EXAMINING THE RELATIONSHIPS BETWEEN SOCIAL SUPPORT AND DIABETES
SELF-MANAGEMENT ACTIVITIES IN ADULT AFRICAN AMERICANS

A DISSERTATION SUBMITTED TO THE OFFICE OF GRADUATE EDUCATION OF THE
UNIVERSITY OF HAWAI‘I AT MĀNOA IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY IN NURSING

DECEMBER 2015

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Keywords: Social Support, Diabetes, Minorities, African Americans
ACKNOWLEDGEMENTS

“The race is not given to the swift nor the strong but to the one who endures to the end.”

Dr. Shannon, Dr. Wang, and Dr. LeVasseur, thank you for your patience and guidance despite my delays.

Thank you to all the members of my dissertation committee Chen-Yen Wang, Andrew Grandinetti, Allen Hanberg, Sandra A. LeVasseur, Maureen Shannon.

Thank you Aeza Hafalia for always making Central Standard Time feel like Hawai’i Standard Time.
DEDICATIONS

To Charles-Phillip-Kwabena Ampadu, I live so that you may have life. Every decision I make is for you. You are God’s greatest gift to me. I love you son!

Donna Lisa Phillips you are my rock. Thank you for guiding and supporting me. But most importantly, thank you for life and loving me. Mom and Dad, thank you.

Dahlia, Jerina, Porsha, and Jerry you motivate me and inspire me daily to be a better person.

Amari, Caleb, Noah, and Laila an education is one of the most important tools you will need in life to change the world. It is your responsibility to excel in whatever you choose to do in life. I pray that my light will help guide your path.

Dr. Chris Rosnick and Letrice Young, thank you for being obedient to your calling.

To my angels, Dr. L. Williams, Willie Jerry Phillips, Aretha Phillips, and Nafonwyck Marion, who are not here to see this to completion; it is finished.
ABSTRACT

Diabetes, a chronic condition, disproportionately affects African Americans, Hispanics, Asian and Pacific Islanders, American Indians, and Alaskan Natives (Center for Disease Control and Prevention [CDC], 2013). African Americans are more likely to suffer from complications associated with diabetes. Diabetes poses a huge socioeconomic burden on the African American population. Diabetes self-management is complex process that requires the ability to manage symptoms, treatment, physical and psychosocial changes in lifestyle. Diabetes self-management support (DSMS) activities are those activities that assist individuals in implementing and sustaining behaviors needed to manage diabetes (Haas et al., 2014). Social support is a diabetes self-management support activity.

This study aimed to determine 1) the demographics of the African American patients with type 2 diabetes participating in this study, 2) examine the reliability of the Norbeck’s Social Support Questionnaire within the sample population, and 3) describe the associations between social support (emotional and tangible support), and self-care activities (exercise, general diet, specific diet, blood sugar testing, and foot care). This descriptive cross-sectional study took place at a health care clinic in Midwest region in the United States. Eighty-five African Americans ages 18-79 were recruited and consent to participate in this study.

Results of the study support the use of the NSSQ in low income African Americans. A bivariate correlations matrix and Cronbach’s alpha were used to examine internal consistency via inter-item and item-total correlations for the NSSQ. Pearson’s correlations were performed to determine the relationship between social support variables and diabetes self-care activities. There were significant negative associations found between foot care and emotional support, \( r = -0.220, p \text{ (2-tailed)} = 0.043 \); between foot care and total network support, \( r = -0.251, p \text{ (2-tailed)} = \)
.021; between foot care and total functional support, \( r = -0.214, p \) (2-tailed) = .05. Independent samples t-tests were conducted to compare demographic variables, social support variables, and diabetes self-care activities. There was a significant difference in total functional support for female (M=63.41, SD=44.85) and males (M=38.52, SD=20.95) \( t \) (81.811) = 3.483, \( p = .001 \) (two-tailed).
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CHAPTER 1: INTRODUCTION

Statement of the Problem

Diabetes mellitus is a significant health problem in the United States (US) that disproportionately affects African Americans, Hispanics, Asian and Pacific Islanders, American Indians, and Alaskan Natives (Center for Disease Control and Prevention [CDC], 2013). Diabetes, the 7th leading cause of death in the US, and contributes to increase morbidity and mortality rates in minority populations. African Americans are 1.7 times more likely to be diagnosed with diabetes; 1.2 times more likely to have visual impairments associated with diabetes complications; and 2.3 times more like to have end-stage renal disease compared to non-Hispanic whites (CDC, 2013). Diabetes poses a severe economic and societal burden (CDC, 2013). In 2012, the estimated cost of diagnosed diabetes was $245 billion ($176 billion direct medical cost and $69 billion as a result of reduced productivity). These figures do not take into account the burden of undiagnosed diabetes, which includes pain and suffering, and care by nonpaid caregivers (American Diabetes Association [ADA], 2013). Self-management activities are the cornerstone to achieving glycemic control and reducing the risk of developing microvascular and macrovascular complications associated with diabetes (ADA, 2012). Therefore, it is essential to identify factors that enhance diabetes self-management activities.

Significance of the Problem

The number of Americans diagnosed with diabetes is estimated to increase to 48.3 million in 2050 with the largest increase among African Americans 75 years of age and older; this represents a 606% increase by 2050 (Venkat Narayan et al., 2006). Diabetes requires ongoing patient self-management, education, and treatment to prevent acute complications and reduce risk of long-term complications (ADA, 2014). Despite the well-known and well-documented disparities in diabetes diagnoses and complications in minorities, these patients may
not receive recommended treatment. The Institute of Medicine report *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* (2002) reviewed the literature and found that, while health care access and demographic variables account for some of the racial disparities in health status, there is a persistent residual gap in outcomes attributed to differences in the quality of care received (Smedley, Stith, & Nelson 2002). For example, African American patients are less likely than white patients to receive treatment intensification for Hemoglobin A1c (HbA1C) >8% (Traylor et al., 2010), even though, the ADA (2014) recommends lowering HbA1C below or around 7% to reduce complications. In addition, Hispanic patients have worse HbA1C control than non-Hispanic whites (Traylor et al., 2010).

Considering the economic burden and disparities in health care delivery, it is essential to identify strategies that help promote self-management activities within minority communities. For example, social support, specifically support from individuals sharing similar beliefs, has been documented to improve general diet, specific diet, and foot care within the African American community (Watkins et al., 2013). Community support helped minority patients with limited resources to manage diabetes. Therefore, it is important to determine the influence of social support on diabetes self-management activities in the minority populations.

**Conceptual Framework**

The Social Cognitive Theory (SCT) is a psychosocial model of health that attempts to explain human behavior. The constructs identified in the SCT are knowledge, perceived self-efficacy, outcome expectancy, socio-structural factors, and behaviors. The two main constructs identified by Bandura (p.144) in the SCT are perceived self-efficacy and outcome expectancy (2004). Self-efficacy, the pivotal construct, is the conviction that one can successfully execute the behavior required to produce the desired outcome. Outcome expectancy represents a
person’s belief that a given behavior will or will not produce a certain outcome (Bandura, 2004). Beliefs of self-efficacy affect health directly by their impact on goals, outcome expectations, perceived facilitators, and impediments (Bandura, 2004). The underlying assumption of the SCT is that people will behave in ways that lead to positive outcomes. The outcomes in the SCT are physical outcomes, social outcomes, and self-evaluative outcomes (Bandura, 2004).

In the SCT, knowledge of health risks and benefits creates need for change. Lack of knowledge about lifestyle habits causes little or no need for change. Socio-structural factors are facilitators and impediments to behaviors and are hypothesized to affect health behaviors.

Figure 1.1. The Social Cognitive Theory Model of Health Behavior
**Background**

The American Association of Diabetes Educators (AADE) has defined the AADE7 Self-Care Behaviors as a framework for diabetes self-care (AADE, 2008). The 7 self-care behaviors are healthy eating, being active, monitoring, taking medication, problem solving, healthy coping, and reducing risk. In a systematic review of the literature, Coyle et al. (2013) identified medication adherence, glucose self-monitoring, diet, physical activity, and foot care as the range of activities that people diagnosed with diabetes engage in to self-manage their disease. In addition, Toobert et al (2000) identified diabetes self-management activities to include general diet, specific diet, exercise, foot care, smoking cessation, and blood sugar testing.

Diabetes self-management support (DSMS) activities are those activities that assist individuals in implementing and sustaining behaviors needed to manage diabetes (Haas et al., 2014). Social support is a diabetes self-management support activity. A study conducted by McEwen et al. (2010) found that Mexican Americans benefited from informational support provided by certified diabetes educators and promoters in a pre- and post-intervention design. There was also a decrease in diabetes distress post social support intervention. In another study focusing on African Americans, emotional social support was found to be associated with exercising, controlling fat calories, and lower diastolic pressure (Rees, Karter, & Young 2010).
CHAPTER 2: LITERATURE REVIEW

Introduction

Diabetes currently affects 29.1 million Americans and it is estimated that 8.1 million Americans are undiagnosed (Center for Disease Control and Prevention [CDC], 2014). Diabetes is characterized by elevated glucose levels from deficits in insulin secretion, insulin action, or both (CDC, 2014). Type 2 diabetes, which has been associated with obesity, poor dietary habits, and physical inactivity, accounts for 90% of all diagnosed cases of diabetes (Osborn, de Groot, & Wagner, 2013). Uncontrolled diabetes induced complication included heart disease, stroke, high blood pressure, blindness, kidney disease, and amputations (CDC, 2014). The estimated direct and indirect costs of diabetes management in the United States are $245 billion dollars (American Diabetes Association, 2013).

Chronic illnesses, such as diabetes, often result in an increased need for social support (Osborn & Egede, 2012). In a cross sectional survey with 198 ethnically diverse participants, researchers found increased distress among adults with type 2 diabetes. As diabetes progresses, patients experience greater health and treatment related burden (Baek, Tanenbaum, & Gonzalez 2014). Diabetes self-management is a complex process that requires the ability to manage symptoms, treatment, physical and psychosocial changes in lifestyle (Funnell et al., 2012). Research clearly identifies that social support can facilitate as well as inhibit self-management activities in individuals with diabetes. Emotional support and social connectedness were significantly associated with increase adherence to recommended healthy eating regimen, physical activity levels, and checking feet daily in a diverse patient population in Northern California. Yet, emotional support was not associated with oral diabetes medications regimen, insulin therapy, self-managed blood glucose, or primary care appointments in the same
population (Rosland et al., 2014). In a study of non-Hispanic whites, an increase in social support was found to predict an increase in HbA1C levels (Rees, Karter, & Young, 2010). Patterns of associations are inconsistent with self-management activities and social support. The work of Walker and Avant (2005) was used as a concept analysis guide to reveal the defining attributes, antecedents, and consequence of social support. Case studies were constructed to provide clarity to the concept of social support.

**Search Strategies**

A detailed literature review performed in MEDLINE, CINHAL, and Cochrane databases dating between 2009-2014 using the key terms “social support” and “self-management” yielded a total of 3,162 articles. A revised search was then conducted using the terms “social support”, “diabetes”, and “minorities” which yielded 34 articles. Articles were selected on the basis of population specificity (inclusion of minority populations), use of social support as an independent research variable, and theoretical literary reviews on social support research. Out of 34 articles, 9 articles met the criteria for this review. The ancestry approach was then used to review the reference list of those articles from the database search to identify any additional articles that should be reviewed to determine whether or not they should be included in the literature. As a result, 2 additional articles that met the inclusion criteria were added, resulting in a total of 11 articles. The articles were reviewed for commonalities and differences in the definitions and measurements of social support in minority populations with type 2 diabetes.

**Purpose**

The purposes of this review of the literature were to explore the definitions, conceptualizations and models of social support and to determine the state of the science for social support. Since the concept of social support is utilized in many ways, it is essential to
determine the operational and theoretical uses of the term in order to hypothesize about the relationship between social support and diabetes self-management in minorities in future research.

Social support is a multidimensional concept. The first definitions of social support mainly focused on perceived support and not actual support. Despite the evolution of the concept, operational measures of social support also focus on perceived social support. Social support is comprised of structural and functional aspects. The structural aspects of social support include the number of supporters as well as the quality of the network. The functional aspects of social support include informational support, emotional support, and tangible support.

Culturally based constructs may influence variations in the ways in which social support manifests itself. For example, African Americans may benefit from a community of believers in which similar beliefs are shared (Watkins et al., 2013). In the study conducted by Chew et al. (2011), 76% of the Asian participants reported good social support, and; there was a significant positive correlation between the number of social supporters and perception of social support. Nevertheless, there was no correlation between social support and HbA1C levels in this population.

Definitions

There are many definitions of social support in the literature. One of the first definitions of social support emerged from the study of psychology. Cobb (1976) defined social support as the information leading one to believe that he (she) is cared for and loved. Nurullah (2012) defined social support as the experience of receiving actions and behaviors that are considered supportive by the recipient in fostering emotional, instrumental, and an appraisal need which matches the type of support sought by the recipient.
Complementary Terms

A review of the literature revealed several terms that complement the defining attributes of social support. These complementary terms are enacted, perceived, informal, formal, illness specific, and general. Enacted is a behavioral description that illustrates what occurs when social support is provided (Barrera, 1986). In a study to explore the potential mechanisms by which a text message-based diabetes program affected self-management among African Americans with diabetes, in-depth individual interviews were conducted and transcribed. Participants received automated text messages daily for 4-weeks. After 4-weeks, exit interviews were conducted. Participants likened the text-messaging program to a “friend” or “support group” and valued the daily interaction of the automated system. A certified diabetes educator served as text administrator and conducted weekly interviews to adjust messages or timing of text messages. The weekly text messages served as enacted support. Direct teaching was not provided, yet participants stated reminders helped them organize their daily diabetes care (Nundy et al., 2012).

Perceived is used to assess the cognitive perception of social support by the receiver (Barrera, 1986). Perceived support is subjective and is self-reported in empirical studies. In Nundy et al. 2014, participants perceived that the text administrator was personally sending them text messages to help them self-manage their diabetes. Others reported feeling monitored and benefited from the feeling that help was available if needed.

Illness specific support has been identified as support that is specific to diabetes. Mayberry and Osborn (2012) identified that, for those participants who perceived family members had more diabetes self-care knowledge, there was a perception the family members performed more diabetes specific supportive behaviors. Formal support is provided by professionals such as healthcare providers and members of professional organizations (Nundy et
al., 2013). Informal support is usually provided by family and friendship networks (Bhattacharya, 2012; Paddison, 2010).

**Defining Attributes**

Defining attributes identify the most frequently used characteristics associated with a concept (Walker & Avant, 2005). These characteristics provide a basis for the occurrence of the concept as differentiated from other or similar concepts. The three defining attributes of social support are emotional, informational, and instrumental. McEwen, Pasvogel, Gallegos and Barrera (2010) conducted a single-group pretest and posttest design to test the efficacy of a culturally tailored diabetes self-management social support intervention. Informational support was defined as the provision of knowledge that is useful for self-evaluation. Emotional support was defined as verbal and nonverbal expressions of empathy, trust, and caring. Informational and emotional supports were found to influence diabetes self-management activities.

Instrumental support was the most common support discussed in the focus groups. Instrumental support was defined as observable actions that make it easier for an individual to perform healthy behaviors (Mayberry & Osborn, 2012). Instrumental support was also identified in the literature as tangible or financial support (Rees, Karter & Young, 2010).

**Antecedents**

Antecedents are the events that must occur prior to the occurrence of the concept (Walker & Avant, 2005). The antecedents identified for social support are health status and/or illness and social networks. Health status or illness is the first antecedent in social support. The antecedent in this review of the literature is type 2 diabetes.

A social network is defined as a unit of social structure that consists of an individual’s social ties and the ties among them (Gottlieb & Bergen 2010). Support from family and social
networks have been found to influence self-care in chronic illnesses. Conceptually, social networks are assessed by using proxy variables such as marriage status and neighbor visits (Gottlieb & Bergen 2010; Venkataraman et al. 2012).

**Consequences**

Studies in this review directly associated social support with improved diabetes self-management behaviors. In a cross-sectional survey, Rosland et al. (2014) identified patterns of associations between emotional social support and specific diabetes self-management behaviors in 13,366 ethnically diverse patients. Emotional support was significantly associated with increase adherence to recommended healthy eating regimen, physical activity levels, and checking feet daily. However, there was no association between oral diabetes medications, insulin, SMBG, or primary care appointments and emotional support (Rosland et. al., 2014). Emotional support and informational support were associated with increase in exercise, diet, and foot care in a study conducted by McEwen et al., 2010.

Overall, social support did not influence physiological outcomes such as HbA1C levels, basal metabolic index (BMI) or lipid levels. McEwen et al. (2010) identified no change in HbA1C or BMI after 6 months in a culturally tailored diabetes self-management social support program in Mexican Americans. In a cross-sectional study, family support and marital status were not associated with a decrease in HbA1 levels (Venkataraman et al., 2012). In a study conducted by Rees et al. (2010), emotional and financial support had no impact on HbA1C levels, diastolic BP, LDL levels in Latino and African Americans with diabetes.

The behavioral outcomes of social support identified in the literature were improved diabetes self-management activities. Emotional support was significantly associated with increased adherence to recommended healthy eating regimen, physical activity levels, and
checking feet daily (Rosland et al., 2014). Emotional support and informational support were associated with increase in exercise, diet, and foot care (McEwen et al., 2010).

**Empirical Referent**

In this review of the literature, social support was measured using several tools. The most frequently used tool was the Social Support Survey Instrument developed for patients in the Medical Outcomes Study (MOS-SS). This instrument measures five dimensions of perceived social support: tangible, emotional, positive social interaction, affectionate and appraisal support (Chew, Khoo, & Chia, 2011). The minimum score for the MOS-SS is 19 and the maximum score is 95. A high score indicates better social support. In a cross-sectional study with 175 participants, Chew et al. (2011) examined the association between social support and glycemic control in Asian adults. In this study, the MOS-SS was translated into Malay and Mandarin. The Cronbach’s alpha was .96 for both translated scales (Chew et al. 2011). Huang, Courtney, Edwards & McDowell (2010) also used the MOS-SS instrument in a cross-sectional design to identified social support as a protective factor in 334 Asian adults with type 2 diabetes.

Table 1.1. Summary of Reviewed Studies for Social Support and Diabetes Self-Management

<table>
<thead>
<tr>
<th>Author</th>
<th>Complementary Terms</th>
<th>Antecedents</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chew et al 2011</td>
<td>Perceived</td>
<td>Type 2 diabetes, Family</td>
<td>Tangible support, Emotional support, Informational support</td>
</tr>
<tr>
<td>Fortmann et al 2011</td>
<td>Perceived</td>
<td>Type 2 diabetes, Social network: family and friends, health care providers, community and personal support.</td>
<td>Informational support</td>
</tr>
<tr>
<td>Huang et al 2010</td>
<td>Perceived</td>
<td>Type 2 diabetes</td>
<td>Emotional support, Informational support, Instrumental (Tangible)</td>
</tr>
<tr>
<td>Rosland et al, 2014 (DISTANCE Study)</td>
<td>Perceived</td>
<td>Type 2 diabetes</td>
<td>Emotional support, Social connectedness</td>
</tr>
<tr>
<td>Author</td>
<td>Complementary Terms</td>
<td>Antecedents</td>
<td>Attributes</td>
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</tr>
<tr>
<td>Nundy et al 2013</td>
<td>Enacted Illness specific General</td>
<td>Social Network Index (SNI); 1 point for being married, or living as married; one point for having 3 or more friends, one point for attending religious services.</td>
<td>Informational support</td>
</tr>
<tr>
<td>Mayberry &amp; Osborn 2012</td>
<td>Perceived Illness specific</td>
<td>Type 2 diabetes</td>
<td>Informational support</td>
</tr>
<tr>
<td>McEwen et al 2010</td>
<td>Enacted Illness specific</td>
<td>Type 2 diabetes</td>
<td>Informational support, Emotional support, Instrumental support</td>
</tr>
<tr>
<td>Misra et al 2009</td>
<td>Perceived General</td>
<td>Type 2 diabetes</td>
<td>Informational</td>
</tr>
<tr>
<td>Rees et al 2010</td>
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<td>Type 2 diabetes</td>
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<td>Perceived</td>
<td>Type 2 diabetes</td>
<td>Emotional support</td>
</tr>
<tr>
<td>Watkins et al 2013</td>
<td>Perceived</td>
<td>Type 2 diabetes</td>
<td>Instrumental</td>
</tr>
<tr>
<td>Wu et al 2013</td>
<td>Perceived Enacted</td>
<td>Type 2 diabetes Counseling Sessions</td>
<td>Informational support</td>
</tr>
</tbody>
</table>

**Theoretical Framework**

The Social Cognitive Theory (SCT) began as the Social Learning Theory (SLT) Bandura (1977). The five constructs developed as a part of the SLT were reciprocal determinism, behavioral capability, observational learning, reinforcements and expectations. Reciprocal determinism refers to the interaction between person, environment, and behavior. Behavioral capability is the person’s actual ability to perform a behavior through essential knowledge and skills. Observational learning is the belief that a person can witness a behavior or action and then reproduce those actions. Reinforcements are the external or internal responses that to a
person’s behavior that influences the likelihood of continuing or discontinuing the behavior. Expectations refer to the anticipated consequences for a person’s behavior (Bandura, 1977).

The SCT developed in 1986, is a psychosocial model of health that attempts to explain human behavior. The SCT suggests that learning occurs in a social context with a dynamic and reciprocal interaction of the person (Bandura, 2004). The constructs identified in the SCT are knowledge, perceived self-efficacy, outcome expectancy, socio-structural factors, and behaviors. The two main constructs identified by Bandura in the SCT are perceived self-efficacy and outcome expectancy (2004, p.144). Self-efficacy, the pivotal construct, is the conviction that one can successfully execute the behavior required to produce the outcome. Outcome expectancy represents a person’s belief that a given behavior will or will not produce a certain outcome (Bandura, 2004). Beliefs of self-efficacy affect health directly by their impact on goals, outcome expectations, perceived facilitators, and impediments. The underlying assumption of the SCT is that people will behave in ways that lead to positive outcomes. The outcomes in the SCT are physical outcomes, social outcomes, and self-evaluative outcomes (Bandura, 2004).

In the SCT, knowledge of health risks and benefits creates need for change. Lack of knowledge about lifestyle habits causes little or no need for change. Socio-structural factors are facilitators and impediments to behaviors and are hypothesized to affect health behaviors. The main construct in the SCT is self-efficacy. Self-efficacy has been shown to have beneficial effects in a wide variety of health outcomes including: physical exercise (Young, Plotnikoff, Collins, & Morgan 2014) diabetes self-management (Nowen et. al, 2009), and human immunodeficiency virus infection treatment (Nokes et al. 2012). In the social cognitive model, social support is an environmental influence that interacts with behavior, cognitive, and other personal factors that mediates or influences health outcomes.
Case Studies

The following case studies were created to provide some clarity about the concept of social support among African Americans.

Model Case

Mr. D. is a 35-year-old African American male who was diagnosed with type 2 diabetes 2 years ago. He has been managing his diabetes with diet and oral medications. His wife has grown increasingly concerned about his health because he is tired all the time and he has gained some weight. Mr. D.’s states he feels fine and contributes his weight gain and fatigue to stress at work. Mr. D.’s wife encourages him daily to eat healthy at work. She sends him text messages at lunchtime with a spiritual quote and a reminder to check his glucose level.

Mr. D.’s wife has been documenting subtle changes in his health and eating patterns. She eventually decides to schedule an appointment for him to visit his primary care physician for his annual check-up.

This model case includes all attributes of social support. Mr. D.’s wife provides emotional support by sending spiritual messages daily. Instrumental support is provided by scheduling the doctor’s appointment. Informational support is documenting and informing Mr. D of the observable changes in his health.

Borderline Case

James is a 24-year-old African American male who was diagnosed with type 2 diabetes 3 years ago. James works out religiously and has even considered bodybuilding. James is very self-conscious about what he puts in his body and what information he shares with his close friends. He manages his diabetes with diet and exercise. During a 3-hour work out session with John, James becomes lightheaded and dizzy. John notices that James has become fatigued;
John encourages James to continue to work out. John states, “no pain, no gain.” Social support did not occur in this contrary case because James did not disclose is health status to John (a member of his social network). Health status is an antecedent to social support. 

**Contrary Case**

Nicole is a 30-year-old African American who just recently got accepted to the nursing program at a local community college. Nicole is a nontraditional student who has been working as a certified nursing assistant for 10 years to support herself and her 5-year-old daughter. Nicole visited the campus medical center for what she thought was a spider bite on her leg. The campus medical center refused to see Nicole because she did not have the required medical insurance required by the community college. Three months later, Nicole decided to visit the emergency room and was diagnosed with type 2 diabetes.

This is a contrary case of social support because the clinic did not provide Nicole with any resources to assist her. Even though the clinic could not see her, informational support was not provided.

**Summary**

Social support is multidimensional and conceptualized in a variety of ways. The complementary terms for social support are enacted, perceived, formal, informal, illness specific, and general. The attributes of social support are emotional, instrumental, and informational. The antecedents of social supports are health status and social networks. The multiple uses of the term and multiple measurement tools confound the concept of social support. Many researchers refer to social support in general terms not addressing the specific structural and functional dimensions of social support.
Most quantitative studies in this review used large samples and wide age ranges; very few studies focused primarily on young adults or older adults. The role of social support may differ for these populations. Although these studies had notably racially diverse samples, only two studies explored race related questions regarding diabetes self-management activities and social support (Misra & Lager, 2009; Rees et al., 2010). Therefore, limited evidence is available about the potential ethnical and racial differences in social support and diabetes self-management activities. The experimental study included multiple types of social support within a pretest and posttest design, which may confound the influence of social support.
CHAPTER 3: METHODOLOGY

Overview

Diabetes self-management activities are essential to managing diabetes (Powers et al. 2015). Minorities diagnosed with type 2 diabetes report difficulty with diabetes self-care activities including: physical exercise, blood glucose testing, and dietary management (Powers et al. 2015). Diabetes self-management support activities (DSMS) can assist individuals in implementing and sustaining behaviors needed to manage diabetes (Haas et al., 2014).

Purpose

The purpose of this dissertation project is to use Norbeck’s Social Support Questionnaire (NSSQ) and Summary of Diabetes Self-Care Activities (SDSA) to examine the relationships between types and strengths of social support and selected diabetes self-care activities (e.g., diet, exercise, daily blood sugar testing, foot care, medications) in adult African Americans with diabetes at a health care clinic in Southern Illinois.

Aims & Research Questions

Specific Aim 1.

Describe the demographics of the African American patients with type 2 diabetes participating in this study.

Research Question for Specific Aim 1:

1. What are the demographic characteristics of the sample population in this study?

Specific Aim 2.

Examine the reliability of the Norbeck’s Social Support Questionnaire in the sample population of the study.

Research Question for Specific Aim 2:
2. What is the reliability of the Norbeck’s Social Support Questionnaire in a sample population of African Americans with type 2 diabetes?

Specific Aim 3.

Describe the associations between social support (emotional and instrumental support), and self-care activities (exercise, general diet, specific diet, blood sugar testing, and foot care).

Research Question for Specific Aim 3:

3. What are the associations between social support (emotional and instrumental support), and self-care activities (exercise, general diet, specific diet, blood sugar testing, and foot care)?

Participants

A random sample of participants was selected from the health care clinic in Southern Illinois. Once participants were checked in with the receptionist in the clinic, the researcher identified whether or not the participants met the research criteria. Once criteria were met and participants were informed of the purpose of the research, every other person who met the criteria was invited to participate in the research.

Inclusion/Exclusion Criteria

The following were the inclusion criteria for eligibility for enrollment in this study: African American; an adult ≥ age 18; have a diagnosis of type 2 diabetes; be able to read and write English.

Recruitment Plan

Participants were recruited in the waiting area of the clinic.

Power Analysis

A priori power analysis was conducted using G*Power 3.9.2 to determine the sample size for this correlational study. A priori power analysis indicated for an effect size of 0.3, alpha of
0.05, and power of .80, a minimum of 84 African American participants would be needed for a two-tailed correlational analysis with correlation bivariate normal model (Faul, Erdfelder, Lang, & Buchner, 2007).

**Study Protocol Instructions to Participants**

Participants were asked to complete the demographic survey by selecting the responses that were most accurate. For the SDSCA survey participants were asked to complete the survey based on the past 7 days. If participants were sick, they were then asked to think back to the last 7 days when they were not sick and answer the survey. The NSSQ required more detailed instructions. Participants were first asked to list all the significant individuals in their lives and their relationship. Once significant individuals and their relationships were identified, participants were then required to answer questions about those individuals and the support they provided.

**Study Design**

A descriptive correlational design was used to measure the relationships between demographics, social support (emotional and instrumental support) and diabetes self-management activities in the sample population.

**Setting**

Southern Illinois Regional Wellness Center (SIRWC) is a federally qualified health care look-alike center located in Southern Illinois. SIRWC averages approximately 500 patients per month. The clinic provides primary care to an ethnically diverse patient population.

**Variables / Operational Definitions**

*Dependent Variables*
The dependent variables include general diet, specific diet, exercise, foot care, and blood sugar testing. The SDSCA is an instrument that assesses self-reported, self-care activities completed during the previous week. The instrument’s first ten items are summed and pair wise averages to five subscale scores. The five subscales are general diet, specific diet, exercise, blood glucose testing, and foot care. General diet refers to prescribed diet whereas specific diet refers to a diet that is rich in fruits and vegetables or high fat foods. In a review of 7 studies, Toobert et al. (2000) reported that the SDSCA instrument had good consistency with the exception of the subscale specific diet. Toobert et al. (2000) reported the average inter-item correlation high (mean= 47). The SDSCA instrument was revised dropping the specific diet scale and adding foot care scale to the instrument (Toobert et al., 2000). Scores are calculated for each area creating five subscales: diet, exercise, blood glucose testing, foot checks, and smoking status. Numerical scoring of items is based on the number of days of the week each behavior is performed (0-7 days); then compared to a standard score with a mean of zero and a standard deviation of one. A mean number is then calculated for each area by averaging the standard scores (Toobert et al., 2000). Participant burden is minimal; as the minimal time required for administration is 5-10 minutes. The revised SDSCA instrument was used to measure the dependent variables.

Independent Variables

Emotional support and tangible support were measured using the NSSQ. The NSSQ scale was developed in 1981 and revised in 1995. The original scale measured the domains or concepts of affect, affirmation, and aid. The revised NSSQ instrument measures perceived social support (emotional and tangible subscales) using an 8-item Likert scale ranging from 0-4 (0 not at all, 4 a great deal). The revised scale combined the Affect and Affirmation subscales into the Emotional Support subscale. The instrument also includes loss of network support.
Internal Consistency and Reliability Tests

To test internal consistency and reliability, Pearson correlations were performed with the following results; affect, .97; affirmation, .96; and aid, .89 (Norbeck, Lindsey, & Carrieri, 1981). Zachariah (1996) calculated internal consistency of the Emotional Support subscale (combining items from the Affect and Affirmation subscales) alpha was .97. Gigliotti (2002) confirmed construct validity with Cronbach’s alphas from .91 - .98 in mothers’ enrolled in college.

Data Analysis

Quantitative data analysis was conducted using the SPSS Computer Software version 21. Data were entered into SPSS 21.0. Data analysis included descriptive statistics, reliability testing, and correlational analysis.

1. Descriptive statistics were used to describe the demographic trends in the sample population
2. Cronbach’s alpha was used to examine the reliability of the standardized instruments within the study population.
3. Pearson/Spearman’s correlation coefficients and/or cross tabulations were used to examine relationships between demographics, social support and self-care activities variables.

Human Subjects’ Protection Considerations

The study received approval from the University of Hawai’i Institutional Review Board (UHM IRB). The investigator obtained informed consent from all eligible subjects prior to enrollment at Southern Illinois Regional Wellness Clinic (SIRWC). SIRWC ceded review for protection of human subjects to UHM IRB. Data were coded with identification numbers to protect patient identity and secured in locked files in the principle investigator’s office.
**Strengths & Limitations**

Strength of this study is the potential contribution of new knowledge about how social support influences self-management activities of low income African Americans diagnosed with type-2 diabetes. Norbeck’s Social Support Instrument will be used in the diabetes population. Limitations of this study include the small sample size and use of a single clinic setting to recruit participants.
CHAPTER 4: RESULT

Demographic Data

Description of Sample

A random sample was selected by identifying participants who met the criteria to participate in the study. Once the criteria were met, every other participant was invited to participate in the study. Eighty-five participants were included in this study sample consisting of 60 women and 25 men. The mean age range of the participants was 45-59 years of age. Less than 15% had some college but no degree. Forty-three percent had a high school degree or equivalent while 31% had less than a high school degree. Forty-one percent of the participants stated they were disabled or not able to work; while 20% worked full-time. Out of the 85 participants, only 8 participants reported having private insurance while 90% reported having social health care programs for families and individuals of low incomes such as Medicaid, Harmony, Wellcare, or Molina. Sixty-two percent of the participants were non-smokers.

Self-Care Activities

The Summary Diabetes Self-Care Activities Instrument (SDSCA) was used to determine participants’ diabetes self-care behaviors. Participants followed a healthful eating plan 4.2 days out of the week. Healthful eating plan was described as general diet plan. A specific diet was followed 4.6 days out of 7 days of the week. A specific diet included five or more servings of fruits and vegetables as well as high fat foods such as red meats or full-fat dairy products. Participants exercised 3.2 days out of 7 days a week. Daily blood glucose testing was performed 4.8 days out of 7 days of the week. Participants performed foot care 4.5 days out of the week.
Table 2.1. Summary of Demographics (n=85)

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>25</td>
<td>29.4</td>
</tr>
<tr>
<td>Female</td>
<td>60</td>
<td>70.6</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>12</td>
<td>14.1</td>
</tr>
<tr>
<td>Widowed</td>
<td>24</td>
<td>28.2</td>
</tr>
<tr>
<td>Divorced</td>
<td>13</td>
<td>15.3</td>
</tr>
<tr>
<td>Separated</td>
<td>8</td>
<td>9.4</td>
</tr>
<tr>
<td>Single, cohabitating</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>Single, never married</td>
<td>26</td>
<td>30.6</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $20,000</td>
<td>62</td>
<td>72.9</td>
</tr>
<tr>
<td>$20,000-$34,999</td>
<td>17</td>
<td>20.0</td>
</tr>
<tr>
<td>$35,000-$49,000</td>
<td>6</td>
<td>7.1</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>26</td>
<td>30.6</td>
</tr>
<tr>
<td>High school or GED</td>
<td>37</td>
<td>43.5</td>
</tr>
<tr>
<td>Some college/no degree</td>
<td>13</td>
<td>15.3</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>4</td>
<td>4.7</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>Insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Insurance</td>
<td>10</td>
<td>11.8</td>
</tr>
<tr>
<td>Social Health Programs</td>
<td>75</td>
<td>88.2</td>
</tr>
</tbody>
</table>
Social Supports

The NSSQ was used to assess social support. The tool measures emotional support and instrumental (aid) support, the higher the number indicates the greater the support. The mean support for instrumental support (aid) in this population was 17.63, while emotional support was higher at 38.45. Emotional and instrumental support scales were combined to create the subscale of functional support. The total network subscale was formed by combining the number of individuals listed as support in the network, length or duration of time that individual has been known, and frequency of contact with that individual. The mean total functional support and network support were 56.09 and 28.69, respectfully.

Table 2.2. Summary of Descriptive Statistics (n=85)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean (±SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDSCA – General Diet</td>
<td>4.235 (2.59)</td>
</tr>
<tr>
<td>SDSCA – Specific Diet</td>
<td>4.459 (1.88)</td>
</tr>
<tr>
<td>SDSCA - Exercise</td>
<td>3.212 (2.61)</td>
</tr>
<tr>
<td>SDSCA – Blood Glucose</td>
<td>4.818 (2.77)</td>
</tr>
<tr>
<td>SDSCA – Foot care</td>
<td>4.454 (2.52)</td>
</tr>
<tr>
<td>NSSQ - AID</td>
<td>17.63 (13.32)</td>
</tr>
<tr>
<td>NSSQ – Emotional Support</td>
<td>38.45 (27.96)</td>
</tr>
<tr>
<td>NSSQ – Functional Support</td>
<td>56.09 (40.85)</td>
</tr>
<tr>
<td>NSSQ – Network Support</td>
<td>28.69 (21.46)</td>
</tr>
</tbody>
</table>
Internal Consistency & Reliability

The second aim of this study was to examine and describe the internal consistency and reliability of the NSSQ in the sample population. A bivariate correlations matrix and Cronbach’s alpha were used to examine internal consistency via inter-item and item-total correlations.

Cronbach’s Alpha

Tables 3-1 and 3-2 reveal the reliability statistics of the NSSQ in the sample. The Cronbach’s alpha for the 6 item NSSQ was .99. The Cronbach’s alpha for the emotional scale was .989 and .973 for the aid scale.

Table 3.1. Inter-Item Correlation Matrix for NSSQ

<table>
<thead>
<tr>
<th></th>
<th>emo1tots</th>
<th>emo2tots</th>
<th>emo3tots</th>
<th>emo4tots</th>
<th>AID1tots</th>
<th>AID2tots</th>
</tr>
</thead>
<tbody>
<tr>
<td>emo1tots</td>
<td>1.000</td>
<td>.994</td>
<td>.957</td>
<td>.957</td>
<td>.943</td>
<td>.939</td>
</tr>
<tr>
<td>emo2tots</td>
<td>.994</td>
<td>1.000</td>
<td>.957</td>
<td>.956</td>
<td>.945</td>
<td>.937</td>
</tr>
<tr>
<td>emo3tots</td>
<td>.957</td>
<td>.957</td>
<td>1.000</td>
<td>.938</td>
<td>.935</td>
<td>.897</td>
</tr>
<tr>
<td>emo4tots</td>
<td>.957</td>
<td>.956</td>
<td>.938</td>
<td>1.000</td>
<td>.912</td>
<td>.899</td>
</tr>
<tr>
<td>AID1tots</td>
<td>.943</td>
<td>.945</td>
<td>.935</td>
<td>.912</td>
<td>1.000</td>
<td>.950</td>
</tr>
<tr>
<td>AID2tots</td>
<td>.939</td>
<td>.937</td>
<td>.897</td>
<td>.899</td>
<td>.950</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Alpha=.99; Reliability Coefficients 6

Table 3.2. Item Total Statistics for NSSQ

<table>
<thead>
<tr>
<th></th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>emo1tots</td>
<td>46.0353</td>
<td>1126.820</td>
<td>.985</td>
<td>.990</td>
<td>.985</td>
</tr>
<tr>
<td>emo2tots</td>
<td>46.0588</td>
<td>1116.604</td>
<td>.985</td>
<td>.989</td>
<td>.985</td>
</tr>
<tr>
<td>emo3tots</td>
<td>46.8588</td>
<td>1193.337</td>
<td>.959</td>
<td>.935</td>
<td>.988</td>
</tr>
<tr>
<td>emo4tots</td>
<td>46.9647</td>
<td>1167.749</td>
<td>.954</td>
<td>.922</td>
<td>.988</td>
</tr>
<tr>
<td>AID1tots</td>
<td>47.3647</td>
<td>1196.068</td>
<td>.959</td>
<td>.940</td>
<td>.988</td>
</tr>
<tr>
<td>AID2tots</td>
<td>47.1882</td>
<td>1168.583</td>
<td>.944</td>
<td>.925</td>
<td>.989</td>
</tr>
</tbody>
</table>
Correlations

Correlation analysis is used to describe the direction and strength of linear relationship (Pallant, 2010). Pearson’s correlation coefficient was used to measure the relationship between social support and diabetes self-care activities. Pearson’s correlation coefficient (Pearson $r$) is used to measure interval data (continuous variables).

The final aim of this study was to examine the associations between NSSQ social support and diabetes self-care activities such as diet, general diet, exercise, foot care, and blood glucose testing. The self-care activity ‘Foot care’ was negatively associated with ‘emotional’ social support. Participants were asked how many of the last seven days did you check your feet and on how many of the last seven days did you inspect the inside of your shoes? There was a significant negative association found between foot care and emotional support, $r = -.220$, $p$ (2-tailed) = .043. A significant negative association between foot care and total network support, $r = -.251$, $p$ (2-tailed) = .021. A significant negative association was also found between foot care and total functional support, $r = -.214$, $p$ (2-tailed) = .05.

Summary of Diabetes Self-Care Activities Tool were then analyzed for additional information regarding foot care. The analysis of the additional information revealed a significant positive relationship between participants washing their feet and emotional support, aid support, and functional support, $r = .255$, .253, .257 (all $ps < 0.05$). Therefore, this correlation indicates that foot care is being performed; however, the negative correlation may indicate the participants may not be performing the care themselves.
Table 4.1. Correlations between Support and Self-care

<table>
<thead>
<tr>
<th></th>
<th>General Diet</th>
<th>Specific Diet</th>
<th>Exercise</th>
<th>Blood Sugar Testing</th>
<th>Foot Care</th>
<th>Question 6A: Recommended diabetes medications</th>
<th>Questions 8A: Recommended number of diabetes pills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional</td>
<td>-0.070</td>
<td>0.076</td>
<td>0.005</td>
<td>0.140</td>
<td>-0.220*</td>
<td>0.097</td>
<td>0.084</td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.525</td>
<td>0.488</td>
<td>0.965</td>
<td>0.202</td>
<td>0.043</td>
<td>0.377</td>
<td>0.444</td>
</tr>
<tr>
<td>N</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>AID</td>
<td>-0.090</td>
<td>0.136</td>
<td>-0.034</td>
<td>0.142</td>
<td>-0.193</td>
<td>0.082</td>
<td>0.068</td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.412</td>
<td>0.213</td>
<td>0.755</td>
<td>0.195</td>
<td>0.076</td>
<td>0.456</td>
<td>0.537</td>
</tr>
<tr>
<td>N</td>
<td>85</td>
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<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>TLFUNCT</td>
<td>-0.077</td>
<td>0.097</td>
<td>-0.008</td>
<td>0.142</td>
<td>-0.214*</td>
<td>0.093</td>
<td>0.080</td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.482</td>
<td>0.379</td>
<td>0.942</td>
<td>0.195</td>
<td>0.050</td>
<td>0.397</td>
<td>0.468</td>
</tr>
<tr>
<td>N</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>TLNETW RK</td>
<td>-0.120</td>
<td>0.049</td>
<td>-0.030</td>
<td>0.150</td>
<td>-0.251*</td>
<td>0.089</td>
<td>0.071</td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.276</td>
<td>0.657</td>
<td>0.789</td>
<td>0.172</td>
<td>0.021</td>
<td>0.423</td>
<td>0.519</td>
</tr>
<tr>
<td>N</td>
<td>84</td>
<td>84</td>
<td>84</td>
<td>84</td>
<td>84</td>
<td>84</td>
<td>84</td>
</tr>
<tr>
<td>TILoss</td>
<td>0.114</td>
<td>0.121</td>
<td>-0.115</td>
<td>-0.223</td>
<td>0.061</td>
<td>-0.031</td>
<td>-0.031</td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.612</td>
<td>0.590</td>
<td>0.612</td>
<td>0.320</td>
<td>0.787</td>
<td>0.890</td>
<td>0.890</td>
</tr>
<tr>
<td></td>
<td>General Diet</td>
<td>Specific Diet</td>
<td>Exercise</td>
<td>Blood Sugar Testing</td>
<td>Foot Care</td>
<td>Question 6A: Recommended diabetes medications</td>
<td>Questions 8A: Recommended number of diabetes pills</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>---------------</td>
<td>----------</td>
<td>---------------------</td>
<td>-----------</td>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
</tbody>
</table>

*.Correlation is significant at the 0.05 level (2-tailed). TLFUNCT=Total Functional Network, TLNETWRK=Total Network Size, TILoss=Total Network Loss
**Table 4.2. Correlations Between Social Support and Foot Care**

<table>
<thead>
<tr>
<th></th>
<th>Check your feet</th>
<th>Inspect inside your shoes</th>
<th>How many of the last seven wash feet?</th>
<th>How many of the last seven days do you soak your feet?</th>
<th>Question 11A: Dry between your toes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emosup</td>
<td>Pearson Correlation</td>
<td>-0.018</td>
<td>-0.322**</td>
<td>0.255*</td>
<td>0.124</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.872</td>
<td>.003</td>
<td>.019</td>
<td>.259</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Pearson Correlation</td>
<td>-0.014</td>
<td>-0.285**</td>
<td>0.253*</td>
<td>0.094</td>
</tr>
<tr>
<td>AID</td>
<td>Sig. (2-tailed)</td>
<td>.901</td>
<td>.008</td>
<td>.020</td>
<td>.391</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Pearson Correlation</td>
<td>-0.017</td>
<td>-0.313**</td>
<td>0.257*</td>
<td>0.116</td>
</tr>
<tr>
<td>TLFUNCT</td>
<td>Sig. (2-tailed)</td>
<td>.880</td>
<td>.004</td>
<td>.018</td>
<td>.292</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Pearson Correlation</td>
<td>-0.054</td>
<td>-0.341**</td>
<td>0.258*</td>
<td>0.127</td>
</tr>
<tr>
<td>TILoss</td>
<td>Sig. (2-tailed)</td>
<td>.629</td>
<td>.002</td>
<td>.018</td>
<td>.250</td>
</tr>
<tr>
<td></td>
<td>N</td>
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**Independent-Samples T-Test**

Independent-samples t-tests are used to compare mean scores for continuous variables for two different groups. Independent-samples t-tests were used to compare demographic data with social support and diabetes self-care activities.
An independent-samples t-test was conducted to compare social support variables for males and females. There was significant difference in social support for females compared to males. There was a significant difference in total functional support for female (M=63.41, SD=44.85) and males (M= 38.52, SD= 20.95; t (81.811) = 3.483, p=.001, two-tailed). There was no significant difference in total network social support, which includes frequency and duration of support, for female (M= 32.41, SD= 23.59) and males (M= 19.37, SD= 10.41; t (83) = 2.65, p=.011, two tailed). There were no significant differences in income or education with social support variables and diabetes self-care activities (Appendix C).

Table 5.1. Independent-Samples T-Test Gender and Social Support Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender</th>
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<th>Mean</th>
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Table 5.2. Independent Samples Test for Social Support Variables

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Note: Equal variances assumed/Not assumed.
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Table 5.3. Independent Samples Test for Total Scores and Mean Number of Days

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Summary

A total of 110 people were invited to participate in this research study, 25 people refused and 85 people participated. The mean age range of the participants was 45-69 years of age. Women represented 70% of the sample population. In the current study, the Cronbach’s alpha coefficient was .81 for the SDSCA scale. The Cronbach’s alphas for social support were .98 emotional scale and .97 for the aid scale.
Chapter 5: Discussion

Rationale for the Study

Diabetes self-management is a multidimensional process that requires a person with diabetes to perform complex activities daily (Powers et al. 2015). Diabetes self-management education and support (DSME/S) have been found to assist individuals with self-management decisions and activities (Powers et. al. 2015). Diabetes poses an economic and health burden for African Americans; therefore, it is essential to determine which factors enhance self-management activities in this population.

Background of the Study

The purpose of the study was to examine the relationships between types and strengths of social support and selected diabetes self-care activities (e.g., diet, exercise, daily blood sugar testing, foot care, and medications) in adult African Americans with diabetes.

The aims were to 1. Describe the demographics of the African American patients with type 2 diabetes participating in this study, 2. Examine the reliability of the NSSQ in the sample population of the study, and 3. Describe the associations between social support (emotional and tangible support), and self-care activities (exercise, general diet, specific diet, blood sugar testing, and foot care).

Interpretation of the Findings

Examination of the internal consistency and tool reliability supports the use of the NSSQ in low income African Americans. The psychometric analysis of the NSSQ in this sample of low income African Americans was consistent with previous studies. Cronbach alpha for both the emotional and aid scales were higher in this study compared to previous studies. According to Gigliotti, (2002), the NSSQ has good internal consistency with Cronbach alphas reported of
.97; the Affect subscale .98, the Affirmation subscale .97, and the Aid subscale .91. In the current study, the calculated Cronbach alpha for the 6-item NSSQ was .99; the Emotional scale .98 and .97 for the Aid subscale.

**Concordance with the literature/conceptual framework**

According to the Social Cognitive Theory (SCT), socio-structural factors, such as social support, are facilitators and impediments to behaviors and are hypothesized to affect health behaviors (Bandura, 2004). Based on the SCT, there is interaction between the person, the environment, and the outcome behavior. The SCT was used to help explain the relationship between person and environment (social support) and self-care activities of diabetes mellitus.

These finding of this research are similar to Vaccaro et al. (2014) and Fortmann et al. (2015). Vaccaro et al. (2014) conducted a cross-sectional study with Haitian Americans, African Americans, and Cuban Americans in South Florida. Overall, the participants in this study reported an income of < $20,000. Perceived social support was measured using a composite scale Functional Social Support (FSS) and diabetes self-management was measured using hemoglobin A1C. Results from the study found that functional social support significantly correlated with hemoglobin A1C control in Haitian Americans but not African American (Vaccaro et al., 2014).

Fortmann et al. (2015) conducted a cross sectional study with 766 Hispanic participants who completed the Social Network Index (SDI) to measure social support and reported hemoglobin A1C to measure glycemic control. The researcher found that greater functional support was associated with poorer glycemic control in Hispanics. Structural support (existence of relationships; network size, frequency, and duration) did not have a significant correlation with glycemic control.
Limitations of the study

Findings of the study should be interpreted within several limitations. This was a cross-sectional study. The cross-sectional design does not allow for causality to be determined. Participants self-reported their self-care behaviors and social support, which may be biased, especially since the survey was in a health care clinic. And lastly, the survey was administered at the health care clinic where participants received care and may have influenced participants to provide social desirable responses.

Conclusion

Implications for future research/direction

This research provides additional information about the association between social support and diabetes self-care activities for low income African Americans with type 2 diabetes. Future research could involve qualitative analysis and mixed method analysis of social support and how it influences diabetes self-care activity in African Americans. Specifically, how functional support influences foot care and who performs foot care. Although this study showed that emotional support was not correlated with diabetes self-care activities, it will be helpful for practitioners to understand the role of social support in low income African Americans and design interventions to support patients and family members.

Recommendations for future research

Recommendations for future research include the inclusion of more men in the population sample as well as changes to demographic data collection. Men represented only 29% (n=25) of the sample population. The demographic survey prompted participants to select age ranges versus specific ages.
References


The Summary of Diabetes Self-Care Activities

The strengths of the 11 core items of the revised SDSCA include their brevity and ease of scoring, which make them practical to use both clinically and in research. Their use in past research provides valuable information on norms, reliability, and validity, against which new data can be evaluated. The revised questionnaire is preliminary and it needs replication and use in other samples. We have deliberately placed the SDSCA in the public domain and encourage its use.

Additional self-care items are also provided that address questions of clinical interest but for which little or no reliability and validity data are available. Six additional items address self-care recommendations. These may be useful for clarifying patient understanding of self-management goals, as well as for evaluating congruence between perceived recommendations and reported levels of self-care (adherence). The expanded version of the SDSCA may be used when a particular question is of interest to study investigators or when time permits.

The questions below ask you about your diabetes self-care activities during the past 7 days. If you were sick during the past 7 days, please think back to the last 7 days that you were not sick.

Diet
How many of the last SEVEN DAYS have you followed a healthful eating plan?

0 1 2 3 4 5 6 7

On average, over the past month, how many DAYS PER WEEK have you followed your eating plan?

0 1 2 3 4 5 6 7

On how many of the last SEVEN DAYS did you eat five or more servings of fruits and vegetables?

0 1 2 3 4 5 6 7

On how many of the last SEVEN DAYS did you eat high fat foods such as red meat or full-fat dairy products?

0 1 2 3 4 5 6 7
Exercise

On how many of the last SEVEN DAYS did you participate in at least 30 minutes of physical activity? (Total minutes of continuous activity, including walking).

0 1 2 3 4 5 6 7

On how many of the last SEVEN DAYS did you participate in a specific exercise session (such as swimming, walking, biking) other than what you do around the house or as part of your work?

0 1 2 3 4 5 6 7

Blood Sugar Testing

On how many of the last SEVEN DAYS did you test your blood sugar?

0 2 3 4 5 6 7

On how many of the last SEVEN DAYS did you test your blood sugar the number of times recommended by your health care provider?

0 2 3 4 5 6 7

Foot Care

On how many of the last SEVEN DAYS did you check your feet?

0 2 3 4 5 6 7

On how many of the last SEVEN DAYS did you inspect the inside of your shoes?

0 2 3 4 5 6 7

Smoking

Have you smoked a cigarette—even one puff—during the past SEVEN DAYS?

0. No
1. Yes. If yes, how many cigarettes did you smoke on an average day?

Number of cigarettes: __

Additional Items for the Expanded Version of the Summary of Diabetes Self-Care Activities.

Self-Care Recommendations

1A. Which of the following has your health care team (doctor, nurse, dietitian, or diabetes educator) advised you to do? Please check all that apply:
   a. Follow a low-fat eating plan
   b. Follow a complex carbohydrate diet
   c. Reduce the number of calories you eat to lose weight
   d. Eat lots of food high in dietary fiber
   e. Eat lots (at least 5 servings per day) of fruits and vegetables
   f. Eat very few sweets (for example: desserts, non-diet sodas, candy bars)
   g. Other (specify): __
   h. I have not been given any advice about my diet by my health care team.
2A. Which of the following has your health care team (doctor, nurse, dietitian or diabetes educator) advised you to do? Please check all that apply:
   a. Get low level exercise (such as walking) on a daily basis.
   b. Exercise continuously for a least 20 minutes at least 3 times a week.
   c. Fit exercise into your daily routine (for example, take stairs instead of elevators, park a block away and walk, etc.)
   d. Engage in a specific amount, type, duration and level of exercise.
   e. Other (specify):
   f. I have not been given any advice about exercise by my health care team.

3A. Which of the following has your health care team (doctor, nurse, dietitian, or diabetes educator) advised you to do? Please check all that apply:
   a. Test your blood sugar using a drop of blood from your finger and a color chart.
   b. Test your blood sugar using a machine to read the results.
   c. Test your urine for sugar.
   d. Other (specify):
   e. I have not been given any advice either about testing my blood or urine sugar level by my health care team.

4A. Which of the following medications for your diabetes has your doctor prescribed? Please check all that apply
   a. An insulin shot 1 or 2 times a day
   b. An insulin shot 3 or more times a day
   c. Diabetes pills to control my blood sugar level.
   d. Other (specify):
   e. I have not been prescribed either insulin or pills for my diabetes.

Diet
5A. On how many of the last SEVEN DAYS did you space carbohydrates evenly through the day?
   0 1 2 3 4 5 6 7

Medications
6A. On how many of the last SEVEN DAYS did you take your recommended diabetes medication?
   0 1 2 3 4 5 6 7

OR

7A. On how many of the last SEVEN DAYS did you take your recommended insulin injections?
   0 1 2 3 4 5 6 7

8A. On how many of the last SEVEN DAYS did you take your recommended number of diabetes pills?
   0 1 2 3 4 5 6 7
Foot Care
9A. On how many of the last SEVEN DAYS did you wash your feet?
    0 1 2 3 4 5 6 7
10A. On how many of the last SEVEN DAYS did you soak your feet?
    0 1 2 3 4 5 6 7
11A. On how many of the last SEVEN DAYS did you dry between your toes after washing?
    0 1 2 3 4 5 6 7

Smoking
12A. At your last doctors visit, did anyone ask about your smoking status?
    0. No
    1. Yes

13A. If you smoke. at your last doctor's visit, did anyone counsel you about stopping smoking or offer to refer you to a stop-smoking program?
    0. No
    1. Yes
    2. Do not smoke.

14A. When did you last smoke a cigarette?
    1. More than two years ago. or never smoked
    2. One to two years ago
    3. Four to twelve months ago
    4. One to three months ago
    5. Within the last month
    6. Today

Scoring Instructions for the Summary of Diabetes Self-Care Activities
Scores are calculated for each of the five regimen areas assessed by the SDSCA: Diet. Exercise, Blood-Glucose Testing. Foot-Care. and Smoking Status.

Step 1:
    For items 1- 10. use the number of days per week on a scale of 0-7. Note that this response \scale will not allow for direct comparison with the percentages provided in Table 1.

Step 2: Scoring Scales
    General Diet = Mean number of days for items 1 and 2.
    Specific Diet = Mean number of days for items 3. and 4. reversing item 4 (0=7, 1=6, 2=5, 3=4, 4=3, 5=2, 6=1, 7=0).
    Given the low inter-item correlations for this scale, using the individual items is recommended.
    Exercise = Mean number of days for items 5 and 6.
    Blood-Glucose Testing= Mean number of days for items 7 and 8.
    Foot-Care= Mean number of days for items 9 and 10.
    Smoking Status = Item 11 (0 = non-smoker. 1 =smoker), and number of cigarettes smoked per day
Scoring for Additional Items
Recommended regimen = Items 1A - 4A, and items 12A - 14A. no scoring required.
Diet = Use total number of days for item 5A.
Medications = Use item 6A - OR- 7A AND 8A. use total number of days for item 6A, use mean number of days if both 7A and 8A are applicable.
Foot-Care = Mean number of days for items 9A - 11A. after reversing IOA and including items 9 and 10 from the brief version.

Acknowledgments - Preparation of this report was supported by National Institutes of Health Grants OK 35524 and OK 205 79, and by grant 030103 from the Robert Wood Johnson Foundation.
Demographic Survey

0. Are you male or Female?
   O Female
   O Male

1. Age
   O <18
   O 18-29
   O 30-44
   O 45-59
   O >60

2. Are you White, Black, or African-American, American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, or some other race?
   O White
   O Black or African-American
   O American Indian or Alaskan Native
   O Asian
   O Native Hawaiian or other Pacific Islander
   O From multiple races
   O Some other race (please specify)

3. What is the highest level of school you have completed or the highest degree you have received?
   O Less than high school degree
   O High school degree or equivalent (e.g., GED)
   O Some college but no degree
   O Associate
   O Bachelor Degree
   O Graduate Degree

4. Which of the following categories best describes your employment status?
   O Employed, working full-time
   O Employed, working part-time
   O Not employed, looking for work
   O Not employed, NOT looking for work
   O Retired
   O Disabled, not able to work
5. Which of the following best describes your current relationship status?
   - Married
   - Widowed
   - Divorced
   - Separated
   - In a domestic partnership or civil union
   - Single, but cohabiting with a significant other
   - Single, never married

6. In what ZIP code is your home located? (enter 5-digit ZIP; for example, 00544 or 94305)

7. Do you have any children under 18?
   - Yes
   - No

8. How many people currently live in your household?

9. Who many children, by age currently live in your household?
   - Less than 1 Year old
   - 1 year old
   - 2 years old
   - 3 years old
   - 4 years old
   - 5 years old
   - 6 years old
   - 7 years old
   - 8 years old
   - 9 years old
   - 10 years old
   - 11 years old
   - 12 years old
   - 13 years old
   - 14 years old
   - 15 years old
   - 16 years old
   - 17 years old
   - 18 years old or older
10. How much total combined money did all members of your HOUSEHOLD earn in 2014? This includes money from jobs; net income from business, farm, or rent; pensions; dividends; interest; social security payments; and any other money income received by members of your HOUSEHOLD that are EIGHTEEN (18) years of age or older. Please report the total amount of money earned – do not subtract the amount you paid in taxes or any deductions listed on your tax return.
   - O Less than $20,000
   - O $20,000 to $34,999
   - O $35,000 to $49,999
   - O $50,000 to $74,999
   - O $75,000 to $99,999
   - O $100,000 to $149,999
   - O $150,000 or More

11. What type of medical insurance do you have?
   - O Employer Provided Insurance_________________________(Please Identify)
   - O Medicaid
   - O Harmony
   - O Medicare

12. Religious/Spiritual Affiliation?
   - O Pentecostal
   - O Baptist
   - O Nondenominational
   - O Catholic
**SOCIAL SUPPORT QUESTIONNAIRE**

**PLEASE READ ALL DIRECTIONS ON THIS PAGE BEFORE STARTING**

Please list each significant person in your life on the right. Consider all the persons who provide personal support for you or who are important to you.

Use only first names or initials, and then indicate the relationship, as in the following example:

Example:

<table>
<thead>
<tr>
<th>First Name or Initials</th>
<th>Relationship</th>
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</thead>
<tbody>
<tr>
<td>MARY T.</td>
<td>FRIEND</td>
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<tr>
<td>BOB</td>
<td>BROTHER</td>
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<tr>
<td>H.T.</td>
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<tr>
<td>SAM</td>
<td>FRIEND</td>
</tr>
<tr>
<td>MRS. R.</td>
<td>NEIGHBOR</td>
</tr>
</tbody>
</table>

Use the following list to help you think of the people important to you, and list as many people as apply in your case.

- spouse or partner
- family members or relatives
- friends
- work or school associates
- neighbors
- health care providers
- counselor or therapist
- minister/priest/rabbi
- other

You do not have to use all 24 spaces. Use as many spaces as you have important persons in your life.

**WHEN YOU HAVE FINISHED YOUR LIST, PLEASE TURN TO PAGE 2.**
For each person you listed, please answer the following questions by writing in the number that applies.

0 = not at all 1 = a little
2 = moderately 3 = quite a bit
4 = a great deal

Question 1:
How much does this person make you feel liked or loved?

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 
14. 
15. 
16. 
17. 
18. 
19. 
20. 
21. 
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23. 
24. 

[EMO1]

Question 2:
How much does this person make you feel respected or admired?

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 
14. 
15. 
16. 
17. 
18. 
19. 
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24. 

[EMO2]

Note: Before use, pages 1-4 should be cut along the dashed center line to allow the response lines for Questions 1-6 to align with the Personal Network list on page 5.
0 = not at all 1 = a little
2 = moderately 3 = quite a bit
4 = a great deal

Question 3:
How much can you confide in this person?

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 
14. 
15. 
16. 
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23. 
24. 

Question 4:
How much does this person agree with or support your actions or thoughts?

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 
14. 
15. 
16. 
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24. 

Note: Before use, pages 1-4 should be cut along the dashed center line to allow the response lines for Questions 1-6 to align with the Personal Network list on page 5.
0 = not at all 1 = a little
2 = moderately 3 = quite a bit
4 = a great deal

Question 5:
If you needed to borrow $10, a ride to the doctor, or some other immediate help, how much could this person usually help?

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
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Question 6:
If you were confined to bed for several weeks, how much could this person help you?

1.
2.
3.
4.
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Note: Before use, pages 1-4 should be cut along the dashed center line to allow the response lines for Questions 1-6 to align with the Personal Network list on page 5.
Question 7:
How long have you known this person?
1 = less than 6 months
2 = 6 to 12 months
3 = 1 to 2 years
4 = ≥ 2 years

Question 8:
How frequently do you usually have contact with this person?
(visits, or letters)
1. ______________________ 1. ______________________
2. ______________________ 2. ______________________
3. ______________________ 3. ______________________
4. ______________________ 4. ______________________
5. ______________________ 5. ______________________
6. ______________________ 6. ______________________
7. ______________________ 7. ______________________
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10. ______________________ 10. ______________________
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20. ______________________ 20. ______________________
21. ______________________ 21. ______________________
22. ______________________ 22. ______________________
23. ______________________ 23. ______________________
24. ______________________ 24. ______________________

Please be sure you have rated each person on every question. Go on to the last page.
9. During the past year, have you lost any important relationships due to moving, a job change, divorce or separation, death, or some other reason?

_____ 0. No
_____ 1. Yes [LOSS]

IF YES:

9a. Please indicate the number of persons from each category who are no longer available to you.

____ spouse or partner [LOSS1]
____ family members or relatives [LOSS2]
____ friends [LOSS3]
____ work or school associates [LOSS4]
____ neighbors [LOSS5]
____ health care providers [LOSS6]
____ counselor or therapist [LOSS7]
____ minister/priest/rabbi [LOSS8]
____ other (specify) __________________________ [LOSS9]

9b. Overall, how much of your support was provided by these people who are no longer available to you?

_____ 0. none at all [LOSSNO]
_____ 1. a little
_____ 2. a moderate amount
_____ 3. quite a bit
_____ 4. a great deal
APPENDIX B

Jerrica Ampadu  Principle Investigator

Informed Consent form for men and women invited to participate in research on examining the relationship between social support and diabetes self-management activities in adult African Americans.

Jerrica Ampadu
University of Hawaii
Examining the Relationship Between Social Support and Diabetes Self-management Activities in Adult African Americans

PART 1: Information Sheet

Introduction:
My name is Jerrica and I am a student doing research on how social support influences diabetes self-management activities.

Purpose of the research
Diabetes is one the leading causes of death in the United States. It is important to understand how social support helps individuals manage the disease.

Participant selection
Adults with type 2 diabetes who attend the SIR WC clinic are being invited to participate in the research on diabetes and social support.

Voluntary Participation
Your participation in this research is entirely voluntary. It is your choice whether to participate or not. Whether you choose to participate or not, all the services you receive at this clinic will continue and nothing will change.

Duration
Completion of the surveys will take approximately 15-20 minutes.

Confidentiality
No identifying information is being collected. All completed survey instruments will be kept in a locked cabinet in the researcher’s office. No one else will have access to the information.

Sharing the Results
The knowledge from this research will be shared with the clinic. Confidential information will not be shared. Results may also be published in journals.

Right to Refuse or Withdraw

Page 1 of 2
You do not have to take part in this research if you do not wish to do so. You may also stop participating in the research at any time you choose. It is your choice and all of your rights will still be respected.

This proposal has been reviewed and approved by Institutional Review Board (IRB) at the University of Hawaii at Manoa, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the IRB, contact Human Studies Program, University of Hawaii at Manoa, (808) 956-5007.

PART II: Certificate of Consent

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research.

Print Name of Participant,_______________________
Signature of Participant  — — — — — — — — — — — —
Date ____________ — — —
— Day/month/year

A copy of this Informed Consent has been provided to the participant.

Print Name of Researcher/person taking the consent ____________________________
Signature of Researcher/person taking the consent ____________________________
Date ____________ — — —
— Day/month/year

Page 2 of 2
## APPENDIX C

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\(^a\) Listwise deletion based on all variables in the procedure.

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