Perceptions of Social Support for Healthy Eating and Physical Activity among Low-Income Adults in Rural Alabama

by

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Abstract

Social cognitive and social support theories suggest that psychosocial factors such as social support from friends and family can influence health behaviors (Heaney & Israel, 2008; McAlister, Perry, & Parcel, 2008). Few studies have focused on how social support impacts nutrition and physical activity levels among low-income populations in rural areas. Research linking social support and health practices has not been uniformly consistent, suggesting the relations are complex and possibly influenced by variables common to both social support and health practices (Jackson, 2006).

This study examined levels of social support received from family and friends, healthy eating, physical activity, and behavior modification among adults living in rural Alabama. Adults from specific counties in Alabama with low incomes were included in this study. Demographic data was collected and included: gender, age, education level, race/ethnic group, marital status, and socioeconomic status. This study also evaluated the importance and the effect of this social support on behavior modification practices.

This study used quantitative measures in its design by using the survey method. The data were gathered from two rural low-income communities in Alabama (Macon and Bullock counties) using a Social Support and Eating Habits Survey and a Social Support and Exercise Survey. The surveys with a sample population of 204 participants between the ages of 19-65 were used to measure responses to each of the research questions. Correlations and multiple linear regressions were used to analyze the data collected.

The results demonstrated a statistically significant relationship occurred between social support, behavior modification and perceived perceptions. The information from this study will be used to assist nutrition and health educators with creating more effective behavior

modification instruments to be used for future education purposes, since these factors may influence life expectancy.

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Chapter 1

Introduction

Obesity is the result of consuming more calories than the body can expend. Obesity prevalence in the United States is higher in rural than in urban areas, particularly among people from racial/ethnic minorities. An estimated 40% of rural residents, compared with 33% of urban residents, are obese (body mass index [BMI] ≥30 kg/m2) (Johnson et al., 2014). Thirty percent of U.S. adults 20 years of age and older are obese (Ogden et al., 2006), which increases their risk for health conditions such as hypertension, type 2 diabetes, coronary heart disease, and stroke (Casey et al., 2008). Rural residents face many challenges to a healthy lifestyle. As a result, adults living in rural areas are more likely to be obese and less likely to engage in physical activity than urban residents (Jackson et al., 2005; Patterson et al., 2004). Social factors that are more common in rural areas, including poverty and low levels of education, have been linked to obesity and poor diet quality (Darmon & Drewnowski, 2008; Drewnowski & Specter, 2004).

Abundant evidence for the health benefits of physical activity and diets rich in fruits and vegetables has accumulated in recent years (Kaiser et al., 2010; Shaikh et al., 2008). Despite the well-recognized role in risk reduction for major causes of morbidity and mortality, such as cardiovascular disease, stroke, and type 2- diabetes, the prevalence of these health- promoting behaviors remains low in the United States adult population (Kaiser et al., 2010). Only 50% of adults report moderate or vigorous physical activity at recommended levels, and just 24% report eating five or more daily servings of fruits and vegetables (Center for Disease Control and Prevention [CDC], 2008).

Population subgroups at high risk for inactivity or inadequate diets include people with low incomes and those living in rural areas (Kaiser et al., 2010. People with lower incomes are

less likely to meet recommendations for moderate or vigorous physical activity than people with higher income (National Center for Health Statistics [NCHS], 2007). Studies examining disparities in physical activity have found that rural residents are less likely than people in urban areas to be physically active (Patterson, Moore, Probst, & Shinogle, 2004) and within rural populations, people with lower incomes are less active than people with higher incomes (Parks, Housemann, & Brownson, 2003). People with low-income also report less healthy diets than those with higher incomes (Drewnoski, 2004) and spend less on fruits and vegetables (Stewart, Blissard, & Jolliffe, 2003). Rural areas are home to approximately 70 million people, or 23% of the U.S. population (United States Census bureau, 2008). Compared to their urban counterparts, rural residents experience higher rates of chronic diseases and higher prevalence of all-cause mortality (Cossman, James, Cosby, & Cossman, 2010; Eberhardt, Ingram & Makuc, 2001). Social Support appears to be an important determinant of success in changing these health habits (Sallis, Grossman, Pinski, Patterson, & Nades, 1987), yet few studies have examined the relationship between social support and dietary and physical activity change in a rural low-income population. Social support has been linked to a number of health outcomes, including adherence to medical regimens (Wallston, Alagna, DeVellis & DeVellis, 1983), and success in smoking cessation (Mermelstein, McIntyre, & Lichtenstein, 1983), although the findings have not always been consistent (Malott, Glasgow, O'Neill & Klesges, 1984).

Social support is defined by Heaney and Israel (2008) as "aid and assistance [for health behaviors] exchanged through social relationships and interpersonal transactions" (p.191). House (1981) has identified four specific types of social support: Emotional (expressions of empathy, love, trust, and caring); Instrumental (help through tangible services or aid); Informational (advice, suggestions, and information); and Appraisal (feedback useful for self-

regulation). Social support also impacts behavior. Social support from family and friends, including encouragement or sabotage is associated with dietary behaviors and physical activity. Studies among adults have found beneficial relationships between social support and health-related indicators including FV (Fruit and Vegetables) intake (Shaikh et al., 2008), weight management (Gorin et al., 2005) and physical activity (Prochaska, Rodgers & Sallis, 2002). House et al. (1988) concluded that the impact of social isolation and the lack of social ties on risk for disease is equal to that of high blood pressure, obesity, and lack of exercise and approximates the risk of smoking. More recently, Seeman (1996) concluded that social integration has protective effects in reducing mortality and psychiatric morbidity and that social support effects a range of physiological systems, including immune, neuroendocrine, and cardiovascular.

Mechanisms identified as explaining beneficial health effects of increased social support include reductions in physiological stress responses, enhancement of beneficial neuroendocrine responses, and regulation of emotional responses that dampen the impact of negative affect (Cohen, 1988; Taylor, 2002). Social support may also contribute to physical health by influencing diet, exercise, smoking habits, alcohol intake, sleep, and adherence to medical regimens, all of which have implications for health (Cohen, Underwood, & Gottlieb, 2000). Involvement in a supportive social network might increase predictability, stability, belonging and security, purpose, and self-worth, which are positive psychological states that reduce psychological despair and increase motivation to care for one-self (Jackson, 2006). Social networks may also affect how individuals engage in health-promoting behaviors, (e.g., eating a healthy diet, exercising, and visiting a physician regularly) and decrease unhealthy practices which can lead to illness. High levels of social support have been linked to a healthier diet, reduced risk of weight gain, and increase in physical activity health screenings.

Statement of the Problem

Social cognitive and social support theories suggest that psychosocial factors such as social support from friends and family can influence health behaviors (Heaney & Israel, 2008; McAlister, Perry, & Parcel, 2008). Few studies have focused on how social support impacts nutrition and physical activity levels among low-income populations in rural areas. Research linking social support and health practices has not been uniformly consistent, suggesting the relations are complex and possibly influenced by variables common to both social support and health practices (Jackson, 2006). Three potential influences on such associations are depression, stress or hassles, and socioeconomic status. Depression has links with social support (Joiner & Coyne, 1999) as well as with poorer health practices such as tobacco use and alcohol consumption, lack of physical activity, unhealthy nutrition, and inadequate sleep (Allgower et al., 2001; Ezoe & Morimoto, 1994; Farmer, 1988; Parker, Parker, Hartford, & Farmer, 1987; Patton, 1998). Social relationships and their association with disease, well-being, and health promotion have been studied by researchers in a wide variety of behavioral and medical disciplines (Williams, Agate, Cason & Griffin, 2010), but research focusing on the link between perceived support for healthy eating and physical activity in rural adults has not been widely researched. Research conducted has revealed that individuals with more social support and those who have higher levels of social integration are less likely to have heart attacks, or develop upper respiratory illness, and are more likely to survive breast cancer (Cohen, Underwood & Gottlieb, 2000). Although considerable evidence indicates that social support protects health by reducing the stress response and subjective distress (Cohen, 1988; Taylor, 2002), there is only a small number of studies suggesting that perceptions of increased support from family and friends correspond with specific practices that may influence health in adults living in rural

communities. In recent years an abundance of evidence for the health benefits of physical activity and diets rich in fruits and vegetables has been accumulated by researchers. Even though it is well known that these two play a major role in risk reduction for many diseases, such as cardiovascular disease, type -2 diabetes, hypertension and stroke the prevalence of these health promoting behaviors remains low in the adult population in this country. One of the population subgroups at high risk for inactivity and inadequate diets includes: people with low incomes and those living in rural areas. There is a need for more specific research targeting adults living in rural cities and communities and the effect that the perceptions of social support they receive from family and friends has on their behavior modification practices and their health status. This research will be instrumental in aiding health and nutrition educators in their fight to decrease high obesity levels and other chronic disease issues prevalent in rural America.

Purpose of the Study

The purpose of this study was to examine levels of social support, healthy eating, physical activity, and behavior modification among adults living in rural Alabama. Adults from specific counties in Alabama with low incomes were included in this study.

Research Questions

The following research questions were used in this study:

1. What is the relationship between social support, healthy eating, and physical activity for adults in rural areas?
2. What are the perceptions of adults living in rural communities for behavior modification?
3. What is the relationship between socioeconomic level, gender, and physical activity?
4. What is the relationship between education and dietary behavior for adults living in rural areas?

5. What is the relationship between social support, behavior modification and marital status for adults living in rural Alabama?
6. What is the relationship between social support, behavior modification and race for adults living in rural areas?

Significance of Study

This study is significant because it examines the relationship between social support from family and friends for healthy eating and physical activity and how they play an important role in health behavior change for individuals living in rural Alabama. The study provides evidence to suggest that the problem of obesity and other chronic diseases are powerfully influenced by social support. This study also provides useful information to extend knowledge and contribute to the understanding of the interplay of social support and health related behavior modifications amongst a rural population.

The aim of the study focused on the relationship between dietary behaviors and physical activity behaviors among a rural population and perceived social support from family and friends based on gender, race, age, socioeconomic status, education, and marital status. The information obtained from the study will be used to assist nutrition educators and health educators in creating more effective behavior modification instruments to be used for future education purposes, since these factors may influence life expectancy.

Limitations

This study was limited to adults with low incomes (ages 19-65) living in a rural community in Alabama. This study was also limited to information collected using the "Social Support Surveys for Diet and Exercise Behavior". This study was also limited by relevant data

because few studies have examined the relationship between social support, healthy eating habits, physical activity, and behavior modification in a rural low-income population.

Assumptions

The following assumptions were made in this study. Participants were recruited in a low-income rural community. It was assumed that all the participants in this study lived in the rural community they were recruited from. Data was collected through surveys. Three surveys including: Demographic survey, Healthy Eating Survey and Physical Activity Survey were administered to the participants in this study. It was assumed that all participants answered the questions on the surveys as truthfully as possible. It was also assumed that the adult participants' responses to questions about social support on the surveys reflected their individual perceptions of how much support they received.

Definition of Terms

Behavior modification: The field of psychology concerned with analyzing and modifying human behavior (Miltenberger, 2011).

Chronic Disease: A physical condition, usually nonfatal condition, which lasts longer than 3 months in a given year or necessitates a period of continuous hospitalization of more than one month in a year (Pless & Pinkerton, 1975:90).

Demographics: Statistical data relating to the population and particular groups within it.

Family: A group consisting of two parents and their children living together as a unit, all the descendants of a common ancestor or a group.

Friends: A person whom one knows and with whom one has a bond of mutual affection, typically exclusive of sexual or family relations.

Health Behaviors: Any activity undertaken for the purpose of preventing or detecting disease or for improving health and well-being.

Healthy Eating: Eating a variety of foods that give you the nutrients you need to maintain your health, feel good, and have energy.

Low-income: Of or relating to those with a relatively small income.

Obesity: Excess body fat (Okorodudu et al., 2010)

Participant: A person who is involved in an activity or event.

Perceptions: A way of regarding, understanding, or interpreting a mental impression.

Physical Activity: Movement of the body that uses energy.

Population: All the inhabitants of a particular town, area or country.

Rural: An area that encompasses all population, housing, and territory not included within an urban area.

Social Support: Refers to the various types of support that people receive from others and is generally classified into two (sometimes three) major categories: emotional, instrumental (and sometimes informational) support (House, 1981).

Socioeconomic Status: Is an economic and sociological combined total measure of a person's work experience and of an individual's or family's economic and social position in relation to others, based on income, education, and occupation.

Social Network: A theoretical construct useful in the social sciences to study relationships between individuals, groups, organizations or even entire societies.

Urban: Relating to or characteristic of a city or town.

Organization of Study

Chapter 1 provides the introduction to the research study, the statement of the research problem, statement of purpose, research questions, significance of study, limitations, assumptions, and definitions of key terms. Chapter 2 discusses a review of literature concerning perceptions of Social Support for Healthy Eating and Physical Activity among adults with low income in rural Alabama. Chapter 3 reiterates the purpose of the study, reports the methods and procedures utilized to conduct the study, which consists of population, sample, instrumentation, data collection, and data analysis. The findings of the study are presented in Chapter 4. Chapter 5 is the final chapter, and provides a summary of the study, conclusions, implications, and recommendations for future research.

Chapter 2: Review of Literature

Introduction

This chapter will provide a review of the literature pertaining to this study. First, the definition of perception and social support will be discussed. Then, the chapter will explore the relationship between perceptions of social support from family and friends, healthy eating and physical activity among a low-income rural population. The chapter will then describe studies that focused on research discussing the role social support plays in health issues and health behavior change for these individuals. Research about the relationship between social support and demographics will be discussed. Research about an individuals' perception of social support from family and friends is included in this chapter.

Social support is a term that often appears in discussions of relationships. Social support means having family and friends to turn to in times of need or crisis to give you a broader focus and positive self-image. Social support enhances quality of life and provides a buffer against adverse life events. It can be a powerful tool and has been found to enhance success with health behavior change. As the obesity levels of adults in the U.S. continue to rise effective interventions that help achieve and maintain a healthy weight are imperative for the prevention and management of obesity and related chronic diseases. Social relationships and interactions can be both a positive and negative influence on an individual's diet, physical activity and weight status.

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Social Support

Social Support refers to the various ways in which individuals aid others. Social support, which is the perception or experience that one is cared for, esteemed, and part of a mutually supportive social network, has beneficial effects on mental and physical health and has been documented as having an important role in the health and well-being of individuals (Willis, 1991). To receive support from others, we must participate in at least one important relationship. Social support has often been summarized as a network of individuals on whom a person can rely for their psychological or material support to cope effectively with stress. Social support has been theorized to be offered in the form of instrumental support (i.e., material aid), appraisal/informational support (i.e., advice, guidance, feedback), or emotional support (i.e., reassurance of worth, empathy, affection) (Krohne & Slangen, 2005).

The term “social support” has been defined in many ways. A distinction is usually made between the number of relationships a person has and the perception of the supportive quality of those relationships (Schaefer et al., 1981). Social support is a multifaceted experience that involves voluntary associations and formal and informal relationships with others (Bardach et al., 2011). It is a perception that one is accepted, cared for, and provided with assistance from certain individuals or a specific group or the realization of actual support received from another. Social support can be positive or negative and can arise from different sources, including family members, friends, and peers (informal support) and healthcare professionals and organizations (formal support) (van Dam et al., 2004; Ford, Tilley & McDonald, 1998). It can be perceived differently based on the recipient’s gender, racial or ethnic background, or cultural practices. It can be perceived from three sources: family, friends, and significant others (Zimet et al., 1988). It is a construct thought to mediate improved self-management practices and healthcare outcomes. In contrast, social networks are considered webs of social relationships and social linkages and must be distinguished from social support (van Dam et al., 2004).

Although some writers in this area agree that it involves relationship transactions between individuals, the nature of the transaction is specified in a variety of ways (Zimet et al., 1988). Shumaker and Brownell (1984), for instance, defined social support as “an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient” (p. 11). Cohen and Syme (1985) suggested that the resources provided by others can have either a negative or positive effect. Focusing on the subjective-objective, Lin (1986) defined social support as “perceived or actual instrumental and /or expressive provisions supplied by the community, social networks, and confiding partners” (pg. 18). In a useful breakdown of five key dimensions, Tardy (1985) suggested that the best way

to clarify differences in definition and approach to social support is to specify direction (support can be given and/or received), disposition (availability vs. utilization of support resources), description of support versus evaluation of satisfaction with support, content (what form does the support take?), and network (what social system or systems provide the support?).

Another related issue concerns the question of how social support operates. Some important hypotheses and dimensions with respect to this issue have been explored, including: (1) direct effect versus buffering, (2) the nature of the support, (3) the focus of the curative effect of support, and (4) the action by which social supports operate to enhance health (Zimet et al., 1988). In terms of the first issue, there is some evidence to support the hypothesis that support may produce helpful effects directly, regardless of the level of stress or disruption in a person's life (Broadhead et al., 1983). However, others have argued that social support acts primarily as a buffer, protecting individuals from the harmful effects of stress (Cohen & Mckay, 1984; Gore, 1981; House, 1981). It may be that both hypotheses have validity. That is, although social support may be directly helpful in all circumstances, it may be particularly effective as a buffer during times of stress (Zimet et al., 1988).

Research has consistently demonstrated a relationship between social support and positive health outcomes. It has been suggested that these health advantages arise, in part, because social support provides a buffer for individuals when dealing with life stress, and findings have shown that social support buffers against both the psychological and physiological threat response (Hornstein & Eisenberger, 2017).

With respect to the second issue, the nature of the support, a variety of theories have been proposed. Thoits (1986) suggested that social support operates primarily as coping assistance. Specifically, Thoits hypothesized that the deleterious impact of a stressful situation is modified

when other people help someone change the situation itself (e.g., providing child-care assistance to an overworked parent), alter the meaning it has (e.g., helping a friend see a stressful situation from a different, less distressing perspective), and/or change the individual's affective response to the stressor (e.g., providing someone who is anxious and cannot sleep with sleeping pills). Others have proposed that by enhancing self-esteem and a sense of control and a sense of control over the environment, social support helps to engender positive emotional experiences, thereby reducing the negative effects of stress (Pearlin, Lieberman, Menaghan, & Mullan, 1981). As identified in the direct effect versus the buffering issue, they are not mutually exclusive and do not stand alone. Productive and solid help provided by friends and family and less concrete emotional support and self-esteem enhancement may both be important factors of successful social support functioning.

Social norms and societal modeling and expectations contribute an overall context that promotes certain eating behaviors. However, when making specific dietary and lifestyle choices, like exercise, reactions from close friends and family-positive or negative also exert a profound influence (Karlsen, 2016). Social support from friends and family in the form of offering encouragement, establishing connection, providing accountability, and modeling or sharing a target behavior has been shown to help improve adherence for a wide variety of health behaviors, including taking medication (Morisky et al., 1985; Gomes-Villas Boas et al., 2012), eating less fat, and exercising more (Barrera et al., 2006). Doctors and the media also play an important role in facilitating healthy behaviors (Gleeson-Kreig, 2008) and women seem to be naturally inclined towards dietary support, because both women and men whose friends are women report more active verbal encouragement for healthy behaviors (Gruber, 2008). Spouses tend to have the biggest influence on each other (Pachuki et al., 2011).

The third issue, the focus of social support, was addressed in some detail by Cohen and Syme (1985), who examined the impact of social support on disease etiology and on recovery from illness. Social support was conceptualized by these authors as a positive factor that aids in the maintenance of health as well as in disease recovery (Zimet et al., 1988). There have been several proposals regarding the mechanism of social support's positive effect on health (the final issue just mentioned). By enhancing self-esteem and positive feelings, social support may indirectly strengthen the immune system, thereby speeding recovery from illness and reducing susceptibility to disease (Cohen & Syme, 1985; Jemmott & Locke, 1984). Supportive relationships with others may also aid in health maintenance and recovery by helping to promote healthy behaviors such as, compliance with prescribed health care and smoking cessation (Brownell & Shumaker, 1984). Social support affects health in three ways: by regulating thoughts, feelings and behavior to promote health; by fostering an individual's sense of meaning in life; and by facilitating health-promoting behaviors (Callaghan & Morissey, 1993). Weiss (1976) proposed that an individual needs a set of relationships over the course of life, and that all these relationships are necessary for well-being. Lack of social support may adversely affect an individual's health.

It follows that social support is not a commodity that resides in the provider and passes to the recipient, but that it is an expression of the mutuality and characteristic of the relationship between the parties. Close relationships tend to generate a wider range of types of support than casual acquaintances, and social ties that are more strictly defined by normative role definitions tend to provide more specialized support. Recognizing this, any sensitive and comprehensive inquiry into social support must first map the participants' larger social field to ensure that all potentially relevant sources of support are taken into account (Gottlieb & Bergen, 2010). The

social network is a unit of social structure that affords a vantage point for such an account because it consists of an individual's ties and the ties among them (Gottlieb & Bergen, 2010). The network perspective can provide instruction about social integration and social support.

In 1986 Barrera authored a review of the varied structural, functional, and evaluative aspects of social support that could be assessed to support the longevity of the research conducted. This review was followed by many new support measures. Specifically, Barrera noted that depending on the purpose of the study being conducted, it could be important to identify the sources of support in terms of different categories of social ties with lay people (e.g., family members, friends, neighbors) and the types of support, including emotional, instrumental, companionship, informational, and esteem support. He also distinguished between measurements of perceived vs. actual or enacted support, a distinction that has proved critical because perceived support, not its actual materialization, has been found to be largely responsible for the much-heralded buffering effects of support (Cohen & Wills, 1985). Perceived social support affects the way people perceive themselves and the world around them. A meta-analysis indicates that not having a network of meaningful relationships in life is more predictive of mortality than other lifestyle behaviors, such as smoking or physical activity (Holt-Lunstad and Smith, 2012). People with close social relationships tend to report higher levels of well-being and flourishing (Diener and Seligman, 2002; Myers, 2015; Diener et al., 2018). It appears that people who have a strong psychological sense of support fare better in the face of adversity than those who are less optimistic about the support they can get. Paradoxically, a strong sense of support seems to give people the confidence to cope without needing to assemble their network's resources. Hence, perceived support is essentially the belief or faith that support is available from network members, whereas actual support is its mobilization and expression. Taking into account this

distinction, Cohen et al., (2000) defined social support as "the support that persons perceive to be available or that are actually provided to them by nonprofessionals in the context of both formal support groups and informal helping relationships" (p. 4).

Another aspect of support that may be relevant to certain investigations is measurement of its quantitative and qualitative adequacy from the recipient's perspective. Quantitative evaluates the amount of support provided, ranging from too little to too much, whereas qualitative inquiries about the quality of support, including the manner and covert message associated with its delivery.

Social Support and Health

During the last three decades, researchers have documented beneficial effects of social support for health and risk of mortality (Berkman & Syme, 1979; House, Landis, & Umberson, 1988; Seeman, 1996; Smith, Fernengel, Holcroft, & Gerald, 1994). For example, in a seminal early study, Berkman and Syme found individuals lacking social and community ties were much more likely to die of all causes during a nine-year follow-up period compared to those who maintained ties with family, close friends, and their community. The link between a lack of support and mortality has been well established, with those patients with lower levels of support at increased risk for death. This relation has been demonstrated in a wide range of populations, with some variation in outcomes between specific ethnic groups and genders (House et al., 1988; House, 2001).

Considerable evidence links social support with increases in health-promoting behaviors and decreases in health-compromising behaviors (Geertsen, 1997). For example, high levels of support and community involvement are related to a healthier diet, reduced risk of weight gain, increased in physical activity, and cervical cancer screening for certain groups of women, (Brunt,

1999; Hafner, Rogers, & Watts, 1990; Kelsey, 2000). Wickrama, Cogner, and Lorenz (1995) found that men with positive marital interactions were less likely to develop risky health habits such as poor eating habits, substance abuse, and inadequate sleep.

Social support is one of the most well-documented psycho-social factors influencing physical health outcomes (Berkman, Glass, Brisette, & Seeman, 2000; Cohen, 1988; House, Landis, & Umberson, 1988; Uchino, 2004). Epidemiological studies indicated that individuals with low levels of social support had higher mortality rates, especially from cardiovascular disease (Berkman, Leo-Summers, & Horwitz, 1992; Brummett et al., 2001; Frasure-Smith et al., 2000; Kaplan et al., 1988; Orth-Gome′r, Rosengren, & Wilhelmsen, 1993; Rutledge et al., 2004; Williams et al., 1992). However, there was also evidence linking support to lower mortality rates from cancer (Ell, Nishimoto, Medianski, Mantell, & Hamovitch, 1992; Hibbard & Pope, 1993; Welin, Larsson, Svardsudd, Tibblin, & Tibblin, 1992) and infectious disease (Lee & Rotheram-Borus, 2001; Patterson et al., 1996) and mortality.

Measures of social support have been consistently related to physical health outcomes. Most recent work on social support conceptualizes it as the functions that are provided by social relationships (Uchino, 2009). These functions may be separated into perceived and received dimensions (Tardy, 1985). Perceived support refers to one's potential access to social support, whereas received support refers to the reported receipt of support resources, usually during a specific time frame (Barrera, 1986; Dunkel-Schetter & Bennett, 1990). Some studies have found an association between perceived support and lower mortality rates even when statistically controlling for baseline demographic factors and physical health status (Berkman et al., 1992; Blazer, 1982; Brummett et al., 2001). The distinction between perceived and received support is important, as perceived support has been more consistently related to beneficial health outcomes

than has received support (Barrera, 2000; Uchino, 2004; Wills & Shinar, 2000). Given the links between social support and physical health it is especially important to know the factors that distinguish the differences between the two types of support.

The epidemiological social support work points to the importance of distinguishing between perceived and received support. This is consistent with broader conceptual work on basic social support processes. One approach view social support as primarily an environmental transaction or resource that can be accessed by the individual (Cobb, 1976). The assumption of this approach is that social support is interpersonal in nature. A second major approach views social support as an individual difference factor that is stable over time and has its roots in early parent-child interactions (I.G. Sarason, Sarason, & Shearin, 1986). The assumption of this approach is to view adult support as more of an interpersonal process that is linked closely to internal, relational schemas (Uchino, 2009). Of course, as noted by I.G. Sarason and colleagues (1986), these views are not necessarily competing, but the challenge is to link these processes to more specific measures and outcomes.

The conceptual distinctions are also tied to specific measurement approaches. Perceived support refers to one's potential access to social support and is more intricately linked to the intrapersonal approach (Uchino, 2009). Perceived social support is also referred to as support that an individual believes to be available, regardless of whether the support is available. Perception of support may be a function of the degree of intimacy and affection within one's relationships. Compared with actual support, perceived support may be just as important (and perhaps more so) in improved health and well-being.

Perceived social support appears to correlate more closely with health status than does actual social support. Like actual support, perceived support may increase the belief that one is

able to cope with current situations, it may decrease emotional and physiological responses to events, and may positively alter a person's behavior. In comparison, received support refers to the reported utilization or exchange of support resources and is more closely related to the interpersonal approach (Uchino, 2009). It is important to note that these two dimensions do not appear to be interchangeable as the seperability of perceived and received support is well-documented (Haber, Cohen, Lucas & Baltes, 2007; Helgeson, 1993; Newcomb, 1990; Wills & Shinar, 2000).

The reasons for separability of perceived and received support are still unresolved (Wills & Shinar, 2000) and reflect the lack of conceptual development regarding what these measures of support reflect. As argued by Sarason, Sarason, and Shearin (1986), measures of perceived support may have their origins in early familial transactions. Familial transactions include processes such as caring, affection, and positive involvement that set the basis for important relational schemas (Flaherty & Richman, 1986). In addition, researchers have found that perceived support is typically stable over time (despite changes in social circumstances) and linked to reports of parental support and warmth (Mallinckrodt, 1992; Newcomb, 1990; I.G. Saranson et al., 1986; Shaw et al., 2004). Such individual differences in perceived support also influence interpretations and reactions to potentially supportive transactions (Lakey & Cassidy, 1990; Ross, Lutz, & Lakey, 1999; Smith et al., 2004).

Social Support and Chronic Disease

The burden of chronic disease in the United States is extensive. The number of Americans living with chronic disease is estimated to exceed 90 million, with an economic impact of nearly 1 trillion dollars per year (CDC, 2005). As our nation confronts a health care crisis and as disease, disability, and violence become centered more and more in the poorest,

most isolated, and marginal segments of our population, it is time to consider new paradigms for the prevention and treatment of disease and disability. In considering new preventive efforts, it is important to keep in mind that individuals do not live in a vacuum, rather they are emeshed in a social environment and in a series of social relationships. There is now a substantial body of evidence that indicates that the extent to which these relationships are strong and supportive and to which individuals are integrated in their communities is related to the health of the individuals who live within such social contexts (Berkman, 1995).

In 1979, Berkman and Syme published the results of their seminal study linking social relationships to mortality. These researchers linked questions about the extent of peoples' social connections to overall mortality and found that people who were less socially integrated had higher mortality rates. This study was influential because it was able to rule out possible alternative explanations (e.g., results due to poorer initial health status) and hence provided the most compelling empirical links at the time between social relationships and mortality (Uchino, 2006). Subsequent research has confirmed the reliable links between social support and better physical health outcomes (Berkman et al., 2000; Cohen, 1988; House et al., 1988; Seeman, 1996; Uchino, 2004).

The structure and functions associated with our relationships provide insight into how social support may influence disease processes. Accordingly, structural and functional measures of support may ultimately influence morbidity and mortality through two distinct but not necessarily independent pathways. One pathway involves behavioral processes including health behaviors and adherence to medical regimens as outlined by social control and social identity theorists (Lewis & Rook, 1999; Umberson, 1987). According to this view, social support is health-promoting because it facilitates healthier behaviors such as exercise, eating right, and not

smoking as well as greater adherence to medical regimen. This can happen in a direct (health-related informational support) or indirect (e.g., life meaning) manner (DiMatteo, 2004; Lewis & Rook, 1999; Umberson, 1987). In fact, health behaviors are one of the few variables that appear to explain at least part of the variance between social support and mortality (Kaplan et al., 1994).

The other major pathway involves psychological processes that are linked to appraisals, emotions or moods (e.g., depression), and feelings of control (Cohen, 1988; Gore, 1981; Lin, 1986). There is strong evidence linking social support to these psychological processes (Barrera, 2000), although direct evidence for their mediational role on health outcomes is lacking (House, 2001). Note that the behavioral and psychological levels are linked as each has been shown to exert an influence over the other. For instance, feelings of stress can adversely impact the practice of health behaviors (Ng & Jeffrey, 2003) while health behaviors such as exercise can have beneficial effects on feelings of stress (Rejeski et al., 1992). Finally, these psychological and behavioral pathways may have reciprocal influence on social support processes. For instance, psychological distress may influence perceptions of support and contribute to negative social interactions (Alferi et al., 2001; Coyne, 1976).

Most of the evidence linking social support to biological pathways has examined the cardiovascular system (Uchino et al., 1996). There is strong evidence linking social support to aspects of cardiovascular function that may confer lower risk for disease (Uchino, 2004). The links between perceived support and mortality appear to be particularly consistent for cardiovascular disease (Berkman et al., 1992; Brummett et al., 2001; Farmer et al., 1996; Frasure-Smith et al., 2000; Orth-Gomer', Rosengren, & Wilhelmsen, 1993; Williams et al., 1992). It is important to note that social support may be linked to cardiovascular problems via its impact on disease development and/or its clinical course.

Although more research is needed, there are epidemiological links between perceived support and both the development (Andre-Petersson, Hedblad, Janzon, & Ostergren, 2006; Ikeda et al., 2008; Orth-Gomer'et al., 1993; Raikkonen, Matthews, & Kuller, 2001;) and progression of clinically significant cardiovascular disease (Berkman et al., 1992; Brummett et al., 2001; Coyne et al., 2001). These studies suggesting links between perceived support and cardiovascular disease outcomes are consistent with research utilizing more "intermediate" physiological outcomes in which the perceived availability of social support is related to lower plaque buildup (Angerer et al., 2000; Wang, Mittleman, & Orth-Gomer', 2005), cardiovascular reactivity (Smith, Ruiz, & Uchino, 2004; Uchino & Garvey, 1997), ambulatory blood pressure (Linden, Chambers, Maurice & Lenz, 1993; Steptoe, Lundwall, & Cropley, 2000), and components of the metabolic syndrome (Horsten, Mittleman, Wamala, Schenck-Gustafsson, & Orth-Gomer', 1999). In considering new paradigms for the prevention and treatment of disease and disability, it was suggested that we incorporate ways to promote social support and develop family and community strengths and abilities into our interventions (Berkman, 1995).

Social Support, Healthy Eating and Physical Activity

Healthy is not usually defined, but it is implied that "healthy" relates in some way to a diet which promotes good health and reduces the risk of chronic disease (Margetts et al., 1997). Physical activity is defined as any bodily movement produced by skeletal muscles that results in energy expenditure (Caspersen et al., 1985). Healthy eating and physical activity are major determinants of health and disease and are associated with the risk of premature mortality, coronary heart disease, hypertension, colon cancer, type 2 diabetes, osteoporosis and weight gain (WHO, 2003). Promoting physical activity and a healthy diet thus has the potential to substantially reduce the burden of disease and improve quality of life. Currently older adults

consume too few fruits and vegetables and have lower than recommended intakes of a range of nutrients important for prevention of chronic disease (Magarey, McKean & Daniels, 2006). It is also estimated that approximately 45% of adults are not sufficiently active to achieve health benefits and older adults are less likely to participate in 'sufficient' physical activity than younger adults (Armstrong, Bauman, & Davies, 2000).

Preventative nutrition is an important health behavior that people should maintain, along with physical activity, for health, longevity, and fitness (WHO, 2003). A popular medical recommendation is to follow a healthy diet low in saturated fat and high in fiber. According to current medical knowledge, such nutrition helps to prevent diabetes, cardiovascular disease and other ailments (Hu & Willett, 2002). However, most individuals do not adhere to this health behavior, and many have not even contemplated adopting it (Riebe et al., 2003).

Exercise increases longevity, prevents obesity, and reduces risk of some chronic illnesses such as coronary heart disease and hypertension (U.S. DHHS, 1996). Exercise also benefits mental health, with positive effects on depressive symptoms (Ross & Hayes, 1998) and anxiety (Sallis & Owen, 1999). Exercise is also related to high self-esteem and overall quality of life (McAuley & Rudolph, 1995). Despite the many benefits of exercise, rates of activity among people who live in the United States are extraordinarily low, with over half not engaging in the recommended amount of physical activity (CDC, 2007). These low rates are disturbing given the connection established between exercise and the decreased risk of chronic illness. Chronic diseases develop over one's lifetime, with clinical sequelae occurring many years after the underlying pathogenesis of the disease has occurred. As we move ahead in the 21st century, cardiovascular [i.e., coronary artery disease CAD, hypertension, stroke, and heart failure], Type-2 diabetes, metabolic syndrome, and cancer, are the leading killers in Westernized society and

are increasing rampantly in developing nations (WHO, 2003). In fact, obesity, diabetes and hypertension are now even commonplace in children. Clearly, however, there is a solution to this epidemic of metabolic disease that is inundating today's societies worldwide: exercise and diet (Roberts & Barnard, 2005).

Support from close others can influence exercise (Courneya, Plotnikoff, Hotz & Birkett, 2000). Behavior can be encouraged by others, who are close to the individual, and people may be more likely to engage in healthy behaviors when others who are close to them do the same. Exercise may be modeled by family and friends, and these family and friends may also provide praise during exercise, as well as encourage opportunities to exercise (Sallis & Hovell, 1990). Therefore, support for exercise can occur in a variety of forms. For example, positive feedback and an increase in physical activity from family and friends, is related to greater physical activity (Booth, Owen, Bauman, Clavisi, & Leslie, 2000).

The importance of social environmental influences on health-promoting behaviors such as physical activity and healthy eating has been increasingly recognized (Berkman & Glass, 2000; McNeil, Kreuter & Subramanian, 2006; Shaikh et al., 2008). Perhaps the most frequently-examined and well-established social contextual correlate of physical activity and healthy eating behaviors is social support, including emotional, instrumental, and informational support (Berkman & Glass, 2000; McNeil, Kreuter & Subramanian, 2006; Shaikh et al., 2008).

Social Support and Gender

Unhealthy lifestyle, i.e., lack of physical activity (PA) and unhealthy eating, plays a central role in the development of major chronic diseases such as Type-2 diabetes. Interventions targeting unhealthy lifestyles have been shown to reduce the risk of chronic diseases (Knowler et al., 2002; Tuomilehto et al., 2001). There are differences in lifestyles between men and women,

which is also reflected in the differences in lifestyle-related morbidity and mortality (Arber, 2001). However, less is known about the psychosocial mechanisms and determinants of lifestyle change, and the role of gender therein is still under researched. Gender differences in lifestyle-related mortality and morbidity suggest a need to investigate gender-specificity of health behavior change process and factors influencing it (Hankonen et al., 2010).

An important aspect of a healthy lifestyle is regular PA which is beneficial, e.g., for weight loss and cardiovascular risk factors (Shaw, Gennat, O'Rourke, & Del Mar ,2006). Women in almost all countries were expected to outlive men by the year 2006 (Barford, Dorling, Smith, & Shaw, 2006), which can, for a large part, be explained by women's healthier lifestyle. However, for those women who lead an unhealthy lifestyle, changing it into a healthier one after participating in a lifestyle change program or intervention seems to be at least as hard (Assaf et al., 2003) or even harder than for men (Rejeski et al., 2003). In intervention studies, merely reporting behavioral outcomes by gender is not enough, we need to know what produces the existing differences in lifestyle or in lifestyle change. Thus, what we need is a more in-depth analysis (Exploring Concepts of Gender and Health, 2003) that would reveal whether there are gender differences also in the psychological processes behind successful lifestyle change.

Although some meta-analysis find that men and women are psychologically more similar than different (Hyde, 2005), there is some empirical evidence about gender differences in the domain of self-regulation. Planning was associated with healthier dietary behaviors among South Korean women but not among men (Renner et al., 2008). According to a meta-analysis, women, on average, can better delay gratification than men (Silverman, 2003). School girls have also been found to use planning and self-regulation more than boys of the same age (Martin, 2004; Tangney, Baumeister, & Boone, 2004), implying that gender-specific behavioral strategies are

adopted early in gender role socialization. The above findings suggest that women and men may not benefit in a similar manner from behavior modification techniques involving self-regulation with explicit planning.

Gender is another important consideration in assessing associations between social support and health practices. Several researchers (Brunt, 1999; Hafner et al., 1990; Kelsey et al., 2000; Wickrama et al., 1995) assessed health habits in one gender only, so results are not necessarily applicable to both genders. Although Allgower et al. (2001) found similar patterns of associations between social support and health habits between university women and men, studies with heterogeneous samples (Allen et al., 2001; Rakowski, 1998; Strawbridge, Shema, Cohen, & Kaplan, 2001) observed significant gender differences in relations between measures of social support and social relationships and specific health practices, especially after controlling for other factors. These conflicting findings suggest that to appreciate fully how social support and health behaviors are related, assessment should occur not only between genders, but also within each gender (Jackson, 2006).

One study examined the impact of perceived social support from close relationships on personal health practices in samples of women and men in a community-based sample. In addition to assessing gender differences on measures, the study evaluated the extent to which perceived social support contributed to the prediction of healthy diet, physical exercise, adherence to routine medical examination, substance abuse, and adequate sleep within each gender, independent of sociodemographic factors, depressive symptoms, and hassles (Jackson, 2006).

Three basic questions existed regarding gender differences in the genesis and consequences of social support: (1) Do women provide more social support in their interpersonal

relationships with significant others? (2) Do women receive more social support? (3) Are there gender differences in the effects of social support on mental health and well-being (Flaherty & Richman, 1989).

There were only a few studies specifically examining gender differences in support provisions. Lowenthal and Haven (1968) reported that wives are most often mentioned by husbands as a confidant whereas husbands were not the primary source of support for their wives. Kessler (1980) reported that women were between 30 and 50% more likely to be mentioned as 'helper' in surveys of help-seeking behavior. Vernoff et al., 1981 found that while men know more people, women were more aware of and responsive to the crises that occur in the people around them. Women, to a greater extent than men, reported providing their friends with personal favors, emotional support, and informal counseling about personal problems.

The literature on gender differences on support reception is more equivocal (Rosario, Shimm, Morch, & Huckabee, 1988). Many studies have produced conflicting or nonsignificant results. However, all but two of the significant results (Thoits, 1982; Vaux, 1985) indicated that women either received or utilized more emotional social support than men (Hirsch, 1979; Miller & Ingram, 1976; Staker & Wilson, 1984; Stone & Neal, 1984). A recurring finding is that women were more likely than men to have a close confidant, while not necessarily a larger total network size (Burke & Fuqua, 1987; Caldwell & Bloom, 1982). Vaux and colleagues (1983) have suggested these reported gender differences were a function of sex roles rather than gender *per se*. Feminine and androgynous individuals (both high on feminine characteristics) reported more global support, as well as individual and family support, than did masculine individuals, regardless of gender (Flaherty & Richman, 1989).

There were even fewer studies examining gender differences in the effects of social support. Henderson reported that the social support distress relationship is stronger for women for both somatic complaints and depressive symptoms. Similarly, Sarason found that for female college students there was a stronger correlation between social support and well-being than in males. In their study of older adults, Lowenthal and Haven (1968) found that women were significantly more likely than men to have intimate, confiding relationships. In addition, wives were mentioned most often by husbands, as confidants, while husbands were mentioned least often by wives. These differences suggested that men tend to restrict sources of social support to formal intimate relationships, and that husbands were often not the primary source of support for their wives.

Both casual observation and scholarly literature suggested that gender was an important influence on support-relevant social interactions, perhaps more than any other dimension of social status. Most men and women still move in different worlds; traditional roles (e.g., employee vs. homemaker) present different opportunities for establishing, maintaining, and utilizing close relationships (Vaux, 1985). Even more important are the implications of sex roles for social interaction patterns. The masculine role has been described as "instrumental," emphasizing independence, competence, and rationality. The feminine role, on the other hand, has been described as "expressive," emphasizing warmth, compassion, and supportiveness (Bem, 1974). Reviews, however, suggested that such gender differences were not so clear cut (Frieze, Parsons, Johnson, Ruble, & Zellman, 1978). It could be hypothesized that, compared to their male peers, females have better social support resources and are better at both providing and receiving support (Vaux, 1985).

Social Support and Marital Status

Several traditions of research have documented the health-enhancing effect that social relationships have on physical and psychological outcomes (Lewis & Butterfield, 2007). People who have more social relationships tend to live longer than do people who have fewer relationships (House, Landis, & Umberson, 1988), and marriage appears to be the one relationship most consequential for emotional and physical functioning (Kiecolt-Glaser & Newton, 2001). The married tend to have better health practices, less morbidity, and lower mortality risk when compared to the unmarried (Margolin, 1992). The health advantage for those with more social relationships- and the married specifically-has led to an interest in understanding the interpersonal processes that contribute to better health. Understanding such processes would help not only in elucidating the basic social mechanisms that underlie how close relationships affect health, but also could inform interventions, which seek to leverage such mechanisms to help couples enhance health and decrease risk (Lewis & Butterfield, 2007).

Research regarding the interpersonal processes that account for the benefits of marriage has focused primarily on the social support provided by spouses. Behavior changes interventions that attempt to leverage the support spouses provide to each other to decrease health risk and prevent health problems, however, have achieved limited success (Lassner, 1991). These interventions have involved spouses attempting to help a partner quit smoking (Cohen et al., 1988) or lose weight via changes in diet, physical activity, and medication adherence (Black, Gleser, & Kooyers, 1990). In contrast to the limited success of behavioral interventions, correlational contrast to the limited success of behavioral interventions, correlational research consistently has revealed that close, ongoing relationships are important for health and well-being (Cohen, Gottlieb, & Underwood, 2000). The disjuncture between correctional research and

health behavior change interventions suggests that our knowledge base in this area needs greater breadth and depth before we can implement successful interventions that seek to leverage the influence spouses may have on each other's health behavior (Lewis & Butterfield, 2007).

One study focused on the physical health benefits of social integration provided by marriage and parenting. Studies of social relationships and mortality concluded that family relationships were particularly instrumental in protecting individual health; age –adjusted mortality rates are consistently higher for the unmarried than for the married (Berkman & Syme, 1979; Blazer, 1982; Gove, 1973; House, Robbins, & Metzner, 1982). One study also demonstrates that age-adjusted mortality rates are higher for nonparents than for parents (Kobrin & Hendershot, 1977). Several possible pathways exist today, both physiological and social-physiological, by which social relationships may affect health outcomes. One such pathway is through health behaviors; involvement in social relationships may affect the various health behaviors that influence mortality. Berkman and Breslow (1983) demonstrated that a variety of health behaviors contributes to mortality. Literature on health and mortality by marital status has consistently identified that unmarried individuals generally report poorer health and have a higher mortality risk than their married counterparts, with men being particularly affected in this respect (Robards et al., 2012). Subsequent research has sought to explore the extent of 'marriage selection' by which healthier persons are selected into marital unions, while less healthy individuals either remain single or are more likely to become separated, divorced or widowed (Joung et al., 1998; Martikainen et al., 2005). Research has also examined the extent to which marriage provides 'protection' against adverse health outcomes, through modified health behaviors and social networks arising from the union (Verbrugge, 1979).

The mechanisms by which social relationships influence physical health and mortality remain one of the most important and least understood aspects of research on social ties and individual well-being. The mechanisms linking social ties to mortality can be grouped into four general categories: (1) individual attributes including personality characteristics, coping strategies, and physiological impairment- all of which may influence reactions to stress, how one deals with health concerns, the appraisal of stressful events, and the availability of social ties (Lieberman, 1982; Wortman, 1984); (2) behavioral mechanisms by which social ties facilitate compliance with medical regimens or motivation to engage in healthful behaviors (Berkman, 1984; Caplan, Harrison, Wellons, and French, 1980); (3) physiological or biochemical mechanisms, such as neuroendocrine responses to the presence of others (Berkman & Syme, 1979; Broadhead, Kaplan, James, Wagner, Schoenbach, Grimson, Heydon, Tibblin, & Gehlbach, 1983) and (4) buffering or prevention of situational factors such as chronic strain, life events, or environmental stressors (Lieberman, 1982; Thoits, 1982; Wortman, 1984). Each of these categories must be examined singly and in combination in order to build an accurate model of the effects of social relationships on health. Most likely these mechanisms operate to some extent, and the primary mechanism varies according to population and outcome variable.

Health behaviors shown to affect physical health and/or mortality include physical activity (Berkman & Breslow, 1983; Kannel, 1967), cigarette smoking (Berkman & Breslow, 1983; U.S. Department of Health, Education, and Welfare, 1975a), maintaining appropriate body weight (Kannel, 1971; U.S. Department of Health, Education and Welfare, 1975b), alcohol consumption (Berkman & Breslow, 1983; U.S. Department of Health, Education, and Welfare, 1975c; Wiley & Comacho, 1980), sleep patterns (Belloc, 1973; Berkman & Breslow, 1983), and compliance with prescribed health regimens (Hamburg, 1982).

Berkman and Breslow (1983) found that social networks and healthful behaviors had an additive effect on change in physical health, as well as on mortality. In sum, previous research indicates that social ties (House et al. 1982) and health behaviors (Berkman & Breslow, 1983) affect mortality. Some evidence was also found that suggested social ties had an effect on some health behaviors as well. These findings suggested that part of the impact of social ties on subsequent mortality may occur indirectly through the effects on health behaviors (Umberson, 1987).

Social Support and Culture

Social support is one of the most effective means by which people can cope with stressful events. Some research has examined whether there were cultural differences in how people used their social support networks (Kim, Sherman, & Taylor, 2008). Social support is a ubiquitous phenomenon in everyday life. People talk about their needs for support with close others and provide it when others experience distress. Support groups provide people with a forum to share a wide range of issues and to receive support from others dealing with similar issues, and in the United States such groups have proven extremely popular (Davison, Pennebaker, & Dickerson, 2000). Social support is sought to such a large extent because, by and large, it works; it is one of the most effective means by which people can cope with and adjust to difficult and stressful events, thereby buffering themselves from the adverse mental and physical health effects of stress (Cohen & Wills, 1985; Seeman, 1996; Thoits, 1995).

Numerous studies have examined factors that affect individuals' seeking of social support as well as its effectiveness (Taylor, 2007). Sometimes this support seeking can assume an explicit form of seeking advice or pouring out one's emotions, whereas at other times social support may be implicit, as when people are reminded that they belong to a network of mutually

sustaining roles and obligations. Social support, whether implicit or explicit, is a valuable means by which a person can reduce the negative impact of stress (Cohen & Wills, 1985; Seeman, 1996; Taylor, 2007; Thoits, 1995). Yet some examinations have adopted a primarily Western culture perspective, and relatively few studies have considered cultural differences in the use and effect of social support. Consequently, there has not been a clear understanding of how social support may operate among individuals from different cultural backgrounds (Kim, Sherman, & Taylor, 2008). Studies done on culture and social support indicated that compared with European Americans, Asians and Asian Americans were less willing to seek explicit social support for dealing with their stressful events (Taylor et al., 2004) and were less benefitted by social support (Kim, Sherman, Ko, & Taylor, 2006).

As social support inherently involves relationships among individuals, how it is practiced should be viewed within the context of culturally specific patterns of social relationships. People from different cultural backgrounds may utilize and be affected by support from close others differently even if they possess equally supportive social networks (Kim, Sherman, & Taylor, 2008).

Social support has been defined as information from others that one is loved and cared for, esteemed and valued, and part of a network of communication and mutual obligations (Cobb, 1976; Cohen & Wills, 1985; Seeman, 1996). It may come from a spouse or companion, relatives, friends, coworkers, and community ties. Social support effectively reduces psychological distress, such as depression or anxiety, during times of stress (Fleming, Baum, Gisrriel, & Gatchel, 1982) and is associated with a variety of physical health benefits, including positive adjustment to coronary heart disease, diabetes, lung disease, cardiac disease, arthritis, and cancer (Holahan, Moos, Holohan, & Brennan, 1997; Stone, Mezzacappa, Donatone, &

Gonder, 1999). It can reduce the likelihood of illness, speed recovery from illness when it does occur, and reduce the risk of mortality from serious disease (House, Landis, & Umberson, 1988). Conversely, lack of social support during stressful times can be very distressing, especially for people with high needs for social support who are unable to obtain it, including the elderly and victims of sudden uncontrollable life events (Sorkin, Rook, & Lu, 2002). Social support has been studied in various ways. Studies have examined individuals' beliefs or perceptions of support availability (Turner, Frankel, & Levin, 1983; Wethington & Kessler, 1986), as well as social support's actual use in coping with stressful events. In the examination of actual use of social support, researchers typically focus on specific support transactions involving the seeking and receiving of help through appraisals, tangible assistance, informational support, or emotional support (Cobb, 1976; Cohen, 1988).

Although a large amount of research testifies to the benefits of social support as a coping strategy, it is important to note that the vast majority of these studies were conducted in the United States (Kim, Sherman, & Taylor, 2008). There are several factors that can help determine whether a person seeks support and how they seek that support to aid them in coping with the difficult or stressful situations they may be encountering in their lives. These factors include: the nature of the relationship between the support seeker and the support provider as well as their shared assumptions about relationships. Whether a person asks a friend for assistance depends, in part, on the mutual understanding about the propriety and efficacy of seeking such support. Culture is one important factor that affects these assumptions about relationships (Kim, Sherman, & Taylor, 2008).

One of the major contributions of cultural psychology is an understanding that there are considerable cultural differences in how people view self and relationship with others. In

individualistic cultures, such as in the United States, the dominant model of the self-views the self as independent and regards a person as possessing a set of self-defining attributes, which are used to take action in the expression of personal beliefs and the achievement of personal goals (Markus & Kitayama, 1991). People are expected to make their own decisions of their own volition. Relationships also take an independent form – they are thought to be freely chosen and to entail relatively few obligations (Adams & Plaut, 2003). By contrast, collectivist cultures, such as in many parts of Asia, the dominant model of the self-views the self as the interdependent, regards a person as a flexible, connected entity who is bound to others, and considers group goals as primary and personal beliefs, needs, and goals as secondary (Kitayama & Uchida, 2005; Markus & Kitayama, 1991). In these cultures, relationships also take an interdependent form- they are less voluntary and more "given" (Adams, 2005). These cultural differences in the expectations and norms regarding how relationships are coordinated should have implications for whether people use social support, the mode of social support they use, and the effectiveness of social support seeking. People in the more individualistic cultures may ask for social support with relatively little caution because they share the cultural assumption that individuals should proactively pursue their well-being and that others have the freedom to choose to help according to their own volition. In contrast, people in the more collectivistic cultures may be relatively more cautious about bringing personal problems to the attention of others for the purpose of enlisting their help because they share the cultural assumption that individuals should not burden their social networks and that others share the same sense of obligation (Kim, Sherman, & Taylor, 2008).

Research suggests that the effectiveness of social support in buffering the impact of stress experiences varies across cultural and ethnic groups (Jasinskaja-Lahti, Liebkind, Jaakola, &

Reuter, 2006; Triandis et al., 1985; Uchino, 2004). Thus, it seems likely that people from all cultures are benefited by social support but that there may be cultural differences in how people seek and receive social support from their social networks (Kim, Sherman, & Taylor, 2008).

Social Support and Socioeconomic Status

Socioeconomic status is consistently among the most fundamental determinants of health status (Davey & Egger, 1993; Kaplan & Keil, 1993). Much of this SES relationship can be attributed to cardiovascular disease (CVD) (Kaplan & Keil, 1993; Marmot, Smith & Stansfield et al., 1991; Winkleby, Kraemer, Ahn & Varady, 1998) and the combined effects of disparities in health-related behaviors, environmental conditions, social structures, and the contact and delivery of health care (Kaplan & Keil, 1993; Marmot, Smith & Stansfield et al.,1991; Winkleby, Kramer, Ahn & Varady, 1998; Kaplan & Lynch, 1999). Persons with low socioeconomic status (SES) are more likely to have poorer health and a shorter life expectancy than persons with higher SES (Mackenbach et al., 2008). These differences can partly be explained by a less favorable lifestyle (Stringhini et al., 2010). In general, persons with low SES are less likely to eat healthily (Darmon & Drewnoski, 2008; Lallukka et al., 2007)) and are less likely to be physically active during leisure time (Gidlow et al., 2006; Beenackers et al., 2012; Demarest et al., 2014).

Individuals with low socioeconomic status (SES) are generally less well reached through lifestyle interventions than individuals with higher SES (Bukman et al., 2014). Persons low in socioeconomic status (SES) suffer from relatively poor health. This relation holds, irrespective of whether SES is measured as education, income, or occupation. Moreover, it is found for rates of mortality and morbidity from almost every disease condition (Antonovsky, 1967; Illsey & Baker, 1991; Kaplan, Haan, Syme, Minkler & Winkleby, 1987; Syme & Berkman, 1976). Although

many authors have focused on comparing individuals at the very bottom of the SES hierarchy to those who are better off, a number have emphasized that there is evidence for an association between increasing SES and increasing health at every level of the SES hierarchy, not just in comparisons with those below the threshold of poverty (Adler et al., 1994; Haan, Kaplan, & Syme, 1989; Marmot, Kogevinas, & Elston, 1987).

Health disparities associated with socioeconomic status (SES) have existed for centuries (Smith, Carroll, Rankin, & Rowan, 1992) and have been recognized by researchers for many decades (Chapin, 1924; Warren & Sydenstricker, 1916). Research within the United States and other industrialized countries demonstrated that SES was associated with diverse health outcomes (Adler, Marmot, McEwen, & Stewart, 1999), and some evidence suggested that SES inequalities in mortality were widening (Drever, Whitehead, & Roden, 1996; Pappas, Queen, Hadden, & Fisher, 1993; Phillimore, Beattie, & Townsend, 1994). Despite the consistent pattern of these findings, the mechanisms that underlie the graded relationship between SES and health have not been clearly elucidated (Gallo & Matthews, 2003). In part, SES disparities in health are clearly due to differences in the distribution of basic resources such as health care, nutrition, and sanitary living environments (Antonovsky, 1967; see also Lynch, Smith, Kaplan, & House, 2000). This focus may be particularly important to explaining poor health in groups characterized by poverty, but the impact of SES on health is not only at the poverty line. Rather, health discrepancies have a monotonic relationship with SES, so that even relative affluent groups exhibit worse health than their higher SES counterparts (Kitagawa & Hauser, 1973; Kraus, Borhani, & Franti, 1980). Thus, numerous interconnected factors appear to contribute to SES disparities in health, and researchers have therefore cast a wider net in attempting to explain the SES gradient.

One prominent explanation is that cognitive-emotional factors and disorders play a role in understanding how low SES results in risk for early death and disability (Adler et al., 1994; Kaplan & Keil, 1993; Matthews, 1989; Taylor, Repetti, & Seeman, 1997). Low-SES environments may kindle disproportionate levels of negative emotions and attitudes, and likewise, these variables may have deleterious effects on health (Gallo & Matthews, 2003). However, the literature has not been reviewed systematically to support or refute this hypothesis.

The association of socioeconomic status with mental and physical health appears consistently in the literature. Socioeconomic status, as indicated by education, income, and occupation, is associated with decreased depression, anxiety, physiological malaise, and other forms of psychological distress and demoralization, and with less schizophrenia (Kessler, 1982; Kessler & Cleary, 1980; Kohn, Naoi, Schoenbach, Schooler, & Slomczynski, 1990; Pearlin et al., 1981; Ross & Huber, 1985; Ross & Mirowsky, 1989). The same pattern exists for physical health. Syme and Berkman reported that "a vast body of evidence has shown consistently that those in the lower classes have higher mortality, morbidity, and disability rates" (1986, p. 28). Low socioeconomic status is associated with high rates of infectious and parasitic diseases, infant mortality, many chronic noninfectious diseases, disability, self-reported poor health, lower life expectancy, and higher death rates from all causes (Gortmaker, 1979; Hayes & Ross, 1986; Leigh, 1983; Litwack & Meseri, 1989; Syme & Berkman, 1986). People in the lower social classes are more likely to get sick and less likely to survive if sick. Of course, these general patterns are not always true of every disease (Ross, Mirowsky & Goldsteen, 1990).

Education is the aspect of social status most important to health. Education produces and protects physical health in many ways. It shapes knowledge and behavior, determines the kind of job a person can get, and strongly affects the amount a person earns (Ross, Mirowsky &

Goldsteen, 1990). The well-educated are more likely than the poorly educated to quit smoking, exercise, and avoid obesity (Hayes & Ross, 1986; Leigh, 1983; Syme and Berkman, 1986), and they score higher on an index of overall health practices that includes exercising, not smoking, not being overweight, not drinking heavily, and so on (Berkman & Breslow, 1983). Low education often leads to working at hazardous, risky, and physically noxious jobs characterized by noise, heat, fumes, cold, humidity, physical dangers, exposure to carcinogens, and so on (Leigh, 1983; Link, Dohrenwend & Skodol, 1986), in addition to working at jobs that do not pay well. The effects of education on behavior and exposure, more than on access to medical care, explain the beneficial impact of education on health (Syme & Berkman, 1986).

Low socioeconomic status is associated with lower levels of social support (Mitchell & Moos, 1984; Ross & Mirowsky, 1989). Middle-class women consider their husbands their confidants more frequently than do working-class women. The poorly educated mobilize social support less effectively than the well-educated (Eckenrode, 1983), and generally are less likely to agree that "I have someone I can turn to for support and understanding when things get rough" (Ross and Mirowsky, 1989 p. 210).

Social Support and Rural Communities

Despite decades of research focused on eliminating health disparities, differences in incidence and mortality from chronic diseases such as cardiovascular disease, cancer, diabetes, and obesity persist and are noted by race, socioeconomic status, and geographic location (Braverman et al., 2010; Orsi et al., 2010; U.S. Department of Health and Human Services, 2014; Singh et al., 2011). Previous research provides evidence that social, neighborhood, and environmental characteristics play an important role in influencing health in communities (Casagrande et al., 2009; Diez, Roux & Mair, 2010; Doubeni et al., 2011; Siceloff et al., 2014),

perhaps by limiting access to health promoting resources. Differences in physical activity and other modifiable health behaviors may provide insights to health disparities. Health behavior is linked to socioeconomic and environmental aspects of where people live (Calise et al., 2013; Xu et al., 2013). Population subgroups at high risk for inactivity or inadequate diets include people with low incomes and those living in rural areas. People with lower incomes are less likely to meet recommendations for moderate or vigorous physical activity than higher-income people (National Center for Health Statistics [NCHS], 2007. Studies examining disparities in physical activity have found that rural residents are less likely than people in urban areas to be physically active (Patterson, Moore, Probst, & Shinogle, 2004) and, within rural populations, people with lower incomes are less active than people with higher incomes (Parks, Housemann, & Brownson, 2003). Low-income people also report less healthy diets than those with higher incomes (Drewnowski, 2004) and spend less on fruits and vegetables (Stewart, Blissard, & Joliffe, 2003).

Few studies of rural or low-income populations have examined a range of individual, social, and environmental influences on physical activity or diet. Wilcox and others found that individual, social, and perceived environmental variables were significant predictors of physical activity in older rural women (Wilcox, Bopp, Oberrecht, Kammermann, & McElMurray, 2003). In a sample of urban low-income women, women with higher support from family and friends, health care providers, and community organizations were more likely to meet physical activity guidelines and have healthier diets (Bull, Eakin, Reeves, & Riley, 2006). Self-efficacy was the strongest direct correlate of physical activity and a mediator for the effects of social and physical environments in a sample of lower and middle-income urban adults (McNeill, Wyrwich, Brownsom, Clark, & Kreuter, 2006).

Despite the increased use of ecological models in health behavior research, no studies have applied a comprehensive ecological model to the health behaviors of rural, low-income adults of any ethnicity. Low-income Latinos represent a rapidly growing segment of the rural population, and public health and community agencies serving low-income clients in rural areas are facing demands for health promotion programming that can meet the needs of Latinos as well as the majority Anglo population (Riffe, Turner, & Rojas-Guyler, 2008).

Public health is primarily concerned with the health of populations rather than individuals with an emphasis on promotion of health and prevention of disease, usually through the collection and use of epidemiological data. Founded in the sciences of epidemiology and nutrition, community nutrition is defined as a discipline that strives to improve the health, nutrition and well-being of communities (Boyle & Holben, 2006). Community-based nutrition research in rural and often vulnerable, communities is an integral part of public health nutrition programs. Community-based nutrition research takes place in a community setting, is relevant to the community, requires community involvement (Hills & Mullett, 2000) and includes interventions as well as observational/epidemiological studies. Community-based nutrition research is about people (Hills & Mullett, 2000), and the goal thereof is that findings, if positive be implemented with the target population and improve its nutrition and health status at the broader community level (Kass, 2001).

Perceived Social Support from Family and Friends

With over two-thirds of U.S. adults classified as overweight (33.0%) or obese (35.9%) (Ogden et al., 2012), effective interventions that help adults achieve and maintain a healthy weight are imperative for the prevention and management of obesity and related diseases. Social relationships and interactions can have positive and negative influences on diet, physical activity,

and weight status (Faith & Kral, 2006; Christakis & Fowler, 2007; Leahey, Gokee, Fava, & Wing, 2011; Oliveira, Rostila, de Leon & Lopes, 2013; Kiernan, Moore, Schoffman, Lee, King, Taylor et al., 2012 & Tamers, Okechukwu, Allen, Yang, Stoddard, Tucker-Seeley et al., 2013).

Previous studies indicate inconsistent associations between social support and obesity-related health behaviors and outcomes (Oliveira, Rostila, de Leon & Lopes, 2013; Kiernan, Moore, Schoffman, Lee, King, Taylor et al., 2012; Tamers, Okechukwu, Allen, Yang, Stoddard, Tucker-Seeley et al., 2013; Tamers, Beresford, Cheadle, Zheng, Bishop & Thompson, 2011; Fuemmeler, Masse, Yaroch, Resnicow, Campbell, Carr et al., 2006; Langenberg, Ballestros, Feldman, Damron, Anliker & Havas, 2000; Kelsey, DeVillis, Earp, Ammerman, Keyserling, Shannon & Simpson, 1996; Schaffer & Lia-Hoagberg, 1997). Kiernan and colleagues behavioral weight loss intervention study indicated that lack of support was prevalent among overweight and obese women, with most women reporting never or rarely receiving support from family members and friends for weight loss efforts. Lack of social support may be characterized with respect to frequency of perceived receipt (i.e., never or infrequent) (Kiernan, Moore, Schoffman, Lee, King, Taylor et al., 2012) or lack of access to a network of individuals available to provide support in times of need (NCI) NCI; Berkman & Glass, 2000). The enhancement of social support for behavior change may be a critical factor for the prevention of long-term excess weight gain. Some common sources of social support include family members and friends.

Various studies showed that social support has an important role in maintaining individuals' health and shows some effects on the decrease of negative consequences of great stresses from the environment and society. In addition, with increasing the rate of social support, the rate of patients' death decreased, and the manifestation of physical and psychic illnesses were lowered in individuals. Social support is relevant to the rate of having kindness, accompaniment

and attention of family members, friends and other individuals (Alipor, Sahraeian, Aliakbari & Haji Aqa Babaei, 2011). Conducted investigations have shown that social support can affect individuals' experience of disease, therapy period, and disease-related outcomes and decreases the death rate of chronic diseases, improves the rate of getting better, and increases the observation of therapeutic regime. In addition to, researchers' findings have shown that understanding of social support can prevent manifestation of undesirable physiological effects in an individual and increases an individual's self-care and self-confidence and has a positive effect on individuals' physical, psychic, and social position and clearly increases individual's performance and life quality (Rambod & Rafii, 2008).

Social norms and societal modeling and expectations contribute an overall context that promotes certain eating behaviors. However, when making specific dietary and lifestyle choices, like exercise, reactions from close friends and family- positive or negative- also exert a profound influence. We are social creatures who live naturally in community. Making healthy lifestyle choices flows naturally out of feeling connected to the people around you. The degree of social connection or isolation you feel may even influence something as basic as the variety in your diet (Karlsen, 2016). In a large, observational study 20,000+ adults over age 50, being single, widowed, or having less frequent contact with friends was associated with less variety of fruit and vegetable intake (Conklin, Forouhi, Surtees, Khaw, Wareham, & Monsivais, 2014) and it got worse for people who lived alone and had less frequent contact with friends-they had even less variety than in those who were just single.

Social support from friends and family in the form of offering encouragement, establishing connection, providing accountability, and modeling or sharing a target behavior has been shown to help improve adherence for a wide variety of health behaviors, including taking

medication, (Morisky, De Muth, Field-Fass, Green & Levine, 1985; Gomes-Villas, Foss, Freitas & Pace, 2012), eating less, and exercising more (Barrera, Toobert, Angell, Glasgow & Mackinnon, 2006). Doctors and the media also play an important role in facilitating healthy behaviors (Gleeson-Kreig, 2008), and women seem to be naturally inclined towards dietary support, because both women and men whose friends are women report more active verbal encouragement for healthy behaviors (Gruber, 2015). Spouses tend to have the biggest influence on each other, (Pachuki, Jacques & Christakis, 2011) and among couples, it has been shown that an individual who starts a new healthy behavior, such as quitting smoking, is much more likely to succeed if their partner already has the healthy new behavior (doesn't smoke) (Jackson, Steptoe & Wardle, 2015). Social support is what builds people up during times of stress and often gives them the strength to carry on and even thrive. Researchers have demonstrated a link between social relationships and many different aspects of health and wellness. The relationships we have are particularly important not just to our social lives but also to our health and physical lives. Just as we take care of our minds and bodies to keep them healthy, we must also take care of our personal relationships with our family and friends because they also play a part in our health and well-being.

Chapter 3: Methods

Introduction

Social support can be a powerful tool and has been found to enhance success with health behavior change but, few studies have examined the relationship between social support and dietary and physical activity change in a low-income rural population. As the obesity levels of adults in the U.S. continue to rise effective interventions that help achieve and maintain a healthy weight are imperative for the prevention and management of obesity and related chronic diseases. Social relationships and interactions can be both a positive and negative influence on an individual's diet, physical activity, and weight status. This chapter describes the sample, the instrument, data collection and analysis procedures.

Purpose of the Study

The purpose of this study was to examine levels of social support, healthy eating, physical activity, and behavior modification among adults living in rural Alabama. Adults from specific counties in Alabama with low incomes were included in this study. To accomplish the purpose of this study, data was collected through surveys from 204 volunteers living in two rural low-income communities (Macon and Bullock Counties) in Alabama. Demographic data was collected and included: gender, age, education level, race/ethnic group, marital status, and socioeconomic status. The study also evaluated the importance and the effect of this social support on behavior modification practices.

Research Questions

The following research questions were used in this study:

1. What is the relationship between social support, healthy eating, and physical activity for adults in rural areas?

2. What are the perceptions of adults living in rural communities for behavior modification?
3. What is the relationship between socioeconomic level, gender, and physical activity?
4. What is the relationship between education and dietary behavior for adults living in rural areas?
5. What is the relationship between social support, behavior modification and marital status for adults living in rural areas?
6. What is the relationship between social support, behavior modification, and race for adults living in rural areas?

Significance of Study

This study is significant because it examines the relationship between social support from family and friends for healthy eating and physical activity and how they play an important role in health behavior change for individuals living in rural Alabama. The study provides evidence to suggest that the problem of obesity and other chronic diseases are powerfully influenced by social support. This study also provides useful information to extend knowledge and contribute to the understanding of the interplay of social support and health related behavior modifications amongst a rural population.

The aim of the study focused on the relationship between dietary behaviors and physical activity behaviors among a rural low-income population and perceived social support from family and friends based on gender, race, age, socioeconomic status, education, and marital status. The information obtained from this study will be used to assist nutrition educators and health educators in creating more effective behavior modification instruments to be used for future education purposes, since these factors may influence life expectancy.

Design of the Study

A descriptive research design was used for this study. Descriptive research, also called survey research is useful in answering a variety of educational problems and concerns. Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984). Typically, descriptive studies are designed to assess attitudes, beliefs, opinions, preferences, demographics, practices, and procedures (Gay & Airasian, 2000; Touliatos & Compton, 1988). Descriptive research aims to describe a population, situation, or phenomenon (McCombes, 2019) accurately and systematically. It is an appropriate choice when the research aims to identify characteristics, frequencies, trends, correlations, and categories. A descriptive research design can use a wide variety of quantitative and qualitative methods to investigate one or more variables.

In this study a Social Support and Eating Habits and Social Support and Exercise survey designed by (Sallis, 1987) and a demographic survey created by the Primary Investigator (PI) and approved by Auburn University's Institutional Review Board were administered to a population of individuals recruited in two low-income rural communities (Macon and Bullock counties) in Alabama. The surveys were used to measure responses for each of the research questions related to the participants and collect personal data from each participant in the study. This study fulfills the purpose of a descriptive study because it sought to describe the perceived perceptions of social support individuals living in the two rural communities felt they received from family and friends in connection with their healthy eating and physical activity practices. The study also sought to examine and assess what effect those perceived perceptions had on the participants towards changing their behavior. A Multiple Linear Regression Analysis was utilized to answer each research question related to the relationship between the study

participants demographic background and their perceived perception of support from family and friends. The IBM SPSS statistical analysis program was used to analyze participant data gathered through this research.

Protection of Human Participants

The purpose and procedures for this research study were thoroughly detailed through written directives and responses. The information letter (see Appendix A), research protocol (IRB) (see Appendix B), and survey instruments (see Appendices C and D) were carefully reviewed and approved by the researcher's dissertation committee and Auburn University's Institutional Review Board (IRB) for the Protection of Human Subjects in Research (see Appendix B). The research study participants were provided an information letter (see Appendix A) which served as the Waiver of Documentation of Consent. The information letter invited participation in the study, highlighted results would be anonymous, and confirmed the purpose of participating in the study.

Population

"A population refers to a specific group of events, objects, or persons that meet a set of specifications or have a common measurable characteristic." (Touliatos & Compton, 1988, p. 55). Defining a population from which to sample is the first step in data collection (Gay & Airassian, 2000). The population used in this research study were recruited from two rural low-income communities in Alabama (Macon and Bullock Counties) with the help of Tuskegee University's Extension Department and Extension Agents. The population for this study consisted of 204 adults (137 females and 67 males) living in these two rural communities. The participants ages ranged from 19-65 years old and included both male and females of varied cultural backgrounds, ages, socio-economic and marital status.

Instrumentation

The descriptive function of research is heavily dependent on instrumentation for measurement and observation (Borg & Gall, 1989). The methods of collecting data for descriptive research can be employed singly or in various combinations, depending on the research questions at hand. Descriptive research often calls upon quasi-experimental research design (Campbell & Stanley, 1963). Some of the common data collection methods applied to questions within the realm of descriptive research include surveys, interviews, observations, and portfolios. This study used a Social Support and Eating Habits Survey and a Social Support and Exercise Survey developed by Sallis (1987) to collect data relating to perceived perceptions of support from family and friends and a Demographic survey created by the researcher using Survey Monkey for collection of personal data. Surveys are a cost-effective way to collect extensive, justifiable data in a highly standardized manner (Touliatos & Compton, 1988). Surveys are also easy to administer and can be used to provide a secure level of anonymity.

The surveys for this study were organized into three sections. The first section contained a demographic survey with questions related to gender, age, education level, race/ethnic group, marital status, and income level. The second section contained the social support and eating/nutrition habits scale. This section contained questions (1- 10) about how family and friends have encouraged, discouraged, influenced, or assisted the participant in trying to eat healthier or change their dietary habits. The third section contained the social support and exercise habits scale. This section contained questions (11-23) about how family and friends encouraged, discouraged, influenced, or assisted the participant in increasing or decreasing their exercise and changing their daily exercise habits.

The PI used the abbreviated version of the Social Support and Eating Habits Survey and the Social Support and Exercise Survey created by Dr. James F. Sallis (1987). These surveys were designed to be easier to use than the original surveys. The abbreviated surveys were scored separately and differently for family and friends. The Social Support for Eating Habits Survey was scored with encouragement: sum of questions (1-5) and discouragement: sum of questions (6-10). The Social Support and Exercise Survey was scored with family participation: sum of questions (11-16 and 20-23), family rewards and punishment (an optional scale): sum of questions (17-19) and friend participation: sum of questions (11-16 and 20-23). The Rewards and Punishment subscale was not scored for friends because it did not emerge in the factor analysis. The scoring scale included: 1 = none, 2 = rarely, 3 = a few times, 4 = often, 5 = very often, and 8 = does not apply. In scoring the surveys "8" was recorded as "1" per the instructions listed with the surveys. Once the surveys were completed, they were collected by the PI and stored in a secure location until data could be uploaded into SPSS statistical analysis system to be analyzed.

Data Collection Procedures

Upon receiving approval from Auburn University's Institutional Review Board for the Protection of Human Subjects in Research (IRB) the Primary Investigator (PI) met with the Assistant Dean for Cooperative Extension at Tuskegee University, Dr. Raymon Shange to ask for assistance from his extension agents in the two chosen locations (Macon and Bullock Counties) with recruitment of participants for the study. Dr. Shange provided the researcher with a letter of approval to conduct the research with assistance from the Tuskegee University Extension Agents in those areas. Meetings were scheduled with the extension agents in both counties. Once the PI met with each extension agent, a schedule was created of all the community outreach programs scheduled to be held in those counties. Recruitment for volunteers

to participate in the research study was conducted at these community events. The PI also scheduled a training session with each extension agent prior to the beginning of the scheduled programs to discuss the proper procedures for administering and collecting the information letter (See Appendix A), Demographic Survey (Appendix C), Social Support and Eating Habits Survey and Social Support and Exercise Survey (see Appendix D).

The PI attended each scheduled community program in each county and explained to the attending participants the purpose of the research study. All those that chose to participate were given an information letter to read and all questions were answered before they completed a survey. The information letter provided to the participants being recruited for the research study extended an invitation to participate in the study. To ensure confidentiality and anonymity, no personal identifiers were tied to the participants' survey responses. No participant was associated with their responses. In addition, no incentives were offered for participation in the study; participants were reminded that their participation was voluntary, and they could discontinue participation at any time during the study.

The information letter served as the Waiver of Documentation of Consent and explained what would be involved in participating in the study and the risks and benefits. The letter explained that the study was completely voluntary, and the participants could leave at any time, the purpose of the study was explained, and the participants were informed that their information would be kept anonymous and stored in a protected location. Contact information was provided for the doctoral student (PI) conducting the research and the chair of her committee.

Data Analysis

This research utilized quantitative methods including: a Multiple Linear Regression Analysis that was utilized to answer each research question related to the relationship between the study participants demographic background and their perceived perceptions of support from family and friends. The Multiple Linear Regression Model was used to determine and explain the relationship between one continuous dependent variable and two or more independent variables. The independent variables can be continuous or categorical. In regression analysis, the dependent variable is denoted as (Y), and the independent variable is denoted as (X). The regression models with one dependent variable and more than one independent variable are known as multivariate regression analysis. Correlations and test were used to determine if a statistically significant relationship existed between two variables. The Pearson correlation was used when the variables examined were ordinal in nature (Green & Salkind, 2014).

Alpha was set at .05 for all analyses, as this is the standard in educational research (Punch, 2009; Spalding, Voegtle, & Lodico, 2010). This level provides an acceptable amount of assurance that results are not coincidental. The independent variables were either categorical or ordinal and the dependent variable was categorical. The computer program IBM SPSS was used to conduct the statistical analyses.

Summary

This chapter discussed the introduction, purpose of the study, research questions, significance of the study, design of the study, protection of human participants, population, instrumentation, data collection procedures and analysis. The methods used in this study focused on gathering data from low-income individuals living in two rural counties in Alabama (Macon and Bullock). The participants were 19-65 years old and were recruited through Tuskegee

University and its Extension program, with the aid of the extension agents in Macon and Bullock counties. Data collection complies with research guidelines as specified by the Auburn University Institutional Research Board (IRB). The chapter also provided a description of the instruments used in the study to collect data. The statistical program IBM SPSS was used in data analysis. Descriptive statistics were used to summarize the data collection from the participants. Multiple linear regression, and Correlations were performed to determine the relationships between independent and dependent variables. Chapter IV presents the results of the statistical analyses conducted in this study.

Chapter 4: Findings

Introduction

This chapter contains the results of the data analyses. Statistical analyses were performed using SPSS version 25. Multiple linear regression was used to analyze the association between social support and variables. An analysis for each research question follows.

Purpose of the Study

The purpose of this study was to examine levels of social support, healthy eating, physical activity, and behavior modification among adults living in rural Alabama. Adults from specific counties in Alabama with low incomes were included in this study. To accomplish the purpose of this study, data was collected through surveys from 204 low-income volunteers living in two rural communities (Macon and Bullock Counties) in Alabama. Demographic data collected included: gender, age, education level, race/ethnic group, marital status, and socioeconomic status. The study also evaluated the importance and the effect of this social support on behavior modification practices.

Research Questions

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3. What is the relationship between socioeconomic level, gender and physical activity?
4. What is the relationship between education and dietary behavior for adults living in rural areas?

5. What is the relationship between social support, behavior modification and marital status for adults living in rural areas?
6. What is the relationship between social support, behavior modification, and race for adults living in rural areas?

Results

Demographics

As shown in Table 1, the sample population was comprised of 137 (67.1%) females and 67 (32.8%) males living in two rural communities in Alabama. The study had a total of N=204 participants and the majority were female. Descriptive statistics were analyzed to describe sample.

Table 1

Number and Percentage of Participants by Gender

Gender	Frequency	Percent	Cumulative Frequency	Cumulative Percent
F	137	67.16	137	67.16
M	67	32.84	204	100.00

N = 204

The sample population ranged in ages from 19-65 and included both males and females. Table 2 shows how ages were grouped and the percent of the total sample population they represented, 19-25 (48.5%), 26-35 (17.65%), 36-45 (6.86%), 46-55 (14.7%), 56-65 (12.25%). The data reported that the group with the highest frequency and percent was (19-25) and they made up 48.5% of the population being surveyed.

Education level was another descriptive statistic measured in the demographics for the sample population. The findings indicated that 11.27% of the sample population obtained an

Associate Degree (AD), 11.27% obtained a Bachelor's degree (BS), 30.88% had a High School Diploma (HS), .98% had a Master's Degree (MS) and 45.59% had Some College (SC). The education level chosen by the largest group of the sample population was Some College (SC) with a total of 93 participants and a 45.59% percent rate (see Table 3).

Table 2

Number and Percentage of Participants by Age

Age	Frequency	Percent	Cumulative Frequency	Cumulative Percent
19-25	99	48.53	99	48.53
26-35	36	17.65	135	66.18
36-45	14	6.86	149	73.0 4
46-55	30	14.71	179	87.75
56-65	25	12.25	204	100.00

N = 204

Table 3

Number and Percentage of Participants by Education Level

Education Level	Frequency	Percent	Cumulative Frequency	Cumulative Percent
AD	23	11.27	23	11.27
BS	23	11.27	46	22.55
HS	63	30.88	109	53.43
MS	2	0.98	111	54.41
SC	93	45.59	204	100.00

N = 204

The racial composition consisted of 204 participants that included: Frequency Missing (1), Asian 3, Black/African American 181, Hispanic 7, Indian 3, Other 4 and White/Caucasian 6. The percent of each race within the sample population was Asian (1.47%), Black/African American (88.24%), Hispanic (3.43%), Indian (1.47%), Other (1.96%) and White/Caucasian (2.94%). Table 4 shows the ethnicity classification and indicates that Black/African Americans comprised majority of the sample population. Frequency missing number represents one answer for race not answered by a participant.

Table 4

Number and Percentage of Participants by Race

Ethnic Group	Frequency	Percent	Cumulative Frequency	Cumulative Percent
.	1	0.49	1	0.49
A	3	1.47	4	1.96
B	180	88.24	184	90.20
H	7	3.43	191	93.63
I	3	1.47	194	95.10
O	4	1.96	198	97.06
W	6	2.94	204	100.00

Frequency Missing = 1 *N*= 204

Table 5 reported the frequency and percent of the marital status of the participants in this study. The study was comprised of a total of N=204 participants. The marital status categories of the participants included: Single (153), Married (28), Divorced (19), Widowed (4) and Separated

(0). The percent ratio for each group within the sample population was, Single (75%), Married (13.7%), Divorced (9.31%), Widowed and Separated (1.96%). The marital status classification indicates majority of the group were single.

Table 5

Number and Percentage of Participants by Marital Status

Marital Status	Frequency	Percentage
Single	153	75.0
Married	28	13.72
Divorced	19	9.31
Widowed	4	1.96
Separated	0	0.0

N = 204

Table 6 reported the frequency and percent of the income levels of the participants in the study. This study was conducted in two low-income rural communities. The income ranges that were analyzed in the descriptive data were (1) $10-15,000, (2) $16-20,000, (3) $21-25,000 and (4) $26-30,000. The frequency and percent for income levels was reported to show the income status of the sample population, 81 participants grossed $10-15,000 a year which was 39.22% of the sample population, 72 participants grossed $16-20,000 a year which was 35.29% of the sample population, 49 participants grossed $21-25,000 a year which was 24.02% of the sample population and 2 participants grossed $26-30,000 a year which was .98% of the sample population. Majority of the sample population had a gross income that fell below the $21,000 income level which placed them in the low-income category.

Table 6

Number and Percentage of Participants by Income Level

Gross Income	Frequency	Percent	Cumulative Frequency	Cumulative Percent
10-15,000	81	39.71	81	39.71
16-20,000	72	35.29	153	75.00
21-25,000	49	24.02	202	99.02
26-30,000	2	0.98	204	100.00

$N = 204$

Question 1. What is the relationship between social support, healthy eating, and physical activity for adults in rural areas? A multiple regression was used to determine if there was a relationship between social support, healthy eating, and physical activity for adults living in rural areas and their family members. Physical activity, and behavior modification appear to be multicollinear with a high degree of correlation ($r = 0.604$, $r = 0.771$) (see Table 7). The overall regression model was statistically significant ($F_{3,\ 106.18} = 67.243$, $P < 0.001$). About 61% of the variance in social support were explained by the model ($R^2 = 0.614$, Adj. $R^2 = 0.609$). Healthy eating practices ($B = 0.140$, $\beta = 0.134$, $t = 2.913$, $p = 0.004$) and behavior modification ($B = 0.659$, $\beta = 0.663$, $t = 10.08$, $p < 0.001$) were significantly associated with social support there was no significant interaction between social support and physical activity (see Table 8).

Table 7

Correlation between social support received from family, healthy eating, physical activity and behavior modification

	FMSS	**FMND**	**FMPA**	**FMBM**
FMSS				
FMND	0.343			
FMPA	0.604	0.194		
FMBM	0.771	0.288	0.729	

*Correlation is significant at the $p < 0.05$ level

Table 8

Coefficients showing relationship between social support received from family, healthy eating, physical activity and behavior modification

Variable	***B***	***SE***	***β***	***t***	***P***
Intercept	0.533	0.141			
FMND	0.140	0.048	0.134	2.913	0.004
FMPA	0.080	0.054	0.095	1.472	0.143
FMBM	0.659	0.065	0.663	10.081	0.000

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

A multiple regression was used to determine if there was a relationship between social support, healthy eating, physical activity, and behavior modification among friends. Physical activity, and behavior modification appear to be multicollinear with a high degree of correlation ($r = 0.677$, $r = 0.747$) (see Table 9). The overall regression model was statistically significant ($F_{3,\ 110.428} = 63.123$, $P < 0.001$). About 63% of the variance in social support were explained by the model ($R^2 = 0.625$, Adj. $R^2 = 0.619$). Healthy eating practices ($B = 0.177$, $\beta = 0.184$, $t =$

3.908, $p < 0.001$), behavior modification (B = 0.489, $\beta = 0.503$, $t = 7.874$, $p < 0.001$) and physical activity (B = 0.205, β = 0.247, t = 3.866, p < 0.001) were significantly associated with social support (see Table 10).

Table 9

Correlation between social support received from friends, healthy eating, physical activity and behavior modification

	FRSS	**FRND**	**FRPA**	**FRBM**
FRSS				
FRND	0.448			
FRPA	0.677	0.354		
FRBM	0.747	0.353	0.726	

*Correlation is significant at the $p < 0.05$ level

Table 10

Coefficients showing relationship between social support received from friends, healthy eating, physical activity, and behavior modification

Variable	***B***	***SE***	***β***	***t***	***p***
Intercept	0.476	0.128			
FRND	0.177	0.045	0.184	3.908	0.000
FRPA	0.205	0.053	0.247	3.866	0.000
FRBM	0.489	0.062	0.503	7.874	0.000

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

Question 2. What are the perceptions of adults living in rural communities for behavior modification? A multiple regression was used to determine if there was a relationship between perceptions of adults living in rural communities, their families and behavior modification (see Table 11). The overall regression model was statistically significant ($F_{3, 55.528} = 93.407$, $P <$

0.001) about 22% of the variance in perceptions were explained by the model (R^2 = 0.216, Adj. R^2 = 0.212). Behavior modification (B = 0.382, β = 0.464, t = 7.452, p < 0.001) was significantly associated with perceived perception (see Table 12). Regression results indicate that the overall model shows that perceived perceptions from family members significantly affects behavior modification in the population sample.

Table 11

Correlation between perceived perceptions of adults living in rural communities from family and behavior modification

	FMPP	**FMBM**
FMPP	1.000	
FMBM	0 .464	1.000

*Correlation is significant at the 0.05 level

Table 12

Coefficients showing relationship between perceived perceptions of adults living in rural communities from family and behavior modification

Variable	***B***	***SE***	***β***	***t***	***p***
Intercept	1.008	0.125			
FMBM	.382	0.051	0.464	7.452	0.000

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

A multiple regression was used to determine that there was no significant relationship between perceptions of adults living in rural communities and behavior modification among friends (see Table 13). The overall regression model was statistically significant ($F_{3,\ 47.083}$ = 110.964, *P* < 0.001). About 19% of the variance in perceptions were explained by the model (R^2 = 0.190, Adj. R^2 = 0.186). Behavior modification (B = 0.383, β = 0 .436, t = 6.862, p < 0.001) were significantly associated with perceived perception (see Table 14). Regression results

indicate that the overall model shows that perceived perceptions from friends significantly affected behavior modification in the population sample.

Table 13

Correlation between perceived perceptions of adults living in rural communities from friends and behavior modification

	FRPP	**FRBM**
FRPP	1.000	
FRBM	0.436	1.000

*Correlation is significant at the 0.05 level

Table 14

Coefficients showing relationship between perceived perceptions of adults living in rural communities from friends and behavior modification

Variable	***B***	***SE***	***β***	***t***	***P***
Intercept	0.914	0.139			
FRBM	0.383	0.056	0.436	6.862	0.000

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

Question 3. What is the relationship between socioeconomic level, gender, and physical activity? A multiple regression was used to determine if there was a significant correlation between socioeconomic level, gender, and physical activity among family members (see Table 15). The overall regression model was statistically significant ($F_{3,\ 23.240} = 30.656$, $P < 0.001$). About 19% of the variance in socioeconomic level were explained by the model ($R^2 = 0.188$, Adj. $R^2 = 0.180$). Gender (B = 0.112, β = 0.384, t = 6.036, p < 0.001) and physical activity (B = - 0.074, β = - 0.187, t = - 2.933, p = 0.004) were significantly associated with socioeconomic level (see Table 16).

Table 15

Correlation between socioeconomic level (GI), gender, and physical activity among family

	FMGI	Gender	FMPA
FMGI			
Gender	- 0.391		
FMPA	- 0.202	- 0.039	

*Correlation is significant at the $p < 0.05$ level

Table 16

Coefficients showing relationship between socioeconomic level, gender, and physical activity among family

Variable	*B*	*SE*	*β*	*t*	*P*
Intercept	1.157	0.076			
Gender	0.112	0.019	0.384	6.036	0.000
FMPA	-0.074	0.025	-0.187	-2.933	0.004

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

A multiple regression was used to determine that there was no significant correlation between socioeconomic level, gender, and physical activity among friends (see Table 17). The overall regression model was statistically significant ($F_{3,\ 7.341} = 35.039$, $P < 0.001$). About 7% of the variance in socioeconomic level were explained by the model ($R^2 = 0.069$, Adj. $R^2 = 0.059$). Physical activity (B = -.100, β = -.256, t = -3.734, p < 0.001) was significantly associated with socioeconomic level there was no significant interaction between gender and socioeconomic level (see Table 18).

Table 17

Correlation between socioeconomic level (GI), gender and physical activity among friends

	FRGI	Gender	FRPA
FRGI			
Gender	- 0.059		
FRPA	- 0.257	- 0.030	

*Correlation is significant at the $p < 0.05$ level

Table 18

Coefficients showing relationship between socioeconomic level, gender and physical activity among friends

Variable	*B*	*SE*	*β*	*t*	*P*
Intercept	1.503	0.078			
Gender	- 0.047	0.063	-0.051	-0.750	0.454
FRPA	-0.100	0.027	-0.256	-3.734	0.000

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

Question 4. What is the relationship between education and dietary behavior for adults living in rural areas? A multiple regression was used to determine if there was a significant correlation between rural adults, education, and dietary behavior among family members (see Table 19). The overall regression model was statistically significant ($F_{3,\ 9.587} = 43.534$, $P < 0.001$). About 9% of the variance in education were explained by the model ($R^2 = 0.087$, Adj. $R^2 = 0.078$). Education (B = -.146, β = -.296, t = - 4.336, p < 0.001) was significantly associated with socioeconomic level there was no significant association between socioeconomic level and dietary behavior (see Table 20).

Table 19

Correlation between education and dietary behavior for adults living in rural areas and family

	RURAL	FMEDU	FMND
RURAL			
FMEDU	- 0.295		
FMND	0.041	- 0.161	

*Correlation is significant at the $p < 0.05$ level

Table 20

Coefficients showing relationship between education and dietary behavior for adults living in rural areas and family

Variable	*B*	*SE*	*β*	*t*	*P*
Intercept	1.683	0.130			
FMEDU	- 0.146	0.034	- 0.296	- 4.336	0.000
FMND	- 0.004	0.037	- 0.007	- 0.098	0.922

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

A multiple regression was used to determine if there was a significant correlation between rural adults, education, and dietary behavior among friends (see Table 21. The overall regression model was statistically significant ($F_{3, 9.729} = 43.477$, $P < 0.001$). About 9% of the variance in education were explained by the model ($R^2 = 0.088$, Adj. $R^2 = 0.079$). Education (B = -.144, β = -.292, t = - 4.318, p < 0.001) was significantly associated with adults living in rural areas there was no significant association between education and dietary behavior (see Table 22).

Table 21

Correlation between education and dietary behavior for adults living in rural areas and friends

	RURAL	FREDU	FRND
RURAL			
FREDU	- 0.295		
FRND	- 0.061	- 0.088	

*Correlation is significant at the $p < 0.05$ level

Table 22

Coefficients showing relationship between education and dietary behavior for adults living in rural areas and friends

Variable	*B*	*SE*	*β*	*t*	*P*
Intercept	1.626	0.118			
FREDU	- 0.144	0.033	- 0.292	- 4.318	0.000
FRND	- 0.018	0.034	- 0.035	- 0.519	0.604

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

Question 5. What is the relationship between social support, behavior modification and marital status for adults living in rural areas? A multiple regression was used to determine if there was a significant correlation between social support, behavior modification and marital status for adults living in rural areas with their family members (see Table 23). The overall regression model was statistically significant ($F_{3,\ 64.017} = 66.630$, $P < 0.001$). About 62% of the variance in social support were explained by the model ($R^2 = 0.618$, Adj. $R^2 = 0.608$). Behavior Modification (B = .649, β =.653, t = 9.856, p < 0.001) was significantly associated with social support there was no significant association between marital status, social support, and behavior modification (see Table 24).

Table 23

Correlation between social support, behavior modification and marital status for family

	FMSS	**FMBM**	**FMMS**
FMSS			
FMBM	0.771		
FMMS	-0.068	- 0.054	

*Correlation is significant at the $p < 0.05$ level

Table 24

Coefficients showing relationship between social support, behavior modification and marital status for family

Variable	***B***	***SE***	***β***	***t***	***P***
Intercept	0.725	0.202			
FMBM	0.649	0.066	0.653	9.856	0.000
FMMS	- 0.034	0.049	- 0.031	- 0.690	0.491

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

A multiple regression was used to determine if there was a significant correlation between social support, behavior modification and marital status for adults living in rural areas with their friends (see Table 25). The overall regression model was statistically significant ($F_{3, 65.920} = 62.540$, $P < 0.001$). About 63% of the variance in social support were explained by the model ($R^2 = 0.627$, Adj. $R^2 = 0.618$). Behavior Modification (B = .488, β =0.501, t = 7.803, p < 0.001) was significantly associated with social support there was no significant association between marital status, social support and behavior modification (see Table 26).

Table 25

Correlation between social support, behavior modification and marital status for friends

	FRSS	FRBM	FRMS
FRSS			
FRBM	0.747		
FRMS	-0.172	- 0.136	

*Correlation is significant at the $p < 0.05$ level

Table 26

Coefficients showing relationship between social support, behavior modification and marital status for friends

Variable	*B*	*SE*	*β*	*T*	*p*
Intercept	0.607	0.172			
FRBM	0.488	0.063	0.501	7.803	0.000
FRMS	- 0.052	0.048	- 0.048	-1.080	0.281

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

Question 6. What is the relationship between social support, behavior modification, and race for adults living in rural areas? A multiple regression was used to determine if there was a significant correlation between social support, behavior modification and race among family (see Table 27). The overall regression model was statistically significant ($F_{3,\ 64.017} = 66.630$, $P < 0.001$). About 62% of the variance in social support were explained by the model ($R^2 = 0.618$, Adj. $R^2 = 0.608$). Behavior Modification (B = .649, β =.653, t = 9.856, p < 0.001) was significantly associated with social support there was no significant association between social support, behavior modification and race (see Table 28).

Table 27

Correlation between social support, behavior modification and race for adults living in rural areas and family

	FMSS	**FMBM**	**RACE**
FMSS			
FMBM	0.771		
RACE	- 0.087	- 0.047	

*Correlation is significant at the $p < 0.05$ level

Table 28

Coefficients showing relationship between social support, behavior modification and race for adults living in rural areas and family

Variable	***B***	***SE***	***β***	***t***	***P***
Intercept	0.725	0.202			
FMBM	0.649	0.066	0.653	9.856	0.000
RACE	- 0.021	0.054	- 0.017	- 0.392	0.695

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

A multiple regression was used to determine if there was a significant correlation between social support, behavior modification and race among friends (see Table 29). The overall regression model was statistically significant ($F_{3,\ 65.920} = 62.540$, $P < 0.001$). About 63% of the variance in social support were explained by the model ($R^2 = 0.627$, Adj. $R^2 = 0.618$). Behavior Modification (B = 0.488, β = 0.501, t = 7.803, p < 0.001) was significantly associated with social support there was no significant association between social support, behavior modification and race (see Table 30).

Table 29

Correlation between social support, behavior modification and race for adults living in rural areas and friends

	FRSS	FRBM	RACE
FRSS			
FRBM	0.747		
RACE	- 0.087	- 0.047	

*Correlation is significant at the $p < 0.05$ level

Table 30

Coefficients showing relationship between social support, behavior modification and race for adults living in rural areas friends

Variable	*B*	*SE*	*β*	*t*	*P*
Intercept	0.607	0.172			
FRBM	0.488	0.063	0.501	7.803	0.000
RACE	- 0.021	0.054	- 0.017	- 0.392	0.695

(*B*)unstandardized beta, (*SE*)standard error, (*β*)standardized beta, (*t*)t test statistics, (*p*)probability

Summary

The purpose of this study was to examine levels of social support, healthy eating, physical activity, and behavior modification among adults living in rural Alabama. Adults from specific counties in Alabama with low incomes were included in this study. This chapter discussed the results of the statistical analyses used to collect data from the research gathered for this study. Multiple Linear Regression and correlation tests were conducted to examine the potential relationships between perceived social support for behavior modification with healthy eating and physical activity by a low-income sample population living in Alabama from family and friends. The findings suggest that perceived social support from loved ones plays a

significant role in the health and well-being of individuals to include prevention and recuperation from chronic illness. The results also indicated a statistically significant difference between social support received from family members versus friends. Chapter 5 will provide a detailed summary and discussion of the findings and their implications.

Chapter 5:

Limitations, Recommendations, Implications, and Summary

Introduction

The first chapter of this study discussed the general introduction of health disparities in the U.S., the population affected most by these disparities, and the relationship social support has with these issues. The statement of the problem, purpose of the study, research questions, significance of study, limitations, assumptions, and definition of terms were all acknowledged. The second chapter provided the literature of review on social support, social networks, chronic diseases, healthy eating and physical activity, family and friends and their relationship with health and wellness. This chapter also provided literature on healthy eating and physical activity and their impact on health issues in the U.S. The third chapter described the methods used to conduct the study, the design of the study, the population and samples collected, the survey instrument used to collect data and how the data would be reported. The fourth chapter presented the findings of the study. This chapter presents the summary of the study, discussion, implication, and recommendations for future research.

Purpose of the Study

The purpose of this study was to examine levels of social support, healthy eating, physical activity, and behavior modification among adults living in rural Alabama. Adults from specific counties in Alabama with low incomes were included in this study. To accomplish the purpose of this study, data was collected through surveys from 204 low-income volunteers living in two rural communities (Macon and Bullock Counties) in Alabama. Demographic data collected included: gender, age, education level, race/ethnic group, marital status, and socioeconomic status. The study

also evaluated the importance and the effect of this social support on behavior modification practices.

Research Questions

The following research questions were used in this study:

1. What is the relationship between social support, healthy eating, and physical activity for adults in rural areas?
2. What are the perceptions of adults living in rural communities for behavior modification?
3. What is the relationship between socioeconomic level, gender, and physical activity?
4. What is the relationship between education and dietary behavior for adults living in rural areas?
5. What is the relationship between social support, behavior modification, and marital status for adults living in rural areas?
6. What is the relationship between social support, behavior modification and race for adults living in rural areas?

Discussion

In reviewing the demographic variables, several outcomes were noteworthy. Of the 204 participants who volunteered to take the surveys 137 were female (67.1%) of the sample population and 67 males (32.8%) of the population. Many of the participants (99) were 19-25 years old and made up (48.5%) of the population. Highest level of education was some college with a total of (93) participants making up (45.59%) of the sample population. Racial composition was another variable evaluated. The sample population was comprised of Whites/Caucasian (3), Black/African American (181), Asian (3), Hispanic (7), Indian (3), Other (4) and Missing frequency (1). Most of the sample population participating in the study were

Black/African American and made up (88.24%) of the population. Questions not answered by participants are represented by frequency missing. Marital status was a major factor in measuring social support. People who have more social relationships tend to live longer than do people who have fewer relationships (House, Landis, & Umberson, 1988), and marriage appears to be the one relationship most consequential for emotional and physical functioning (Kiecolt-Glaser & Newton, 2001). Marital status was measured within the sample population and most of the participants were single (153) and made up (75%) of the population, 28 participants were married and made up (13.72%) of the population. The remaining population included: divorced (19), widowed (4) and separated (0). Another demographic variable collected in this study was income level. Participants were low-income individuals living in a rural community and the majority earned $10-15,000 per year and made up (39.22%) of the population and were low-income.

The results gathered from the quantitative research data indicated the following for the six research questions. **Question 1**. What is the relationship between social support, healthy eating, and physical activity for adults in rural areas? For family, the results of the multiple regression indicated a high degree of correlation between physical activity and behavior modification (r = 0.604, r =0.771). The overall regression model indicated a statistically significant association between healthy eating practices, behavior modification and social support with 61% of the variance in social support being explained by the model (R^2 = 0.614, Adj. R^2 = 0.609). However, the results showed no significant interaction between social support and physical activity. For friends, the results of the multiple regression indicated that there was a high degree of correlation (r = 0.677, r = 0.747) between physical activity and behavior modification based on the social support received from friends with the two appearing to be

multicollinear. The overall regression model was statistically significant ($F_{3,\ 110.428} = 63.123$, $P < 0.001$). About 63% of the variance in social support were explained by the model ($R^2 = 0.625$, Adj. $R^2 = 0.619$). Healthy eating practices, behavior modification and physical activity (B = 0.205, β = 0.247, t = 3.866, p < 0.001) were significantly associated with social support. The results indicate that there is a statistically significant association between social support, healthy eating, physical activity, and behavior modification for family. There was no significant interaction between social support and physical activity for family. For friends, the results indicate that there is also a statistically significant relationship between social support, healthy eating, physical activity, and behavior modification. There is a statistically significant association between healthy eating practices, behavior modification, physical activity, and social support for friends.

Question 2. What are the perceptions of adults living in rural communities for behavior modification? For family, the overall regression model was statistically significant for perceptions of adults living in rural communities and behavior modification. The overall regression model was statistically significant ($F_{3,\ 55.528} = 93.407$, $P < 0.001$) about 22% of the variance in perceptions were explained by the model ($R^2 = 0.216$, Adj. $R^2 = 0.212$). Regression results indicate an overall significant association between perceived perceptions from adults living in rural communities and behavior modification for family. For friends, the results determined there was no significant relationship between perceptions of adults living in rural communities, and behavior modification. The overall regression model was statistically significantly ($F_{3,\ 47.083} = 110.964$, $P < 0.001$). About 19% of the variance in perceptions were explained by the model ($R^2 = 0.190$, Adj. $R^2 = 0.186$). Table 14). Regression results indicate the

overall model shows that perceived perceptions significantly affected behavior modification in the population sample.

Question 3. What is the relationship between socioeconomic level, gender, and physical activity? For family, a multiple regression model was used to determine there was a significant correlation between socioeconomic level, gender, and physical activity. The overall regression was statistically significant ($F_{3,\ 23.240} = 30.656$, $P < 0.001$). About 19% of the variance in socioeconomic level were explained by the model ($R^2 = 0.188$, Adj. $R^2 = 0.180$). Gender and physical activity were significantly associated with socioeconomic levels. For friends, a multiple regression was used to determine there was no significant correlation between socioeconomic level, gender and physical activity. The overall regression model was statistically significant ($F_{3,\ 7.341} = 35.039$, $P < 0.001$). About 7% of the variance in socioeconomic level were explained by the model ($R^2 = 0.069$, Adj. $R^2 = 0.059$). Physical activity was significantly associated with socioeconomic level. There was no significant association between gender and socioeconomic level.

Question 4. What is the relationship between education and dietary behavior for adults living in rural areas? For family, a multiple regression model was used to determine if there was a significant correlation between rural adults, education, and dietary behavior. The overall regression was model was found to be statistically significant ($F_{3,\ 9.587} = 43.534$, $P < 0.001$). About 9% of the variance in socioeconomic level were explained by the model ($R^2 = 0.087$, Adj. $R^2 = 0.078$). Education was significantly associated with socioeconomic level. There was no significant association between socioeconomic level and dietary behavior. For friends, a multiple regression model was used to determine if there was a significant correlation between rural adults, education, and socioeconomic level. The overall regression model was statistically

significant ($F_{3,\ 9.729} = 43.477$, $P < 0.001$). About 9% of the variance in socioeconomic level were explained by the model ($R^2 = 0.088$, Adj. $R^2 = 0.079$). Education was significantly associated with socioeconomic level. There was no significant association between socioeconomic level and dietary behavior.

Question 5. What is the relationship between social support, behavior modification and marital status? For family, a multiple regression model was used to determine if there was a significant correlation between social support, behavior modification and marital status for adults living in rural areas**.** The overall regression model was statistically significant ($F_{3,\ 64.017} = 66.630$, $P < 0.001$). About 62% of the variance in social support were explained by the model ($R^2 = 0.618$, Adj. $R^2 = 0.608$). Behavior modification was significantly associated with social support. There was no significant association between social support, behavior modification and marital status. For friends, a multiple regression model was used to determine if there was a significant correlation between social support, behavior modification and marital status for adults living in rural areas**.** The overall regression model was statistically significant ($F_{3,\ 65.920} = 62.540$, $P < 0.001$). About 63% of the variance in social support were explained by the model ($R^2 = 0.627$, Adj. $R^2 = 0.618$). Behavior modification was significantly associated with social support. There was no significant association between marital status, social support, and behavior modification.

Question 6. What is the relationship between social support, behavior modification, and race for adults living in rural areas? For family, a multiple regression was used to determine if there was a significant correlation between social support, behavior modification and race for adults living in rural areas. The overall regression model was statistically significant ($F_{3,\ 64.017} = 66.630$, $P < 0.001$). About 62% of the variance in social support were explained by the model ($R^2 = 0.618$, Adj. $R^2 = 0.608$). Behavior modification was significantly associated with social

support. There was no significant association between social support, behavior modification and race. For friends, a multiple regression was used to determine if there was a significant correlation between social support, behavior modification and race for adults living in rural areas. The overall regression model was statistically significant ($F_{3,\ 65.920} = 62.540$, $P < 0.001$). About 63% of the variance in social support were explained by the model ($R^2 = 0.627$, Adj. $R^2 = 0.618$). Behavior modification was significantly associated with social support. There was no significant association between social support, behavior modification and race.

Several traditions of research have documented the health-enhancing effect that social relationships have on physical and psychological outcomes. People who have more social relationships tend to live longer than do people who have fewer relationships (House, Landis, & Umberson, 1988). Psychologists and other mental health professionals often talk about the importance of having a strong support network. When trying to reach our goals or deal with crisis, experts frequently implore people to lean on their friends and family for support. Research has also demonstrated the link between social relationships and many different aspects of health and wellness. Essentially, social support involves having a network of family and friends that you can turn to in times of need and when you need help and support.

Limitations of the Study

This research has limitations, which should be taken into consideration by the reader throughout the review of this study. This study was limited to adults with low incomes (ages 19-65) living in two rural communities in Alabama. The study was also limited to information collected using the "Social Support and Eating Habits and Social Support and Exercise" surveys designed by (Sallis, 1987). This study was limited by relevant data because few studies have examined the relationship between social support, healthy eating habits, physical activity, and

behavior modification in a low-income rural population. Another limitation of the study included the use of surveys as a data collection instrument. A few limitations are commonly associated with the use of surveys. The quality of the information and validity of the findings depend greatly on the accuracy and truthfulness of responses to questions, response rates may vary, respondents may not complete the entire instrument and questions may be interpreted incorrectly (Gay & Airasian; Touliatos & Compton, 1988).

Recommendations for Future Research

The researcher recommends that this research study be replicated in other rural communities in Alabama to aid in the fight against chronic disease and health disparities that are being seen throughout the Black Belt and across the country in these low-income populations. None of the previous studies have systematically and comprehensively focused on the Alabama Black Belt (of which Tuskegee (Macon County) is a part) with its unique dietary patterns, higher than national average of poverty, disproportionate chronic disease morbidity and mortality (Bovell-Benjamin et al., 2009). Union Springs (Bullock County) the second rural community used for this study also has a high level of poverty and chronic disease issues and is a part of the Alabama Black Belt. Replicating this study across a larger geographical area may allow for a larger sample population and yield different results than those found in this study. It is also recommended that the results from this and other studies like it be used to partner with extension programs, extension agents, community health officials and workers. This partnership will create opportunities to brainstorm and work together to develop and implement new resources and instruments to help educate and teach the community about health issues, healthy dietary and exercise behavior and bring a higher level of awareness and solutions to those health issues in our communities.

This study included participants from two low-income rural communities in Alabama. The researcher suggests future studies focus more on spouses/significant others, parent/child, and teacher/student social support relationships to get a more concentrated look at the effects of social support on health and behavior modification in those specific relationships and their effect on the individuals.

This study utilized the abbreviated versions of the Social Support and Eating Habits Survey and Social Support and Exercise Survey developed by Sallis (1987) to collect data relating to perceived perceptions of support from family and friends. The researcher also recommends that it may be more beneficial if future research studies use the full-scale versions of these surveys or create a survey with more specific questions about social support to gather more detailed data. More detailed information may be a key to gaining more understanding about the relationship between perceived social support and social relationships.

Implications for Practice

The information gained in this study is useful because it indicates that there is a relationship between social support and health related issues and that perceived social support and social networks can encourage healthy choices and behaviors. The information provided in this study is beneficial because it adds to an area of research receiving attention focusing on links between social support and physical health. Current research is extending our understanding of social support's influences on health. Many epidemiological studies have concentrated on further linking measures of social support to physical health outcomes (Reblin & Uchino,2008). An important line of research in this area centers on extending our understanding, of links between social support, mortality and morbidity. A few studies are now moving into newer areas, such as emphasizing health links to support receipt and provision. Researchers are also interested in

outlining relevant pathways, including potential biological (i.e., inflammation) and behavioral (i.e., health behaviors) mechanisms. Interventions attempting to apply basic research on the positive effects of social support are also widespread (Reblin & Uchino, 2008). Even though the long-term effects of these interventions on physical health remain to be determined, they still show great promise in influencing the quality of life in many chronic disease populations, especially low-income and rural populations. The information in this study can be used in partnership with medical and health care workers towards future research and to help design and create care plans that would include family members and friends assisting with the care of their loved one. This would happen through providing positive social reinforcement during the recovery period. This care could be treated as a type of therapy to help encourage recovery and strengthen the will to live.

This study also provided useful information to extend knowledge and contribute to the understanding of the interplay of social support and health related behavior modifications amongst a rural population. Persons living in a rural area with low socioeconomic status (SES) are more likely to have poorer health and a shorter life expectancy than persons with higher SES (Mackenbach et al., 2008). Similar studies might want to further investigate the relationship between living in a rural area, health disparities and social support. The information obtained from the study could be used to develop partnerships with community extension programs, extension agents, nutrition educators and health educators. This partnership would allow these individuals to work together to create more effective behavior modification instruments to be used for future education purposes, since these factors may influence life expectancy.

Summary

This purpose of this study was to examine levels of social support, healthy eating, physical activity, and behavior modification among adults living in rural Alabama. Adults from specific counties in Alabama with low incomes were included in this study. Demographic data was collected and included: gender, age, education level, race/ethnic group, marital status, and socioeconomic status. The study also evaluated the importance and the effect of this social support on behavior modification practices.

This study is significant because it examined the relationship between social support from family and friends for healthy eating and physical activity and how they play an important role in health behavior change for individuals living in rural Alabama. The study provided evidence to suggest that the problem of obesity and other chronic diseases are powerfully influenced by social support received from family and friends. This study also provided useful information to extend knowledge and contribute to the understanding of the interplay of social support and health related behavior modifications amongst a rural population.

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Appendix A

Information Letters

AUBURN UNIVERSITY

COLLEGE OF EDUCATION

EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY

NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.

INFORMATION LETTER
for a Research Study entitled

"Perceptions of Social Support for Healthy Eating and Physical Activity Among Low Income Adults in Rural America"

You are invited to participate in a research study that will look at how participants with an income of $16,000 - $20,000 living in rural Alabama see the help and encouragement they receive from family and friends about their healthy eating and exercise. The study will also measure the importance and the effect of this help and encouragement with helping them change how they eat and exercise. This study is being conducted by Doris Hargrove Eaves, Doctoral Student under the direction of Dr. James Witte, Professor in the Auburn University Department of Educational Foundations, Leadership, and Technology. You are invited to participate because you live in a rural Alabama community, you are age 19 or older and you make $16,000 - $20,000.

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to complete a Demographic Survey which will ask you questions about your (age, race, education, how much money you make, and if you are married), a Social Support and Eating Habits Survey (a survey that will ask you how your friends and family help you change how you eat) and a Social Support and Exercise Survey (a survey that will ask you how your friends and family help you increase the amount of exercise you do weekly). The total time you will be asked to spend taking this survey will be fifteen minutes.

Are there any risks or discomforts? The risks associated with participating in this study are small. To decrease these risks, we will maintain the privacy of all responses. There is no identifying information connecting the data to you. Any data collected from this study will remain anonymous.

Are there any benefits to yourself or others? Your participation in this study will help the PI to finish her degree and provide important information to people who are working with community nutrition programs to help them educate people living in rural communities about how the help and support they receive from their friends and family can affect how they eat and exercise to improve their health. This information may be used to help improve teaching tools used to help teach people living in rural areas about the ways they can improve their health through nutrition and also be aware of any health problems caused by poor nutrition and exercise habits. Participants will not receive any individual gifts for participating.

4036 Haley Center, Auburn, AL 36849-5221; Telephone: 334-844-4460; Fax: 334-844-3072

www.auburn.edu

Will you receive compensation for participating? You will not be paid for your fifteen minutes of time.

Are there any costs? There are no costs for participating with the exception of your fifteen minutes of time.

If you change your mind about participating you may leave at any time from this study by letting the project investigator know you want to stop. Your participation is completely voluntary. If you choose to leave, your information can be taken out if I am able to recognize it in the collected information. Your decision about whether or not to take the survey or to stop taking the survey will not cause any problems with any future connections with Auburn University, the Department of Educational Foundations, Leadership, and Technology.

Any information collected in connection with this study will remain anonymous. We will protect your privacy and the information you provide by making sure no one can be recognized in the information collected for the study. Information collected through your participation will be used in a research paper as a part of what I need to do to complete a degree in Adult Education and graduate and may be published in a professional journal.

If you have questions about this study, please contact the doctoral student, Doris Hargrove Eaves at dhe0003@auburn.edu or 334-740-3726 the chair of the doctoral committee, Dr. James Witte at witteje@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334) 844-5966 or e-mail at IRBadmin@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO. THIS LETTER IS YOURS TO KEEP.

Doris Hargrove Eaves 12/14/18

Investigator *Date*

_____

Co-Investigator *Date*

The Auburn University Institutional Review Board has approved this Document for use from 02/11/2019 to ---------- Protocol # 18-475 EX 1811

Appendix B

IRBs

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS

REQUEST FOR EXEMPT CATEGORY RESEARCH

For Information or help completing this form, contact: **THE OFFICE OF RESEARCH COMPLIANCE**, 115 Ramsay Hall
Phone: 334-844-5966 **e-mail:** IRBAdmin@auburn.edu **Web Address:** http://www.auburn.edu/research/vpr/ohs/index.htm

Revised 2/1/2014 **Submit completed form to IRBsubmit@auburn.edu or 115 Ramsay Hall, Auburn University 36849.**

Form must be populated using Adobe Acrobat / Pro 9 or greater standalone program (do not fill out in browser). Hand written forms will not be accepted.

Project activities may not begin until you have received approval from the Auburn University IRB.

1. **PROJECT PERSONNEL & TRAINING**

PRINCIPAL INVESTIGATOR (PI):

Name Doris Hargrove Eaves Title Doctoral Student Dept./School Education - EFLT

Address 307 Mulberry Ct., Auburn, AL 36830 AU Email dhe0003@tigermail.auburn.edu

Phone 334-740-3726 Dept. Head Sherida Downer

FACULTY ADVISOR (if applicable):

Name Dr. James Witte Title Professor Dept./School Education - EFLT

Address Haley Center, Auburn University, Alabama 36849

Phone 334-844-3054 AU Email witteje@auburn.edu

KEY PERSONNEL: **List Key Personnel (other than PI and FA).** Additional personnel may be listed in an attachment.

Name	Title	Institution	Responsibilities

KEY PERSONNEL TRAINING: **Have all Key Personnel completed CITI Human Research Training (including elective modules related to this research) within the last 3 years?** ☑ YES ☐ NO

TRAINING CERTIFICATES: **Please attach CITI completion certificates for all Key Personnel.**

2. **PROJECT INFORMATION**

Title: "Perceptions of Social Support for Healthy Eating and Physical Activity among low income adults in rural Alabama"

Source of Funding: ☑ Investigator ☐ Internal ☐ External

List External Agency & Grant Number:

List any contractors, sub-contractors, or other entities associate with this project.

List any other IRBs associated with this project (including those involved with reviewing, deferring, or determinations).

FOR ORC OFFICE USE ONLY

DATE RECEIVED IN ORC: _____ by _____
DATE OF IRB REVIEW: _____ by _____
DATE OF ORC REVIEW: _____ by _____
DATE OF APPROVAL: _____ by _____
COMMENTS:

APPROVAL #
APPROVAL CATEGORY:
INTERVAL FOR CONTINUING REVIEW :

The Auburn University Institutional Review Board has approved this Document for use from 02/11/2019 to ---------
Protocol # 18-475 EX 1811

1 of 3

3. **PROJECT SUMMARY**

a. **Does the research involve any special populations?**

- ☐ YES ☑ NO **Minors (under age 19)**
- ☐ YES ☑ NO **Pregnant women, fetuses, or any products of conception**
- ☐ YES ☑ NO **Prisoners or Wards**
- ☐ YES ☑ NO **Individuals with compromised autonomy and/or decisional capacity**

b. **Does the research pose more than minimal risk to participants?** ☐ YES ☑ NO

Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests. 42 CFR 46.102(i)

c. **Does the study involve any of the following?**

- ☐ YES ☑ NO **Procedures subject to FDA Regulation** Ex. Drugs, biological products, medical devices, etc.
- ☐ YES ☑ NO **Use of school records of identifiable students or information from instructors about specific students**
- ☐ YES ☑ NO **Protected health or medical information when there is a direct or indirect link that could identify the participant**
- ☐ YES ☑ NO **Collection of sensitive aspects of the participant's own behavior, such as illegal conduct, drug use, sexual behavior or use of alcohol**
- ☐ YES ☑ NO **Deception of participants**

If you checked "YES" to any response in Question #3 STOP. It is likely that your study does not meet the "EXEMPT" requirements. Please complete a PROTOCOL FORM for Expedited or Full Board Review.
You may contact IRB Administration for more information. (Phone: 334-844-5966 or Email: IRBAdmin@auburn.edu)

4. **PROJECT DESCRIPTION**

a. **Subject Population** (Describe, include age, special population characteristics, etc.)

The population of this study will be comprised of low income adults ranging from the ages of (19-65 years old). The participants will be both males and females that reside in Tuskegee (Macon County) and Union Springs (Bullock County) Alabama. All participants in the study will be recruited through Tuskegee University's Extension Program. The Principal Investigator (PI) will partner with Macon County and Bullock County Extension Agents to recruit participants. The participants must have an income ranging from $16,000 - $20,000 to be considered low income. The PI intends to enroll 200 participants. There is minimal risk associated with participation in this study. To minimize any risks, confidentiality will be maintained for all responses and any data obtained through this study will remain anonymous.

b. **Describe, step by step, all procedures and methods that will be used to consent participants.**

☐ **N/A (Existing data will be used)**

The principal investigator will attend community events held by Tuskegee University Extension Agents in Macon and Bullock Counties and will provide an information letter to all participants recruited for the research project explaining the purpose of the research. The PI will handout and review the letter with the recruited participants and answer any questions they have about the research project. The participants will then be given three forms that will include : a Demographic Survey, Social Support and Eating Habits Survey and Social Support and Exercise Survey. The participants will be recruited from various extension programs and activities being held in Macon and Bullock Counties with assistance from the extension agents in the perspective counties. Participants will drop surveys in box at the back of the room. The participants demographic and survey results will be maintained in a locked cabinet in Haley 3068 office of Dr. James Witte (faculty advisor). The data will remain anonymous. The income range that is described as low income in the study is an income range from $16,000 - $20,000.

c. **Brief summary of project.** (Include the research question(s) and a brief description of the methodology, including recruitment and how data will be collected and protected.)

The purpose of this study is to examine the perceptions of social support received from family and friends by those individuals with low incomes living in a rural community in Alabama for their healthy eating and physical activity lifestyle choices. This study will collect data that will be used to evaluate the importance and the effect of social support on behavior modification practices. The data will be used to aid in creating more effective behavior modification instruments to be used for future education purposes, since these factors may influence life expectancy.

Research Questions

1. What is the relationship between social support, dietary behavior, physical activity and rural low-income adults?

2. What is the relationship between the perceptions of low-income adults living in rural communities and behavior modification?

3. What is the relationship between socioeconomic level and physical activity?

4. What is the relationship between living in rural areas, race and dietary practices?

5. What is the relationship between social support, marital status and diet and exercise modification?

6. What is the relationship between social support, education and behavior modification?

Methodology

This study is non-experimental and a survey research design will be used for data collection. Survey questionnaires will be administered to all participants to examine and assess perceptions of social support they received from family and friends and how that support affected their behavior modification choices they made with their diets and exercise habits. Confidentiality will be maintained for all responses. Data collected will remain anonymous, information will be recorded in a way that participants cannot be identified. The principal investigator will oversee data collection and the protection of the data throughout this study.

d. **Waivers. Check any waivers that apply and describe how the project meets the criteria for the waiver.**

- ☐ **Waiver of Consent (Including existing de-identified data)**
- ☑ **Waiver of Documentation of Consent (Use of Information Letter)**
- ☐ **Waiver of Parental Permission (for college students)**

This research project meets the criteria for the waiver for the following reasons:

1. Provides protection for perspective participants because signatures would be only identifier and would compromise the research projects level of confidentiality.

2. Research participants level of trust may be directly affected due to fear of providing a signature on documents and this in turn could affect the number of participants I am able to recruit in these counties.

e. **Attachments. Please attach Informed Consents, Information Letters, data collection instrument(s), advertisements/recruiting materials, or permission letters/site authorizations as appropriate.**

Signature of Investigator Doris Hargrove Eaves Date December 14, 2018

Signature of Faculty Advisor James E. Witte Date January 7, 2019

Signature of Department Head Sherida Downer Date 2/8/2019

TUSKEGEE
UNIVERSITY

COLLEGE OF AGRICULTURE,
ENVIRONMENT AND NUTRITION SCIENCES

COOPERATIVE EXTENSION PROGRAM

November 9, 2018

Auburn University Institutional Review Board
c/o Office of Research Compliance
115 Ramsay Hall
Auburn, AL 36849

TO WHOM IT MAY CONCERN:

Please note that Ms. Doris Hargrove-Eaves, AU Graduate Student, has the permission of Tuskegee University Cooperative Extension Program to conduct research with our clientele and Extension Agents (Macon and Bullock Counties) for her study, "Perceptions of Social Support for Healthy Eating and Physical Activity Among Low Income Adults in Rural America".

Ms. Hargrove-Eaves will contact employees in the specified counties to support her in the distribution of surveys to individuals at TUCEP events in the Tuskegee and Union Springs (ages 19-65). The survey instrument will determine demographic, nutritional, and physical activity data.

Ms. Hargrove-Eaves has agreed not to interrupt the flow of the county programs and to plan accordingly to pass out her survey at an opportune time that allows the collection of TUCEP evaluations as well. Ms. Hargrove-Eaves has also agreed to provide to my office a copy of the Auburn University-approved, stamped consent document before she contacts the County Agents, and will also provide a copy of any aggregate results.

If there are any questions, please contact my office.

Signed,

Raymon Shange
Assistant Dean for Cooperative Extension

Morrison-Mayberry Hall

Tuskegee, AL 36088

Telephone

334-724-4441

Fax

334-724-4433

www.tuskegee.edu

Appendix C

Demographic Survey

Perceptions of Social Support for Nutrition and Exercise Modifications Demographic Survey

General Information. Please select the best answer for each question.

1. What is your gender?
   - o Female
   - o Male

2. What is your age?
   - o 19 to 25
   - o 26 to 35
   - o 36 to 45
   - o 46 to 55
   - o 56 to 65

3. What is the highest level of education you have completed?
   - o High School/GED
   - o Some College
   - o Associates Degree
   - o Bachelor's Degree
   - o Master's Degree

4. What is your ethnic group?
   - o Asian/Pacific Islander
   - o Black
   - o Hispanic
   - o Indian
   - o White
   - o Other

5. What is your marital status?
    - Married
    - Separated
    - Divorced
    - Widowed
    - Single

6. What is your gross income?
    - $10,000 - $15,000
    - $16,000 - $20,000
    - $21,000 - $25,000
    - $26,000 - $30,000

Appendix D

Eating Habits and Exercises Survey

SOCIAL SUPPORT AND EATING HABITS SURVEY

Below is a list of things people might do or say to someone who is trying to improve their eating habits. We are interested in high fat and high salt (or high sodium) foods. If you are not trying to make any of these dietary changes, then some of the questions may not apply to you, but please read and give an answer to every question.

Please rate each question *twice*. Under *family,* rate how often anyone living in your household has said or done what is described during the last three months. Under *friends,* rate how often your friends, acquaintances, or coworkers have said or done what is described during the last three months.

Please write *one* number from the following rating scale in each space:

SAMPLE:

A. If my family *rarely makes fun of the foods I eat, and my friends very often* do, I would answer like this:	Family	Friends
A. Made fun of the foods I eat	A. 2	A. 5

---

none	rarely	a few times	often	very often	does not apply
1	2	3	4	5	8

During the past three months, my family (or members of my household) or friends:

	Family	Friends
1. Encouraged me not to eat "unhealthy foods" (cake, salted chips) when I'm tempted to do so.	1.	1.
2. Discussed my eating habit. changes with me (asked me how I'm doing with my eating changes).	2.	2.
3. Reminded me not to eat high fat, high salt foods.	3.	3.
4. Complimented me on changing my eating habits ("Keep it up", "We are proud of you ") .	4.	4.
5. Commented if I went back to my old eating habits.	5.	5.
6. Ate high fat or high salt foods in front of me.	6.	6.
7. Refused to eat the same foods I eat.	7.	7.
8. Brought home foods I'm trying not to eat.	8.	8.
9. Got angry when I encouraged them to eat low salt, low fat foods.	9.	9.
10. Offered me food I'm trying not to eat.	10.	10.

SOCIAL SUPPORT AND EXERCISE SURVEY

Below is a list of things people might do or say to someone who is trying to exercise regularly. If you are not trying to exercise, then some of the questions may not apply to you, but please read and give an answer to every question.

Please rate each question *twice*. Under *family*, rate how often anyone living in your household has said or done what is described during the last three months. Under *friends*, rate how often your friends, acquaintances, or coworkers have said or done what is described during the last three months.

Please write *one* number from the following rating scale in each space:

none	rarely	a few times	often	very often	does not apply
1	2	3	4	5	8

During the past three months, my family (or members of my household) or friends:

		Family	Friends
11.	Exercised with me.	11.	11.
12.	Offered to exercise with me.	12.	12.
13.	Gave me helpful reminders to exercise. ("Are you going to exercise tonight?").	13.	13.
14.	Gave me encouragement. to stick with my exercise program.	14.	14.
15.	Changed their schedule so we could exercise together.	15.	15.
16.	Discussed exercise with me.	16.	16.
17.	Complained about the time I spend exercising.	17.	17.
18.	Criticized me or made fun of me for exercising.	18.	18.
19.	Gave me rewards for exercising (bought me something or gave me something I like).	19.	19.
20.	Planned for exercise on recreational outings.	20.	20.
21.	Helped plan activities around my exercise.	21.	21.
22.	Asked me for ideas on how *they* can get more exercise.	22.	22.
23.	Talked about how much they like to exercise.	23.	23.

Office Use Only

☐1. English ☐ 2. Spanish Date: Entered ☐☐/☐☐/☐☐ Coder: ☐☐

September 26, 1986