diabetic nutritional knowledge, food habits, and medication adherence are additional concepts within the individual level. The aim of the current study is to discover what other individual factors impact the women's experience.

The second nested level includes the interpersonal relationships the individual has, including friends, family, and coworkers (Kilanowski, 2017). In the context of this study, this level includes the friendships and relationships fostered with other women involved in the

SISTER study. Interpersonal relationships can be expanded in the context of this study to include relationships with healthcare providers. Patient-provider relationships are pivotal, as they can significantly foster trust or contribute to medical mistrust in conjunction with societal factors and thus impact individual characteristics such as diabetic nutritional knowledge, food habits, and medication adherence (Molina et al., 2014).

The third nested level is labeled the community. This level of impact can include environments such as churches, schools, and workplaces (Kilanowski, 2017). As an example, the SISTER study utilized churches to market the SISTER study; thus, the churches were able to promote the diabetic education program to members of the community. Additionally, the SISTER group became an influential community for each participant and encompassed all the interpersonal relationships within the program.

The last level of impact within the socio-ecological model is the societal level. At this level, various macrosystem factors, including government structures, policies, laws, religions, and cultural norms, influence the inner levels (Kilanowski, 2017). As the circles expand further from the center, the model suggests less of a direct impact on the individual's health outcomes (Kilanowski, 2017). Nonetheless, the societal level impacts the individual. Policies established by governments can have significant influences on an individual's access to health services, including education, food, insurance, and medications (Olaniyan et al., 2021). Cultural factors can influence dietary preferences, health-seeking behaviors, and trust levels towards providers and healthcare systems (Molina et al., 2014).

While the community and societal levels may have more indirect influence on an individual's health, all levels can affect health either positively or negatively. A comprehensive understanding of the multiple levels of influence is essential for developing effective

interventions and initiatives to address potential barriers and negative impacts on health outcomes. This current study utilized the socio-ecological model as a foundation for understanding the experience of the African American women who participated in the SISTER study. Results of the qualitative interviews were analyzed through the lens of the multiple socio-ecological levels as they influenced the participant's experience and health outcomes.

Results

A total of 19 women participated in this study. All participants identified as African American women and had a diagnosis of type 2 diabetes. All participants were residents of the Southeast United States. Nine women completed interviews at the twelve-month SISTER study intervention follow-up. Ten women completed interviews immediately after the three-month SISTER study intervention. Coding and analyzing the twelve-month and three-month interviews resulted in two sets of results.

From broadest to most specific, the hierarchal structure of concept naming is theme, category, and property. The overarching concepts at the highest level were termed "themes." More detailed concepts were identified within each theme as "categories" for further clarification. The most specific description within the themes were designated as "properties" within the respective categories.

Twelve-Month Results

The three themes related to the participants' experience with the SISTER study at the 12-month follow-up emerged as (1) *Group*, (2) *Program*, and (3) *Change*. The theme *Group* encompasses three categories: (1) *Motivating*, (2) *Place to Share,* and (3) *Camaraderie*. The theme *Program* includes three categories: (1) *Facilitator*, (2) *Information*,

and (3) *Bridging the Gap*. The theme *Change* encompasses three categories: (1) *Need for Change*, (2) *Building Confidence*, and (3) *Habits*.

Group

The theme *Group* illustrates the effect the African American women participants in the SISTER study had on each other. Within this theme, three categories arose: (1:) *Motivating*, (2) *Place to Share,* and (3) *Camaraderie*.

Motivating. The category *Motivating* describes the collective desire of the SISTER study participants to acquire and implement the information provided during the SISTER intervention. This shared enthusiasm for learning and applying knowledge manifests in two distinct properties: (1) *Accountability* and (2) *Role Modeling*.

The first property, *Accountability*, underscores the sense of responsibility felt by individual participants towards the group. The term "accountability" frequently surfaced in participant interviews, reflecting a commitment to personal learning and the collective success of diabetes management within the group. One woman expressed that the accountability to the group fostered her motivation to better care for herself, stating, "The team support, having someone to be accountable to who cares… it's like when you think someone cares about you, you want to do it for them." Additionally, some participants reported a lack of support or accountability partners outside of the program, highlighting the unique role of the group in providing that support and accountability. As one participant stated, "Before, I didn't really have anyone that I talk to… now, you know it's better because I have someone that is in the same position, and we can share."

The second property, *Role Modeling*, describes how participants in the SISTER study became exemplars and inspirations for their peers. Witnessing the efforts and successes of other

women in the group served as a motivational force for some. For example, one woman stated, "So you think, okay, she said she was going to do it, now she's going to try, so let me just try too." Within the group, women witnessed what others were doing to manage their diabetes and have success, which motivated them to do the same. The interplay between role modeling and accountability motivated many women to not only attend the group sessions but also make efforts to apply the teachings.

Place to Share. The category a *Place to Share* describes the safe and open environment within the group. The group itself is where participants reported feeling comfortable and the two properties within the theme emerged as (1) *No Judgment* and (2) *Reciprocal Sharing*.

The first property, *No Judgment*, characterized the group environment as fostering open communication and sharing. In contrast, places of judgment can limit participants' willingness to share (Okoro, 2020). The contrast between disclosing health and lifestyle habits at the health care provider's office versus within the SISTER group exemplifies the significance of a non-judgmental space. One participant highlighted this distinction, stating, "A lot of times, you're not going to tell the doctor everything you ate. No, you're not. The doctor's would be like, well, what did you eat? … What are they gonna wanna hear? I'm not gonna tell him what I was snacking on… (with the group) we could come in and just talk, you know… just talk." All participants shared some of the same struggles, contributing to the supportive and non-judgmental atmosphere within the group. One woman said she "liked meeting the people and learning with a group that had the same struggles. They can identify with the same struggles as me." One participant added, "Nobody came in there saying, oh, I got this… and that's what I liked about it."

The second property, *Reciprocal Sharing*, illustrates how the women in the group personalized the diabetes education from the SISTER study. Through exchanging information, ideas, and stories, the women tailored their experience to make it more applicable and valuable to their lives. Reciprocal sharing also served as a platform for exposure to alternative approaches to diabetes management, including diet and exercise. For example, one woman expressed that "it was good to have that interaction with the other members of the group to learn better ways of doing things." Additionally, reciprocal sharing influenced many participants' motivation to manage their diabetes. One participant stated, "It was good to hear about other stories and sharing information. I think that helped to make me feel empowered to go back and do this because I'm not in this alone."

Camaraderie. The Camaraderie category includes (1) *Positive Interactions* and (2) *Comfort*. As an exemplar for the *Camaraderie* category, one participant shared, "I like the group camaraderie. We came together and we worked together as a team." This sentiment depicts how the two properties, (1) *Positive Interactions* and (2) *Comfort*, work together to create a cohesive group relationship. The positive and comfortable interactions between group participants played a vital role in creating a valuable experience for group members.

The first property, *Positive Interactions*, highlights how the positive group environment led to feelings of fellowship and solidarity between participants. Eight out of nine women interviewed for the 12-month follow-up mentioned the positive and fun interactions within the group. Women shared sentiments, including how friendly and close-knit the group was, with one woman sharing, "We really had a good rapport with each other."

The second property, *Comfort*, aids in fostering camaraderie within the group. One woman added that she "met a lot of new people and we all became like family." The sense of

comfort between group participants created a friendly and, in some ways, familial group atmosphere.

Program

The theme *Program* represents the participant's experience with the SISTER environment, deliverables, and effects and includes three categories: (1) *Facilitator*, (2) *Information*, and (3) *Bridging the Gap*.

Facilitator. Participants reported positive feelings and interactions with the facilitator of the SISTER study. Two properties related to the facilitator emerged as (1) *Invested* and (2) *Expert.*

The first property, *Invested*, describes how the participants viewed the facilitator. Participants felt like the facilitator was truly there for them. Participants further described the facilitator as compassionate, personable, and welcoming. Participants reported feeling like the facilitator cared for them and their overall well-being. Furthermore, participants stated that the facilitator was not just doing a job; she "really wanted us to understand the seriousness of our illness." Another participant stated she was "genuinely interested in everybody's story." The facilitator accomplished this by allowing "everyone a chance to talk, to walk around the room and, you know, just make sure she didn't miss anybody."

The second property, *Expert*, describes the participants' interpretation of the facilitator's qualifications and knowledge level regarding the topics of diabetes in general, and diet specifically. Participants reported that the facilitator was informative and answered all their questions. Some participants reported that the facilitator was able to explain the information in an understandable way.

Information. During the SISTER study, participants were provided with information regarding Type 2 Diabetes, ranging from basic pathophysiological principles of diabetes to diabetes management through diet, medication, and exercise. The category *Information* includes the properties (1) *Accessible*, (2) *Comprehensive*, (3) and *Tools*.

The first property, *Accessible,* describes the information and how the information was provided. One participant stated that the information "wasn't so over the top where people didn't get it, just the average person could understand it." Not only were the concepts easily understandable, but participants were also able to access the information through various avenues, including a projected PowerPoint, handouts, group discussions, and the facilitator who presented the information verbally. As a result of various forms of media, participants could tailor their learning methods to what worked for them and reference the information outside of the program.

The second property, *Comprehensive*, describes how the program thoroughly explained the disease process and effects of diabetes. Many women commented on how attending the program opened their eyes to the impact their diabetes had on their overall health. For example, one woman stated, "It was very educational on my disease, not only my disease but other health issues… they showed how diabetes affects every area of your body, your eyes, your heart, your lungs, your bones, your nerves."

The property *Tools* depicts the various strategies and resources the participants were provided with throughout their time in the program. This was important to many women, as most knew they should 'eat better' or 'lose weight' but did not know how to do those things. This program provided participants with specific tools and strategies to manage their diabetes. One woman shared that this program "wasn't just cut out sugar… they also gave you solutions." Some

of the solutions the women mentioned while reflecting on their experience with the program included Myplate, recipe book, and restaurant guide. A few women mentioned using the portion plate at home to help them visualize the recommended portions of meats, vegetables, and carbs. For the women who liked to eat out, the restaurant guide helped them see the healthiest options at common fast-food and chain restaurants. One of the benefits of the variety of tools was that each woman could pick and choose which tools worked for her.

Bridging the Gap

Bridging the Gap describes how the SISTER study fulfilled needs within this population of African American women with type 2 diabetes. Some participants mentioned feeling like their primary care provider was not educating or supporting them enough through their diabetes management. The category Bridging the Gap includes the properties (1) *Individualized solutions*, (2) *Advocacy*, and (3) *More Conscious*.

Individualized Solutions. One of the sentiments shared by many participants was feeling like the advice and recommendations provided by primary care providers were too generic. Alternatively, as one participant stated, "When I go to the doctor, I just feel like, oh, well, your blood pressure's high, but let me just give you another pill." Comparatively, the SISTER study addressed each individual and offered personalized and practical solutions based on the individual's needs. Rather than recommending medication, the SISTER study provided solutions like portion size control, alternate food choices, salt alternatives, and more. The program provided resources such as MyPlate, recipe books, and restaurant guides so that participants could use the best resources for their needs. Women reported receiving standardized information regarding their diabetes at the doctor's office. One woman mentioned that when she would go to her doctor, it was "pretty much to watch your sugar, watch what you eat, cut back, they give you

more pills." In contrast, one participant stated that "they (SISTER staff) kept emphasizing that everybody's different, so what might affect one may not affect another person."

Advocacy. Another benefit of the program was informing the participants of their options. Many women did not know what to ask their doctor, what specialists they needed, or their medication options. The program helped teach the women "how to ask for other tests when you go to the doctors." Such as "things that we should be aware (of), like our thyroid and our (vitamin) D, and our kidneys." In encouraging advocacy, the program helped the women take control of their diabetes management.

More Conscious. Many women stated that this program helped them become more conscious not only of what diabetes was but how best to manage it. Participants stated that after being in the program, they were more aware of what and how much they were eating compared to before they were in the program. During the SISTER study, the women learned how to count carbohydrates and were tasked with completing some carb counting outside of the program as homework. One woman stated that seeing her carb intake was "the biggest shocker." Following the activities and lesson on carb counting, food labels, and portion control, many participants stated that they are still, 12 months after starting the study, more aware of what they eat. Another woman discussed how she thought she was managing her diabetes well prior to the study, saying, "You think you know everything, there's some things, like I said, I didn't know saving my carbs up for one meal was more dangerous," going on to describe how she would often over-eat her carbs during one meal and not have carbs the rest of the day. Through the program, she learned to distribute her carbohydrate intake throughout the day for better glucose management.

Change

The theme Change encompasses three categories, including (1) *Need for Change*, (2) *Building Confidence*, and (3) *Changing Habits*, which depict the process of change.

Need for Change. Understanding the need for change is a property of *Change* that did tie in with motivation. The women in the SISTER study either came into the program because they recognized a need for change, or they began to understand the need for change because of their involvement. The need for change varied based on each participant. Some women reported having family members or friends who had complications of diabetes, and some wanted to be healthy for their children or grandchildren. Through their involvement with the program, some women learned that "diabetes is a disease that you do not really have to die from. It can be corrected, the more educated you are," which led to a newfound need for change. Prior to the program, some of the women felt that diabetes was not curable or manageable and therefore didn't see a need to change their diet or lifestyle. One woman reflected on her perspective shift before and after the program, stating, "I used to think that you could just be a diabetic, be diagnosed, take the medication, and it's over. But to me, it seems like it's a journey… So that's one thing I learned from the group, that you have to keep it up so it becomes a lifestyle. You know, it's not something that you do while you're in the class and then go back to something else."

Building Confidence. With diabetes management, the women often found they were told the same advice from friends, family, and medical providers. Advice such as 'don't eat that', 'cut back on sugar', or 'exercise more'. When it comes to diabetes management and lifestyle changes, not only are these statements often vague, making them challenging to apply. In addition to providing information, tools, and strategies, the SISTER study also helped women build the

confidence required to make these lifestyle changes. One woman stated that her involvement in the SISTER study "really gave me the confidence to step out and do this."

Changing Habits. The final property within the *Change* theme is *Changing Habits*. This property describes how the women took the information provided and applied it to their lives. The primary areas in which women made lifestyle changes were grocery shopping, seasoning, and how they prepared their foods. Multiple women mentioned incorporating the habit of reading food labels while they grocery shop, which in turn led to picking healthier food options. The women also mentioned substituting salt with alternative seasonings, such as Ms. Dash. Other commonly mentioned substitutions and alternatives included baking rather than oil-frying foods.

Three-Month Results

The themes related to the participant's experience with the SISTER study at the three-month follow-up emerged as (1) *Group*, (2) *Motivation*, (3) *One Size Fits All*, and (4) *Program*. The overarching theme *Group* consists of four categories: (1) *Accountability*, (2) *Shared*, (3) *Camaraderie*, and (4) *Safety*. *Motivation* encompasses categories including (1) *Physiological* and (2) *Psychological*. The theme *One Size Fits All* includes the categories (1) *Lacking Education*, (2) *Lacking Time*, and (3) *Medication Protocols*. The theme *Program* includes the categories (1) *Information*, (2) *Results*, and (3) *Facilitator*.

Group

The theme *Group* illustrates the effect the African American women participants had on each other in the SISTER study had on the individual participants. Four categories arise from the theme *Group:* (1) *Accountability*, (2) *Shared*, (3) *Camaraderie*, and (4) *Safety*.

Accountability. In reflecting on their experiences within the group, participants frequently described accountability as the primary positive characteristic of the group

environment. Numerous women emphasized the difference between merely committing to the program and actively engaging with it, attributing their commitment to feeling accountable to the other women in the group. One participant noted, "If I was just doing something on my own, I wouldn't think about it as much or wouldn't want to make these changes." Another shared that the most significant takeaway was not just receiving information but building a bond and a support system, stating, "we actually call and check on each other to keep each other motivated." Additionally, a sense of teamwork was expressed, with one participant stating, "it's a team effort. I feel like I should do my part… I should not come just sit there and not take advantage of the information being provided."

Shared. Within the category of "Shared," three properties emerged: (1) *Experiences*, (2) *Goals*, and (3) *Struggles*. Shared experiences fostered a sense of connection among the women, transcending differences in backgrounds and ages. The commonality of goals, ranging from weight loss to improved dietary habits and reducing insulin dependency, further strengthened their sense of belonging. The acknowledgment of shared struggles in managing diabetes created a common ground, with one woman expressing relief at realizing she was not alone in her initial struggles: "to learn that I wasn't the only one that struggled initially."

Camaraderie. Camaraderie, described as mutual friendship, naturally developed among the women in the SISTER group. Despite entering the program without knowing one another, the participants "naturally jelled," forming bonds beyond shared experiences, struggles, and goals. The enjoyable nature of the group activities contributed to the development of camaraderie, as one woman emphasized how "we shared with each other. We made it fun."

Safety. The final aspect of the group dynamic was a shared sense of safety among its members. Women reported a lack of judgment within the group, creating an environment where

they felt secure to open up. One participant expressed that companionship within the group provided reassurance: "Just knowing that I'm not alone, that I have a group that I can talk to if I have any questions," contributed to her confidence in managing her diabetes without fear.

Motivation

The theme Motivation depicts the participants' reasons for not only partaking in the SISTER study but for wanting to manage their health and diabetes better. Participants' motivating factors can be described as physiological, including weight management, medications, or A1C, or psychological, including relationships or pride. Categories of *Motivation* include (1) *Physiological* and (2) *Psychological*. Furthermore, motivation was distinctly mentioned as something that led to participation in the SISTER study or something that developed during the program.

Physiological. Physiological factors that motivated participants of the SISTER study included goals of lowering their A1C, avoiding insulin therapy, aiming to discontinue medications, and prolonging life. The desire to achieve better glycemic control and avoid insulin therapy emerged as prominent motivators for many participants. Some women also recognized the importance of proactive health management as they aged in order to prevent complications of diabetes.

Psychological. Two properties emerged within the *Psychological* category: (1) *Relationships* and (2) *Pride*. The women predominantly cited relationships as motivating factors, often highlighting the grandmother-grandchild relationship. For some participants, the primary catalyst for participating in the program was the desire to "be around for my grandkids and my great-grandkids." In their reflections, they emphasized the importance of maintaining good health for their family's future. One participant noted that the program helped her gain a

greater understanding of what is required to lead a healthy life, making her more determined to manage her diabetes to be around for her son and grandchildren.

Pride is the second property that emerged from the *Psychological* category. Participants expressed a desire to feel proud of their accomplishments, be it in weight management, glycemic control, or lifestyle changes. Additionally, there was a strong inclination to make their healthcare providers, family members, and fellow SISTER participants proud of their progress. For instance, one woman shared her commitment to improving her diet and lowering her A1C, stating, "I've been working hard, and I'm hoping my doctor is just as proud during my upcoming physical in a few days."

One Size Fits All

The theme One Size Fits All encapsulates participants' awareness of the limitations of traditional healthcare, a sentiment articulated vividly by one participant who stated, "so it's not a one size fits all with diabetes and with my physician, it seems like they're saying, 'oh, this is what we do this' and I'm like, but you're not looking at me as an individual… And I know since I've been diagnosed, I've been kind of placed in that category, 'this is what we do for diabetes', but it's not a one size fits all." This overarching theme is further comprised of three properties: (1) *Lacking Education*, (2) *Lacking Time*, and (3) *Medication Protocols*.

Lacking Education. A prevalent issue identified within the theme is the absence of preventive care and education for women in the SISTER study. One participant expressed frustration, revealing, "there was no point when they told me I was pre-diabetic, that you need to do this, or you need to do that… If the education was there, I wouldn't be here with type 2." This quote not only explains a lack of diagnosis during the pre-diabetic phase, but also highlight a lack of education on how to prevent the transition from pre-diabetes to type 2 diabetes. Beyond

the lack of information on pre-diabetes and preventing the progression into type 2 diabetes, participants noted inadequate guidance on managing diabetes. A common sentiment echoed was the lack of thorough information from healthcare providers, leaving individuals uninformed about effective diabetes management strategies.

Lacking Time. Along with the lack of education comes the limited time providers spend with their patients. Participants felt rushed during appointments, with one woman likening the experience to feeling like "cattle" due to the brief visit durations. Providers shared quick sentiments of advice, including 'cut back on sugar' and 'exercise more' as part of their diabetes visits. The time constraints hindered participants from fully discussing their concerns or getting comprehensive explanations, exacerbating the feelings of loneliness and confusion in managing their diabetes.

Medication Protocol. The third property highlights concerns surrounding medication protocols, particularly the reliance on Metformin as a one-size-fits-all approach for type 2 diabetes. Traditionally, Metformin is the first-line medication for all patients with type 2 diabetes (Mayo Foundation for Medical Education and Research, 2023). Almost every participant interviewed had either been on Metformin or was still on Metformin at the time of the interview. Many Participants expressed discontent with the side effects of Metformin, emphasizing the need for individualized approaches to medication management. Some shared experiences of frustration with providers who persisted with Metformin despite documented adverse effects. One participant stated "And if I wouldn't go into the study, I still be (on) Metformin, Metformin, Metformin. And even though I told them it messes with my gut, they still… that was the only thing they were putting me on was Metformin." Moreover, participants disclosed limited awareness of alternative medications before they participated in the study. Issues with insurance

coverage for alternative medications, such as Ozempic, were also discussed, with one participant expressing frustration at the prospect of having to wait until her condition worsened to receive prescriptions for medications other than Metformin.

In addition to these concerns, participants reported insufficient knowledge about insurance coverage for essential diabetes management tools like glucometers, blood testing strips, and continuous blood glucose monitors prior to the SISTER study.

Program

The theme *Program* describes the participants' experience with aspects of the SISTER study described as properties: (1) *Information*, (2) *Results*, and (3) *Facilitator*. The theme describes the program's delivery and effectiveness according to the participants.

Information. Participants found the information provided during the SISTER study to be easy to understand, avoiding jargon and complex language while delivering concrete examples of how to make healthy changes. Participants described the program as "educational," providing information from how diabetes affects their bodies to how to manage diabetes. The program's content was appreciated for its clarity, making complex concepts easy to understand.

Results. Many participants noted the positive impact on their dietary habits. The program's influence extended to weight loss, with several women attributing their healthier lifestyle choices to their involvement in the SISTER study. Participants also reported feeling increased motivation and determination to continue making healthy choices after participating in the program.

Facilitator. The facilitator played a crucial role in the SISTER study experience. Described as having a "thorough understanding of what it means to be diabetic and how to

actually live with it," the facilitator played a crucial role in shaping the participants' perceptions and engagement.

The facilitator's genuine care for the information and each participant's well-being created a positive learning environment. Participants valued the facilitator's commitment to their success and felt a sense of genuine concern, which enhanced the overall program experience.

Discussion

The primary objective of this research was to explore the perceptions and experiences of African American women participating in the SISTER group-based medical nutrition therapy program regarding the management of their type 2 diabetes. To achieve this, two distinct cohorts of women were interviewed, each belonging to either a 12-month or three-month follow-up group. The analysis of the 12-month group revealed key themes: *Group*, *Program*, and *Change*, while the three-month group's findings were categorized into the themes: *Group*, *Motivation*, *One Size Fits All*, and *Program*.

The shared emphasis on the significance of the group resonated strongly across both cohorts of women, underscoring its pivotal role in shaping their overall experience within the SISTER study. The theme *Group*, emerging in both cohorts, reflected commonalities such as high levels of camaraderie, a non-judgmental atmosphere, and a safe space for open sharing. Despite the temporal and group differences, the striking similarity in the description of their respective groups suggests that the group dynamics may be attributed to the SISTER study's design and the facilitator's adept management of the group environment. Prior research regarding group interventions similarly highlights the important role of facilitators in developing successful group dynamics (Garrison et al., 2023). In a 2023 study investigating collective healing among African American women, facilitator actions that benefitted group dynamics included creating

safe spaces and developing belongingness, similar to the results of this current study (Garrison et al.).

While the themes of *Change* and *Motivation* reflect similarities in both cohorts, the temporal aspect introduced nuances in vocabulary. The 12-month cohort, having had a year to implement SISTER study teachings, reported enduring changes in their diet, diabetes management, and lifestyles. In contrast, the three-month group expressed struggles with motivation to create those same changes, highlighting the need to sustain motivation during the SISTER study's active intervention phase and transition into the study's maintenance phase. Notably, the theme *Group* played a pivotal role in both *Change* and *Motivation*, acting as a catalyst for inspiring transformative behaviors.

A critical distinction between the two groups emerged in their perceptions of traditional healthcare's impact on their diabetes journey and their interaction with the SISTER study. The 12-month group, having had a year to navigate lifestyle changes and understand the healthcare system through the tools and education provided by the SISTER study, exhibited less emphasis on the perceived limitations of traditional healthcare. In contrast, the three-month group grappled with managing diabetes and applying SISTER study information, leading them to express newfound awareness of deficiencies in traditional healthcare. Many women from the three-month group highlighted their revelation about the shortcomings of traditional healthcare, such as a lack of comprehensive diabetes education, limited provision of information on alternative medications, and insufficient time with healthcare professionals.

Twelve-Month

The theme *Group* highlights the impact of collective dynamic within the SISTER study. One of the key attributes of this theme is the category *Motivating*. Participants of the 12-month

cohort described feeling increased motivation because of the other women in the group. The properties of *Accountability* and *Role Modeling* illuminate the transformative power of group dynamics in fostering individual commitment and encouraging behavioral change, as prior research regarding health behavior change in African American women depicts (Lee et al., 2020). A unique aspect of group interventions is the role modeling and ownership that some participants exhibit within the experience. Some participants reported sharing strategies and tools, such as seasoning alternatives or workout programs that are easily applicable for those with busy schedules. This resonates with previous research emphasizing the positive impact of group support on chronic illness management (Henderson et al., 2003; John et al., 2020). However, it is crucial to note that these attributes are contingent on the establishment of a safe environment (Garrison et al., 2023).

The category *Place to Share* highlights the importance of a safe and open environment for the group to take place. Participants expressed how the non-judgmental space within the group allowed for candid discussions and mutual support. Lastly, the term “camaraderie” appeared throughout multiple interviews. The camaraderie was elevated to category due to the importance of the word in nearly every interview. Camaraderie is defined as a “mutual trust and friendship among people who spend a lot of time together” (Oxford English Dictionary [OED], 2016). The active phase of the SISTER study occurred over three months, with the group meeting every other week. Despite only seeing each other in the SISTER setting twice a month, the women were able to develop a sense of camaraderie with their peers. For many women, camaraderie was the foundation for their commitment to learning and improving their health. A sense of belonging to the group inspired the women that, if other members of the group could, they could too.

Beyond the other women in the study, participants consistently reported positive interactions with the facilitator, attributing characteristics of *Invested* and *Expert*. The facilitator's invested approach, coupled with expertise, created a supportive and knowledgeable environment. Participants perceived the facilitator as genuinely caring for their overall well-being, which enhanced the educational experience, as with prior reports of diabetic interventions involving a facilitator in previous research (Dellasega, Anel-Tiangco & Gabbay, 2012). The *Information* category sheds light on the accessible and comprehensive nature of the diabetes-related information provided during the SISTER study. The varied tools, including MyPlate, recipe books, and restaurant guides, empowered participants to personalize their learning experience, reinforcing the effectiveness of multi-modal educational approaches. *Bridging the Gap* underscores the SISTER study's role in addressing specific needs within the population of African American women with type 2 diabetes that are not currently met by traditional health care. The properties of *Individualized Solutions*, *Advocacy*, and *More Consciousness* highlight the program's success in providing personalized and practical solutions, empowering the women to take control of their health, and enhancing participants' awareness of diabetes as well as effective management tools and strategies. This represents a significant stride in bridging gaps in knowledge and treatment observed in traditional healthcare approaches regarding diabetes (Ochieng & Crist, 2021).

The *Need for Change* category depicts participants' evolving perspectives on diabetes management, driven by a newfound understanding and recognition of the necessity for lifestyle modifications. Diverse motivations, ranging from family considerations to personal empowerment, highlight the nuanced nature of participants' progressive desire to manage their diabetes. This category goes beyond initial motivating factors for program involvement and

describes the ongoing commitment to managing health. *Building Confidence* emphasizes the SISTER study's role in instilling the self-assurance required for implementing lasting lifestyle changes such as proper portion control, food label reading, and increased physical activity. Participants' newfound confidence to navigate and proactively manage their diabetes aligns with the importance of self-efficacy in behavior change interventions (Bandura, 1977). The theme *Group* is interwoven into this category as peer encouragement and support aided in building confidence. Prior research suggests that peer support, even with only one other individual, contributes to healthy behavior changes (Henderson & Davis, 2003; John et al., 2020).

The *Changing Habits* category underscores the practical application of information, with participants making tangible lifestyle changes in grocery shopping, seasoning, and food preparation. The emphasis on translating knowledge into actionable and sustainable behavioral modifications reflects the overarching goal of the SISTER study. This category was not seen in the three-month cohort, likely due to temporal differences in the stages of each cohort. Whereas the 12-month cohort had a year to apply the teachings of the SISTER study and adapt the teachings to make lasting changes, the three-month cohort had just finished the active intervention phase and had yet to create lasting change based on the teachings.

Three-Month

The findings of the three-month follow-up in the SISTER study can be understood through the four overarching themes: *Group, Motivation, One Size Fits All,* and *Program*. These themes collectively shed light on the dynamic interactions and nuanced factors influencing the diabetes management journey of African American women participants.

The first theme describes the group dynamics within the SISTER study and illustrates the profound impact of interpersonal relationships among participants. Group support has been highlighted in prior research as a tool for coping and managing chronic illness (Henderson et al., 2003; John et al., 2020). Accountability emerged as a significant category, emphasizing that the commitment to the program was heightened through a sense of duty to fellow group members. This accountability went beyond participation, evolving into active engagement. Some women described taking a leadership role within the group to share ideas, strategies or even attempt to motivate other members of the group. The importance of this social accountability was further underlined by participants who highlighted the formation of bonds and support systems, that transcended the traditional boundaries of the study. Additionally, shared experiences, goals, and struggles among group members helped foster a sense of camaraderie that proved to be a catalyst for accountability to the group and goals of the SISTER study. Feelings of not being alone have been well described in prior research as a benefit of group-based interventions (Lee et al., 2020; Okoro, 2020; Washington & Moxley, 2003). Another key finding was the establishment of a shared sense of safety within the group. The absence of judgment and the development of a secure space allowed participants to share their challenges. This finding underscores the critical role of group dynamics in fostering an environment conducive to personal growth and effective diabetes management (Okoro, 2020).

Motivation, a central theme, revealed two distinct but interconnected categories: *Physiological* and *Psychological*. Participants expressed a multifaceted motivation, rooted in their desire for better health and diabetes management. Physiological motivators encompassed a spectrum ranging from glycemic control to avoiding insulin therapy. The fear of complications and the recognition of the benefits of proactive health management as they aged were driving

factors. This intricate interplay between physiological factors emphasizes the complexity of individual motivations to participate in the SISTER study and to manage their diabetes.

Psychological motivators, primarily relationships and pride, demonstrated the significance of holistic well-being throughout their involvement with the SISTER study. The desire to be present for their family, especially grandchildren, emerged as a powerful motivating force. Pride, as a psychological motivator, served as a personal incentive, intertwined with a desire for recognition from healthcare providers, family members, SISTER study facilitators, and fellow participants. Although the women of the three-month cohort did not mention whether these motivators were met through their time in the SISTER study, these findings suggest that effective interventions should address both physiological and psychological aspects to fulfill the participants needs and motivation for participation.

The theme, *One Size Fits All*, highlighted participants' awareness of the inadequacies within traditional healthcare. In line with prior research, African American women with type 2 diabetes reported inadequate and impersonal health education from their health care providers (Ochieng & Crist, 2021). The category *Lacking Education* underscored the need for early intervention and education about pre-diabetes, a gap identified by multiple participants. Similar studies focusing on African American women’s self-management of type 2 diabetes highlight health literacy as a key factor for successful diabetes management, specifically how lacking proper education on disease severity, complication, and treatment options can lead to decreased compliance with treatment plans and increased complications (Ochieng & Crist, 2021). *Lacking Time* illuminated the challenges associated with brief healthcare visits, emphasizing the need for supplementary resources to ensure comprehensive diabetes education. Furthermore, *Medication Protocols* revealed concerns about the one-size-fits-all approach, primarily with glucophage,

indicating a necessity for more personalized strategies. Multiple participants were frustrated that despite expressing concerns over side-effects and efficacy of Metformin, providers kept them on their current medication regimen. Participants expressed dissatisfaction with limited awareness of alternative medications prior to their involvement in the SISTER study.

The theme *Program* describes participants' experiences with the SISTER study itself. Information delivery, noted for its clarity and comprehensibility, was a significant positive aspect for many participants. The program's educational nature, coupled with concrete examples, was well-received by participants, emphasizing the importance of accessible and understandable health information.

Participants described tangible impacts of their participation with the SISTER study, with reported weight loss and improvements in dietary habits. Similar to previous research regarding group-based interventions, the SISTER study provided resources and education that participants had not had access to prior to the study (Okoro, 2020). Beyond tangible outcomes, the program generated increased motivation and determination among participants, illustrating the potential for holistic lifestyle changes because of program involvement.

The facilitator’s impact on the program and on the participants was reported throughout multiple interviews. The facilitator's role was not merely as an instructor but as a guide who had a thorough understanding of participants' daily struggles. Genuine care and commitment to participants' success created an environment where learning and personal growth thrived. In conjunction with prior research regarding group therapy for African American women, the facilitator’s role is essential in the development of the group and is often done through validation, role-modeling, and genuine care (Garrison et al., 2023). The facilitator's influence

extended beyond the program, shaping participants' perceptions, and fostering a positive, supportive community.

Implications for Practice

The women's experiences with the SISTER study underscore the importance of both the group dynamic and educational components provided. Furthermore, their insights highlighted specific aspects that proved most beneficial to their individual needs. By tailoring information delivery, addressing participant-specific needs and preferences, and cultivating a supportive community, interventions can significantly enhance their impact on diabetes management outcomes among African American women.

The interconnectedness of these themes emphasizes the need for diabetes management interventions to adopt a comprehensive, holistic approach. As with prior diabetes research, more individualized care hat considers patients unique needs is better received by patients compared to standard care (Dellasega, Anel-Tiangco & Gabbay, 2012). In future iterations of the SISTER study or similar interventions, there should be a deliberate effort to establish a community that fosters mutual accountability and positive role modeling. Facilitators should persist in cultivating an environment where participants feel at ease sharing their experiences, struggles, and successes. The reported sense of safety within the group is imperative for sustained participant engagement, emphasizing the need for facilitators to establish a non-judgmental space where participants feel secure in sharing their experiences and expressing their questions and concerns. Building upon shared experiences, goals, and struggles, future interventions should capitalize on these commonalities to strengthen the participants' sense of belonging. The positive perceptions of the facilitator as invested, and an expert underscore the crucial role of facilitators in influencing participant experiences. Training facilitators to be knowledgeable, compassionate,

and personable is vital. Facilitators should continue prioritizing each individual and creating an environment where participants feel heard, understood, and supported.

Additionally, the findings of the SISTER study portray the need for a paradigm shift within traditional healthcare regarding diabetes management interventions, moving beyond conventional approaches to embrace patient-centric, culturally sensitive, and holistic strategies. The synthesis of these themes paves the way for future practices that prioritize the unique needs and experiences of African American women in their journey towards effective diabetes management.

Limitations

Multiple limitations were identified in this study. One potential limitation included participant compensation for their participation in this study. The SISTER study provided compensation with a gift card which may have impacted participation rates and responses. Another limitation is the study's data collection methods and techniques may have influenced the attainment of data saturation. The chosen approach and interview questions may not have been sufficiently probing to uncover all potential nuances of the participants' experiences. Finally, this study did not reach data saturation due to time constraints. Despite not reaching data saturation, the insights gained from the participants still contribute valuable qualitative data. Researchers should consider these limitations when interpreting the results and use them as a foundation for future studies.

Conclusion

In conclusion, this study explored the experiences of African American women participating in the SISTER study, with the aim of identifying the elements that had the most significant impact on their experience. The results of this study highlight the impact of a unique

program developed for and dedicated to African American women with type 2 diabetes. The women involved consistently reported positive experiences and outcomes related to their involvement in the SISTER study, contrasted by primarily negative experiences with traditional healthcare approaches. The results of this study serve as a compelling testament to the effectiveness and resonance of tailored interventions, emphasizing the importance of culturally sensitive and personalized programs. Results demonstrate a continued need for research and interventions dedicated to this unique population to strive for better diabetes and overall health care.

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Figure 1

Socio-ecological Model

Note: Retrieved from https://www.cdc.gov/violenceprevention/about/social-ecologicalmodel.html

Table 1

12-Month Group Results Table

Theme	Category	Property	Exemplar
Group	Motivating	Accountability	"The team support, having someone to be accountable to who cares. It's like when you think someone cares about you, you want to do it for them."
		Role Modeling	"So you think, okay, she said she was going to do it, now she's going to try, so let me just try too."
	Place to Share	No Judgement	"A lot of times, you're not going to tell the doctor everything you ate. No, you're not. The doctor's would be like, well, what did you eat? … What are they gonna wanna hear? I'm not gonna tell him what I was snacking on… (with the group) we could come in and just talk, you know… just talk."
		Reciprocal Sharing	"It was good to hear about other stories and sharing information. I think that helped to make me feel empowered to go back and do this because I'm not in this alone."

			"It was good to have that interaction with the other members of the group to learn better ways of doing things."
	Camaraderie	Positive Interactions	"We really had a good rapport with each other."
		Comfort	"Met a lot of new people and we all became like family."
Program	Facilitator	Invested	"Really wanted us to understand the seriousness of our illness." “Everyone a chance to talk, to walk around the room and, you know, just make sure she didn't miss anybody."
		Expert	“Very knowledgeable”
	Information	Accessible	"Wasn't so over the top where people didn't get it, just the average person could understand it."
		Comprehensive	"It was very educational on my disease, not only my disease but other health issues… they showed how diabetes affects every area of your body, your eyes, your heart, your lungs, your bones, your nerves."
		Tools	"wasn't just cut out sugar… they also gave you solutions."

	Bridging the Gap	Individualized Solutions	"Pretty much to watch your sugar, watch what you eat, cut back, they give you more pills."
		Advocacy	“How to ask for other tests when you go to the doctors.”
		More Conscious	"You think you know everything, there's some things, like I said, I didn't know saving my carbs up for one meal was more dangerous,"
Change	Need for Change		“I used to think that you could just be a diabetic, be diagnosed, take the medication, and it's over. But to me, it seems like it's a journey… So that's one thing I learned from the group, that you have to keep it up so it becomes a lifestyle. You know, it's not something that you do while you're in the class and then go back to something else."
	Building Confidence		"Really gave me the confidence to step out and do this."
	Changing Habits		“So now it made me check everything. When I go to the store now I check and say , hmm let me see how many grams of sugar… whereas before I’m like oh I’m going to get it… but now I don’t need that.”

Table 2

3-Month Results Table

Theme	Category	Property	Exemplar
Group	Accountability		"We actually call and check on each other to keep each other motivated."
	Shared	Experiences	“I learned that we all had something in common. Number one, that our lifestyles didn’t differ very much. Even though we all came from different walks of life and varied in age, and it was nice to have something in common with other.”
		Goals	“We can all together achieve the bottom line of being healthier and being able to manage our diabetes.”
		Struggles	"To learn that I wasn't the only one that struggled initially."
	Camaraderie		"We shared with each other. We made it fun."
	Safety		"Just knowing that I'm not alone, that I have a group that I can talk to if I have any questions,"
Motivation	Physiological		“I want to get off the Metformin, that’s my real goal.”

	Psychological	Relationships	"Be around for my grandkids and my great-grandkids."
		Pride	"I've been working hard, and I'm hoping my doctor is just as proud during my upcoming physical in a few days."
One Size Fits All	Lacking Education		"There was no point when they told me I was pre-diabetic, that you need to do this, or you need to do that… If the education was there, I wouldn't be here with type 2."
	Lacking Time		“When I go to my doctor I feel like I’m in a, I feel like cattle. So you just like, next, next, next. So I get, like, less than ten minutes and then I don’t get to explain or I don’t get to expand on things that I have questions about.”
	Medication Protocol		"And if I wouldn't go into the study, I still be (on) Metformin, Metformin, Metformin. And even though I told them it messes with my gut, they still that was the only thing they were putting me on was Metformin."
Program	Information		"Educational”
	Results		“It helps me, I lost 35 pounds within the class.”

	Facilitator		“Thorough understanding of what it means to be diabetic and how to actually live with it,"

Appendix A

Research Consent Form

Informed Consent to be Part of a Research Study

Title of the Project: African American Women's Perceptions of a Group Based, Diabetic Medical Nutritional Therapy Intervention: A Qualitative Study
Principal Investigator: Megan McMahon, Doctor of Nursing Practice student, Inman College of Nursing
Faculty Advisor: Dr. Laura Gray, Inman College of Nursing

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must have completed the active intervention phase of the SISTERS Diabetes Study and speak English**.** Taking part in this research project is voluntary.

Important Information About the Research Study

Here are some things you should know about this study:

- The purpose of the study is to describe African American women's perceptions of and experience with the SISTERS group-based diabetic medical nutritional therapy on their type 2 diabetes management.
- If you choose to participate, you will be asked to participate in a single one on one interview either online via zoom or in-person.
- Your participation will take approximately 30 minutes.
- Risks or discomforts from this research include potential psychological risks in detailing your experience with the SISTER's study.
- The study may provide therapeutic benefits in talking about your experience. This research study aims to benefit the

SISTER's study future participants as well as inform the researchers of participant's experience.
- Taking part in this research project is voluntary. You don't have to participate, and you can stop at any time.

More details are provided below about this research study. Please take all the time you need to read this entire form. We will have time to talk so you can ask questions before deciding whether or not to take part in this research project.

What is the study about and why are we doing it?

The purpose of the study is to describe African American women's perceptions and experience with the SISITERS group-based nutritional therapy on their type 2 diabetes management. Belmont University expects to enroll approximately 10-20 participants in the research.

What will happen if you take part in this study?

If you agree to take part in this study, you will be asked to attend an interview either online via zoom or in person at Meharry Medical College or Belmont University. During the interview you will be asked a series of 5 questions relating to your experience with the SISTERS group-based nutritional therapy sessions you have attended. We expect this to take about one thirty-minute interview session per participant.

How could you benefit from this study?

Although you will not directly benefit from being in this study, others might benefit because responses used from this study will be provided to the SISTERS project as feedback on ways to improve the intervention for future participants.

What are the risks of being in this study?

We don't believe there are any risks from participating in this research.

You must immediately tell the researchers if you have any injuries or other problems related to your participation in the study. The University may be able to assist you with obtaining emergency treatment, if appropriate, but you or your insurance company will be responsible for the cost. By signing this form, you do not give up your right to seek payment if you are harmed as a result of being in this study.

How will we protect your information?

If we publish or present the results of this study at a conference, to protect your privacy, we will not include any information that could directly identify you.

We will protect the confidentiality of your research records by excluding information that could identify you from publications of the research. Your name will not be included as part of the feedback provided to the SISTERS study. Your name and any other information that can directly identify you will be stored separately from the data collected as part of the project**.**

It is possible that other people may need to see the information we collect about you. These people work for Belmont University and Meharry's SISTER's research group and are responsible for making sure the research is done safely and properly.
You consent to the use of the audio and/or video recording of your words and/or actions as described in presentations, research reports, and other formats. You acknowledge that the study team will not be required to use the recordings in their work.

By checking "yes" below, you release investigators, sponsors, and successors from claims that could come from the use of the recordings. This includes claims of defamation, invasion of privacy, infringement of moral rights, rights of publicity or

copyright, etc. You will have no ownership rights in the recordings of the research. Please ask any questions about the recordings prior to checking "yes" below.

Do you consent to the use of audio/video recording of your words and/or actions for the purposes of participating in this project?
___ YES ___ NO

What will happen to the information we collect about you after the study is over?

We are required to keep your research data for three years. Your name and other information that can directly identify you will be deleted from the research data collected as part of the project. After three years, all of your research data will be destroyed.

Your information collected as part of this research, even if identifiers are removed, will not be used or distributed for future research.

Will you be paid for being part of the study?

You will not receive anything for being in this study. .

What are the costs to you to be part of the study?

You do not need to pay anything to participate in this study.

What other choices do you have if you don't take part in this study?

There are no alternative choices if you decide not to take part in this study.

Is your participation in this study voluntary?

It is totally up to you to decide to be in this research study. Participating in this study is voluntary. Even if you decide to be

part of the study now, you may change your mind and stop at any time. You do not have to answer any questions you do not want to answer. If you decide at any point not to participate in the study, you will not be treated differently, and you will receive the same care and/or benefits as everyone else. If you decide to withdraw before this study is completed, video recordings and transcripts will be permanently deleted.

In the event of any potential harm to the PI or the participant, a subject's participation may be terminated by the PI without the consent of the subject.

Who should you contact if you have questions about the research or about your rights as a research participant?

If you have questions about this research, you may contact Megan McMahon at megan.mcmahon@bruins.belmont.edu or (480)-352-3116 or Dr. Laura Gray at laura.gray@belmont.edu or (615)-460-6190

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact Erich Baker, Ph.D., Vice Provost for Research and Strategy Initiatives (615) 460-5867 or erich.baker@belmont.edu.
Also, if you experience an injury because of this study, please immediately contact Megan McMahon at megan.mcmahon@bruins.belmont.edu or (480)-352-3116 or Dr. Laura Gray at laura.gray@belmont.edu or (615)-460-6190

What if new information becomes available?

In the event new information becomes available that may affect your willingness to participate in this research, the information will be given to you so that you can make an informed decision about whether or not to continue your participation.

Your consent

Verbal agreement will be collected prior to the start of each interview. By verbally agreeing, you agree to be in this study and agreeing that you meet the conditions to participate. Make sure you understand what the study is about before you verbally consent. If you have any questions about the study after you verbally agree, you can contact the study team using the information provided above.

I understand what the study is about, and my questions so far have been answered. I agree to take part in this study.

Appendix B

Interviewer Script

1. "Can you describe your experience with the SISTERS study and what was most meaningful for you?
    a. How did the relationships you built with other study participants affect what you learned/your diabetes management?
    b. How did your relationships affect your ability to implement the dietary changes you learned in the program?
2. "Over the last year how did the SISTER study affect your food choices regarding your type 2 diabetes management compared to other strategies or programs you have tried?" (add examples: carb counting, reading food labels, myplate, cookbooks)
3. "During the study you were provided information on dietary self-management topics. Of the strategies that you tried, what made it easier to keep up? What made it harder?"
    a. Of what you learned in the program – what was easy to follow or implement/what was hard to follow
4. "What did you like most about this study? What would you change?"
5. "Were you satisfied with the overall effectiveness of the study?"