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Social Support And Health Behaviors

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by

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DEDICATION

I would like to dedicate this work to my mother and father and to Dr. Janet Hankin. Thank you for all the support.

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CHAPTER 1: Social Support and Health Behaviors

The specific aim of the research was to discover whether social support is related to health behaviors. More specifically, this project explored varying sources of support across three health behaviors which consist of smoking (tobacco use), diet/nutrition, and physical activity. Social support in this study was defined as emotional support from family, friends, religious congregation, coworkers, and neighbors.

The dependent variable in this project was health behaviors. Health behaviors are defined as activities "undertaken by individuals for the purpose of maintaining or enhancing their health, preventing health problems, or achieving a positive body image" (Cockerham, 2012, pg. 120). More specifically, the outcome variable consisted of three separate health behaviors, smoking, diet/nutrition, and physical activity. The predictor variable consists of social support. Social support can take the form of instrumental, emotional, or informational support. In this research, I used one dimension, emotional support which refers to "demonstrations of love and caring, esteem and value, encouragement and sympathy" (Thoits 2011, p. 146). Various sources of social support were examined, including support from one's family, neighborhood, religious congregation, and friends. This study also explored how socio-demographic characteristics including race, class, gender, age, and educational attainment modify the relationship between social support and health behaviors.

The format of this chapter consists of six separate sections, beginning with the statement of problem and the specific aim of this research project. The significance of the study section discusses the importance of investigating health behaviors. Chapter 1 discussed the literature review which explored what has been found regarding research

on social support and its impact on health behaviors. Following the literature review is a section on the gaps in the literature pertaining to social support and health behaviors. Next, chapter 2 discussed the theory presented in this study. Following the theory section the hypotheses of this study will be presented. Chapter 3 is the study's methodology. Following the methodology section are the three findings chapters, which consists of chapter 5, chapter 6 and chapter 7. The findings chapters consist of social support in relation to each health behavior (diet, smoking and physical activity). Finally, the conclusions chapter (chapter8) is presented.

Statement of the Problem

Controlling for sociodemographic variables (age, education, race, sex groups, and income), this study primarily investigates the relationship between social support and health behaviors. Social support will operate in different ways for each health behavior (diet, smoking, and exercise). Social support and health behaviors will also vary by subgroups (race and sex groups).

The Significance of this Study

To establish a "long life" or prevent a premature death, one arguably needs to engage in a healthy lifestyle. A healthy lifestyle may consist of exercising regularly, eating an adequate diet of fruits and vegetables, and avoiding unhealthy behaviors such as smoking. According to Cockerham (2012) 443,000 Americans die each year due to some sort of smoking-related disease (e.g. lung cancer, heart disease, etc.). Furthermore, smoking causes men to lose 13.5 years of life on average and women to lose 14.5 years (Cockerham p. 75, 2012). In comparison to years past, Americans see

smoking as taboo and socially unacceptable. For example, many states in the U.S. have banned smoking in public places such as bars and restaurants. This is an attempt to reduce harmful effects from second hand smoke. Exposure to secondhand smoke still results in an estimated 49,000 related deaths per year (Centers for Disease Control and Prevention, 2009).

A substantial proportion of adults smoke in the United States. The Center for Disease Control (2009) found that 20.6% of all adults (18 years old or older) or 46.6 million people currently smoke. Even more alarming is the number of young adults who begin smoking every day. On a daily basis roughly 3,400 young people between the age of 12 and 17 years old smoke their first cigarette. Each day about 2,200 adults 18 years old or older begin smoking cigarettes on a daily basis. An estimated 70% of smokers want to quit smoking completely, and in 2008 45% of smokers attempted to quit (Center for Disease Control 2009). Smoking is the leading cause of preventable death. The CDC (2009) suggests that 1 of every 5 deaths is somehow smoking-related.

In addition to not smoking, maintaining a healthy diet also contributes to a healthy life. The CDC (2008) suggests that healthy eating is associated with reducing the risk for heart disease, cancer, obesity, and diabetes. Individuals who eat fast food one or more times per week have an increased risk for weight gain and obesity. Drinking sugar-sweetened beverages can result in health problems as well (CDC, 2008). To prevent such diseases, information about diet is crucial. Checking food and drink labels may help establish a knowledge base about nutritional facts in food so one can limit the intake of sugar, sodium, saturated fats, and cholesterol. .

Physical activity or exercise also plays a factor in the health status of a given individual. Physical activity may consist of jogging, walking, bicycling or any activity that may elevate heart rate and breathing. The CDC defines leisure time inactivity as no reported time of physical activity. This would constitute no physical activity or exercises such as jogging, calisthenics, walking or even golfing during leisure time. The CDC measures physical activity on a monthly basis. According to the Centers for Disease Control and Prevention, 25.4% of adults report no physical activity in 2008.

Physical activity and diet/nutrition are arguably vital to the prevention of health damaging conditions and the promotion of good health. Exercise and diet contribute to obesity, one of the dominant health issues facing people in contemporary America. Obesity may contribute to heart disease and premature death. According to the CDC (2009) no state in the U.S. had met the *Healthy People 2010* mark of having less than 15% of their population being obese. In fact, only Colorado and the District of Columbia had an obesity prevalence of less than 20%. Since 2007 obesity among U.S. adults has increased by 1.1%.

From CDC's statistics it is clear that public health efforts focus on prevention of smoking, establishing a diet with fruits/vegetables, and starting or maintaining an exercise regimen. The message suggests that U.S. adults need to make changes in health behaviors. However, people may have difficulty making health behavior changes by themselves. Therefore, establishing health behaviors for oneself related to smoking cessation, diet, and exercise is often done with support from others. Empirical evidence suggests social support (e.g. help from friends, family, etc.) and social relations may impact one's exercise habits, diet practices or health practices in general.

Umberson and Montez (2010) suggest that "social ties influence health behavior, in part, because they influence, or 'control' our health habits (p.55)." An example may consist of a significant other who may monitor, inhibit, regulate, or facilitate health behaviors in ways that promote a partner's health (Umberson & Montez, 2010). They also suggest that social ties can instill a sense of responsibility and concern for others that then lead individuals to engage in behaviors that protect the health of others, as well as their own health. (Umberson & Montez, 2010).

Jackson (2006) found that social support from one's significant other, family, and friends is also related to specific health practices. Women who viewed their close relationships as "highly supportive" reported better diet practices, higher utilization of health care services, and higher levels of exercise than those women who did not view their relationships as "highly supportive." Moon, Park, and Cho (2010) suggest that the absence of emotional support from close friends, relatives or someone who provides support for one's worries was strongly associated with poor self rated health in older men. That engagement in social groups may influence health by receiving health information and increasing health behaviors such as physical activity. They also suggest that low social group participation is related to the risk of low physical activity, especially for men (Moon, Park & Cho, 2010). Cobb, Graham, and Abrams (2010) found that participation in online social networks may influence health behaviors. They revealed that active membership in QuitNet (a large online social support network for quitting smoking) was related to lower levels of reported smoking for both men and women.

Empirical evidence supports the relationship between social support and health behaviors. Social support may act as a motivation for one to engage in health behaviors that enhance one's health status. As previously noted, CDC statistics show that many people across the U.S. are not engaging in health practices that enhance one's life. Many people are still smoking or starting to smoke, not exercising or engaging in physical activity, and not consuming enough fruits and vegetables in their diet. Addressing each of these health behaviors may prevent obesity, hypertension, heart disease, cancer, and other diseases. Examining the role of social support in health behaviors may provide policy directions to encourage people to engage in actions that prevent disease and disability.

Chapter 2: Literature Review

Various sources contribute to the establishment of health behaviors. We may learn health behaviors from our family, friends, religious congregation, or mass media. One source may play a bigger factor than another in establishing a particular set of individual health behaviors (e.g. diet, exercise, etc.). For example, a person may engage in an exercise regimen if he/she receives support to do so from friends rather than from family. This leads to a consideration of one's social relations and the possible impact that relationship may have on one's health behaviors. This literature review on social relations and health is essentially divided into four sections. The first section describes social relations and physical activity, the second examines social relations and diet/nutrition, the third section focuses on social relations and smoking, and the fourth describes sociodemographic predictors of the three health behaviors.

Social Relations and Physical Activity

Previous research suggests that social relations have a relationship to activity (exercise). More specifically, research indicates that the type of source of social support may impact a person's exercise or the amount of physical activity. Spanier and Allison (2001) examined the relationship between general social support and physical activity among a sample of 29,135 Ontario, Canada adults age 18 to 59 (average age was 37), who were not pregnant, not bed ridden for 1 or more days out of the past 14 days, and had no mental or physical limitations. The sex composition of the sample consisted of 51.4% females and 48.6% males. Eighty percent of the sample had a total household income of $30,000 or more. Seventy percent had completed at least a secondary level education.

The dependent variable consisted of physical activity. Respondents were asked about specific physical activities during the last month and how many minutes they participated in each physical activity. The physical activity list consisted of walking for exercise, bicycling, running or jogging, ice skating, golf, weight lifting, dancing and others. The independent variable consisted of social support. Social support was measured by the number of close friends and family, frequency of contact with family and close friends, social contact during leisure time, marital status, parental status and organization memberships. Other independent variables consisted of gender, age (18-59), household income, education, and perceived health status.

Spanier and Allison (2001) used hierarchical multiple regression to examine the relationship between social support and physical activity. The physical activity was regressed on nine independent variables entered in the following blocks 1) age and gender 2) education and income 3) health status compared to peers and 4) the four social support factor scores representing functional support, social frequency, social quantity, and familial structure (Spanier and Allison, 2001). According to Spanier and Allison (2001) the largest amount explained of variance (5.7%) was due to age and gender. The four measures of social support explained 3.1% of the variance. Perceived health contributed the next largest amount of explained variance (2.3%). The variables education and income contributed the least amount, explaining 1.4% of the variance in energy expenditure (physical activity). The individual predictor that had the strongest effects on physical activity was the social support variable of family structure. With regard to the control variables, Spanier and Allison (2001) found that age and gender had the next largest impact on physical activity.

Spanier and Allison (2001) found that family structure (being married and having children) was significantly predictive of more physical activity. Social support, defined as social quantity and social frequency, were predictive of higher levels of physical activity. Those who perceived themselves to be "more healthy" compared to their peers, those who were male, those who had higher education levels and income, and those with large numbers of friends and family engaged in higher levels of physical activity.

Like Spanier and Allison (2001), Resnick, Orwig, Magaziner, and Wynne (2002) examined the relationship between social support and exercise (physical activity). Their study examined the relationship between social support from family, friends, and expert support on exercise, self efficacy expectations, and exercise behavior in a sample of adults living in a retirement community. The sample consisted of 74 older adults, 65 or older, living in a retirement community who had access to an exercise room which was open daily with a supervising exercise trainer being present during open hours. The sample collection was aided by the nurse practitioner at the facility. Participants were then called and asked if they wanted to participate in the study. If they agreed, an interview was then scheduled and was completed by telephone or in person.

Respondents were asked questions based on self efficacy expectations, outcome expectations, and social support for exercise habits scale. The self efficacy expectations scale consisted of participants rating their ability to continue to exercise in the face of "barriers to exercising." For example, participants were asked how confident they were that they would exercise when having pain, when tired, or when depressed. The response scale consisted of 0 to 10 with 10 being *very confident*. The scale is

scored by summing the numerical ratings for each response and dividing by the number of responses. The outcome expectations exercise scale is a nine item measure that focuses on the perceived consequences of exercise for older adults. To complete this measure, the participants were instructed to listen to a statement and to choose responses using about the benefits of exercise using a Likert scale that ranged from strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree. For example, a statement would be: “exercise makes me feel better” and the participants would indicate their level of agreement or disagreement with the statement. The social support for exercise habits scale was used to measure the influence of family and friends on exercise behavior. Respondents were asked to reflect on social interactions that might influence their exercise behaviors. Participants were asked how often a family member or friend offers to exercise with them, gives them helpful reminders to exercise, gives encouragement to exercise or discusses exercising with them. Responses ranged from 1 = “none” to 5 = “very often.” Participants were also asked to rate the support for exercise from the staff at the facility (e.g. nurses, trainers, physical therapists, nurse practitioners or physicians).

Bivariate correlations showed there was no statistically significant correlation between support from family and support from an expert and self efficacy expectations, outcome expectations, or exercise behavior. However, friend support was significantly related to self efficacy expectations and higher exercise behaviors. This study concluded that friends seem to be the source of social support that impact exercise behaviors. Also, this study suggests that family may not encourage older family members to exercise due to the possibly of injury (e.g. falling down and getting hurt).

Anderson, Wojicik, Winett, and Williams (2006) tested a social cognitive model of physical activity. They explored whether social support had a direct or an indirect impact on physical activity. They examined if social support worked indirectly through self efficacy for one's physical activity involvement. The 999 participants in their study included "church goers" from 14 churches located in southwest Virginia. Twenty-one percent of the sample was African American, 66% was female, and the age range was 18 to 92 years old (average age was 52 years old). The median annual income was $55, 000 and mean years of education was 14.88 years.

The variables in this study included social support, self efficacy, self regulation, outcome expectations, and physical activity. Social support was measured by asking three questions concerning support from their family. Self efficacy was measured with 20 items that asked participants to use a 10 point Likert scale to rate how certain they were able to complete certain exercise tasks. Outcome expectations were measured with nine items that asked participants to use a 5 point agree/disagree scale to rate what would happen if they "slowly and steadily increased their physical activity" (e.g. I will have to change my normal routine or I will have to sleep better, etc.). That is, this scale was discovering what would have to be done in order to fit more exercise in their schedule. Self regulation was measured by a 5 point scale of never to repeatedly that reported how often in the 3 months before the assessment they used seven self regulation (strategies one used to engage in physical activity) strategies related to physical activity (for example, walking instead of driving). Physical activity was measured by hours per week one exercised. The data were analyzed using Structural Equation Modeling to test the fit of the social cognitive model of physical activity. More

specifically, the structural model was designed to determine whether social support influenced physical activity directly (independently) or if social support had a mediating role or indirect path through self efficacy.

Anderson, Wojicik, Winett, and Williams (2006) found that within their model, age, race, social support, self efficacy and self regulatory strategies contributed to physical activity. They also found that "self efficacy routinely emerges as a strong predictor of exercise adoption and maintenance in exercise research, the total effect of self regulation on physical activity among participants in the current study by far exceeded the total effect of self efficacy, underscoring the importance of self regulation to an active lifestyle" (Anderson, Wojick, Winnett & Williams, pg. 14, 2006). In short, they found that self regulation is the strongest social cognitive variable in the model. They found that self efficacy is an important precursor to self regulation and family social support influenced self regulation indirectly through self efficacy. Social support influenced self regulation indirectly through self efficacy but social support also had a direct impact, making it much more likely that participants would use self regulation strategies to be more physically active.

Duncan, Duncan, and Strycker (2005) also explored the relationship between social support and physical activity. This study tested the influence of social support on physical activity among 372 adolescents between the ages of 10-14 years old. Social support sources consisted of parents, siblings, and friends. Two different types of social support were explored as well. Emotional support consisted of encouragement and instrumental support included items such as transportation to and from physical activity events. The data were collected from youths residing in a metropolitan area in the

Pacific Northwest region of the United States. Neighborhoods were chosen that offered the diversity in socioeconomic status and racial makeup. Physical activity was measured by types of physical activity, for example, competitive sports, recreational activities, and walking. The findings from the structural equation modeling suggest social support does have a positive relationship with physical activity for this sample. More specifically, friend support was the strongest source. Those in the sample that reported friend support were more likely to engage in physical activity. This study did suggest that as age increased, the type of social support also changed. For example, instrumental support changed due to some of the children no longer needing transportation to and from sporting events.

Ayotte, Margrett, and Patrick (2010) examined the impact of self-efficacy, outcome expectations, perceived barriers of self regulatory behaviors, and social support on physical activity. The sample consisted of married couples between the ages of 50 and 75 who were residing in the Atlantic region of the United States. The authors examined the role of several predictor variables on physical activity. Self efficacy was measured/assessed in two ways: participants' confidence that they could overcome barriers that may limit or impede physical activity and then a percentage scale was used to measure their confidence in a percentage. For example, "are you 100% confident you could run for 10 minutes without stopping?" Social support was measured by the amount of social support the participants received from their family. Outcome expectancies were measured by perceived benefits of physical activity on, for example, lung and heart function. Self-regulatory behaviors were measured by two components, planning and scheduling. Perceived barriers to physical activity were

measured by 18 statements asking how much a given barrier may impede physical activity, for example, cost or lack of time to exercise. The outcome variable of physical activity was measured by several dimensions: the average number of blocks walked per day, stairs climbed per day, leisurely walking, moving on your feet per day or sitting per day, and the total number of times the participants walked or jogged for exercise purposes. The findings revealed that social support was directly related to increased self efficacy and increased self regulatory behaviors (i.e. planning and goal setting). "People with higher self efficacy held more positive views of the outcome of exercise, perceived fewer barriers, engaged in more self regulatory behavior and reported more physical activity than people with lower self efficacy" (Ayotte, Margrett, and Patrick, pg. 182, 2010). Finally, people who perceive many barriers and do not expect any positive outcomes from physical activity do not engage in physical activity.

Cleland, Ball, Hume, Timperio, and Crawford (2010) explored the relationship between individual, social, and neighborhood environment to physical activity. The sample consisted of women aged 18-45 from socioeconomically disadvantaged neighborhoods. One of the predictor variables consisted of individual factors, including measures of self efficacy (the belief that one could perform physical activities). Social factors consisted of social support. Social support was measured by assessing how much the participants in the past month engaged in physical activity with family, friends and co-workers. Finally, neighborhood environmental factors were assessed by measuring the perceptions of safety and "walkability" of their neighborhood. The findings from the multivariate regression models suggest that individual and social factors, but not neighborhood factors, were related to physical activity for the women in

this study. More specifically, the belief that one had the capability to perform physical activities was more of a predictor of physical activity. Social support was related to physical activity. Those reporting support from friends, family and coworkers were more likely to engage in physical activity.

McNeil, Kreuter, and Subramanian (2006) reviewed how social support, social networks, socioeconomic status, racial discrimination, social cohesion, social capital and neighborhood factors may impact physical activity. Their review of literature on social support and social networks reveals that one's behaviors are often integrated with that of others. For example, their review of literature reveals that social support, or "buddy systems" may encourage people to join exercise groups (McNeil, Kreuter, and Subramanian, 2006). In addition, observing the exercise behaviors of others can also help people learn about physical activity. Concerning socioeconomic status (SES), the authors' review of literature revealed that SES does have a correlation to physical activity engagement. Those that are of higher SES are more likely to partake in physical activity. Those of low SES are just the opposite. Social cohesion and social capital at the neighborhood level was a significant factor for exercising. Those who feel trust, feel safety, and have a sense of social cohesion from people in their neighborhood are more likely to be physically active.

This section highlighted literature that had taken social support into account in relation to physical activity. While each study differed in terms of predictors of physical activity, each had implemented social support among their set of independent variables. Social support was related to physical activity in each of the studies discussed in this section.

Social Support and Smoking

As noted in the previous section, empirical evidence suggests social support may help people engage in physical activity. This section will review literature that suggests social support may impact another health behavior, smoking. Nollen, Catley, Davies, Hall and Ahluwalia (2005) examined the relationship between religiosity, social support, and gender on smoking cessation. This study is an experiment that examined whether "baseline levels of religiosity and social support were predictive of quitting at month 6 and explored the concurrent associations between social support and quitting at week 4 and month 6 among urban African Americans using the nicotine patch" (Nollen, Catley, Davies, Hall and Ahluwalia p. 1226, 2005) . Nollen, Catley, Davies, Hall and Ahluwalia (2005) hypothesized that higher religiosity and social support at baseline would be positively associated with quitting at month 6. They also hypothesized that social support at week 4 and month 6 would be positively associated with the likelihood of quitting at each of these time points. Their third hypothesis stated that social support at week 4 and month 6 would be positively associated with the likelihood of quitting for women but not for men. Participants were recruited through provider and self referral from a single hospital. The sample consisted of 498 African American smokers wanting to quit within the next 6 months, weighing more than 100 pounds, and having a home address, phone, and access to a VCR.

Smoking status was assessed at baseline week 4 and month 6. Those who reported smoking no cigarettes in the last 7 days were coded as nonsmokers, while those smoking one or more cigarettes in the last 7 days were coded as smokers. Religiosity was assessed by using an index designed to measure religiosity among

ethnic minorities. The index measured endorsement of religious beliefs, values, and practices. Social support was assessed using the Dartmouth Primary Care Cooperative Information Project (COOP) chart system, where higher scores indicated greater social support.

The analysis consisted of a logistic regression. They found that "neither baseline religiosity, baseline social support, nor the interaction between baseline social support and gender predicted quitting at week 4 or month 6" (Nollen et al. pg. 1228, 2005). Nollen, Catley, Davies, Hall and Ahluwalia (2005) found that baseline levels of religiosity and social support were not predictive of quitting at each of these time points, with the results differing by gender. They found a significant social support by gender interaction at week 4 and month 6. More specifically, females reported more social support at week 4 which then increased the likelihood of quitting at week 4. Males who reported greater social support at month 6 were more likely to quit smoking at month 6.

Daniel, Cargo, Lifshay, and Green (2004) also examined social support and cigarette smoking. More specifically, they assessed the relationship between depression, mastery (the extent to which people feel in control of the forces that affect their lives) social support and smoking in a northwestern First Nation in rural British Columbia. The sample consisted of volunteers for a community based diabetes/cardiovascular disease risk factor screening initiative among First Nation people in the rural Okanangan region of British Columbia. Minors less than 18 years old were excluded from screening. Smoking status was assessed by questionnaire. "Smokers" were defined as individuals engaging in daily smoking. All but six participants reported smoking more than 8 cigarettes per day.

They measured social support using two questions: 1) “among your friends and relatives, excluding your partner, if you have one, how many people do you feel you can tell just about anything to, people you can count on for understanding and advice, and 2) if you live with a partner, is your partner someone you can really talk with about things that are important?” (Daniel, Cargo, Lifshay, & Green p. 46, 2004). These questions, as noted by the authors, focus on emotional rather than instrumental support.

The study analyzed 187 participants based on their smoking behavior. Daniel, Cargo, Lifshay, and Green (2004) used linear regression models to test social support and psychosocial measures (depression and mastery) as predictors of smoking. The results of this study show that the smoking was related to emotional support. However, emotional support did not have an indirect impact on lower levels of smoking. When respondents felt higher levels of emotional support they reported higher levels of mastery (the feeling that one can accomplish a task) which then had an impact on lower levels of smoking.

Homish and Leonard (2005) explored the relationship between spousal support and smoking. The focus of their research was to examine smoking patterns and influences in married couples through the early years of marriage. The sample consisted of 634 married couples who were a part of the adult development study (ADS) which is a longitudinal study of married couples in their early years of marriage. The interview questions consisted of asking the couples their number of children and the length of their engagement prior to marriage. The interview also consisted of questions concerning substance abuse (e.g. current or past smoker, amount smoked on a daily or weekly basis, average alcohol consumption, etc.) Tobacco use at each assessment

asked each spouse to report whether he or she, was currently smoking. For those who reported smoking, the number of cigarettes smoked per day was assessed.

Homish and Leonard (2005) used descriptive statistics to characterize the married couples. They used Chi-square analyses to establish similarities of smoking behaviors of married couples. Partner's smoking influence was assessed first by using bivariate models using logistic regression testing the relationship between partner's smoking status and the spouse's return to smoking (yes/no). Multivariate models were used to control for any influences of socio-demographic factors. In total four logistic models were considered for a husband's influence on his wife and four models were considered for a wife's influence on her husband. The overall findings suggest that there is some support that a partner who smokes did influence the other's smoking. There was evidence that in the early years (the first 2-3 years) of marriage, women who are married to smokers and who had quit are more likely to resume smoking if they were smokers prior to marriage. They also found that men who were married to smokers, in comparison to men who were married to nonsmokers, were not likely to initiate smoking or have a smoking relapse if their partner had quit. Women were more susceptible to their spouses smoking patterns than men. In summary, Homish and Leonard (2005) found some support that spouse's may influence each other's smoking behaviors and patterns.

Lawhon, Humfleet, Hall, Reus, and Monoz (2009) explored the role of social support in smoking. More specifically, social support was employed as a predictor of those trying to quit smoking. This study was exploring social support over time points during the quitting smoking process. The sample participants were collected through

using print, radio advertisement, public service announcements, flyers and word of mouth. After being screened by telephone, 739 participants then reported to a baseline in-person? assessment that included a brief medical exam, a clinical interview, and paper and pencil measures of demographics, psychosocial functioning, and smoking related data. Studies 1 and 2 were participants who smoked at least 10 cigarettes per day at baseline, whereas Study 3 were smokers consuming15 cigarettes per day at baseline. Two nicotine dependence measures were in this study: 1) smoking within 30 minutes of waking up and 2) smoking when so ill that one remains bed ridden. At baseline, questionnaires were used to collect demographic data and the smoking history of the people in the sample. The sociodemographic variables consisted of age, gender, marital status, racial identity. Lawhon, Humfleet, Hall, Reus, and Monoz (2009) found that higher levels of positive support early in the smoking cessation process predicted early treatment success. Higher levels of negative support early in the quitting process predicted continuing to smoke at all assessment points.

Social support was also explored by Wagner, Burg, and Sirois (2004). Social support, among other predictors, was positively related to smoking cessation. The sample consisted of 190 adults smokers collected by a Verteran's Administration smoking cessation clinic. In addition to social support, self efficacy was positively related to smoking cessation. Social support consisted of support from friends, family, and significant other support. Multiple regression findings revealed that family support and friend support were positively related to smoking behaviors. Those that reported these sources of support were more likely to cease smoking. However, significant other support was not related to smoking behavior. This contradicts the literature on spousal

and significant other support in relation to smoking behaviors and patterns. Social support was also positively related to self efficacy. Those who reported certain types of social support were more likely to believe they could quit smoking and more likely to use cessation techniques.

Shiffman, Brockwell, Pillitteri, and Gitchell (2008) explored factors that may impact smoking cessation. The predictor variables included cessation treatments (behavioral and medication treatments), behavioral treatments (which consisted of social support), and medication for smoking cessation. The sample consisted of 29,537 United States smokers over the age of 18 who reported that they were daily smokers for at least 12 months before the administration of the survey. The database was the 2003 Tobacco Use Special Cessation Supplement. Multivariate logistic regression models were employed for this study. Young adults were most likely to attempt to quit. Less educated smokers and men were less likely to try to quit smoking. Those that cited social support were more likely to quit and/or try to quit. Those engaging in cessation treatments (behavioral) and those taking medication were also more likely to quit smoking and/or reduce the amount of smoking.

This section discussed literature on smoking and smoking behavior. Like the physical activity section, a variety of factors predicted smoking behavior. In summary, social support did have significant impact on smoking. Those who reported social support were more likely to quit smoking or smoked less than those without social support.

Social Support and Diet/Nutrition

This section will review literature that explores the relationship between social support and diet/nutrition. Thorton, Kieffer, Salabarria-Pena, Odoms-Young, Willis, Kim and Salinas (2006) examined the role of social support on weight and diet among pregnant and postpartum Latino Women. The data used for this study consisted of semi-structured individual interviews with 10 Latino dyads during the first phase of the project. This included five postpartum and five pregnant women and 10 people identified by the women as most likely to influence their beliefs and practices. The interviews were conducted in southwest Detroit, Michigan. The recruitment of the sample consisted of flyers and in-person recruitment at a federally qualified health center, a Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) clinic and a "Baby Fair" run by community organization partners. The project Steering Committee designed a semi-structured interview guide to elicit participant's beliefs and attitudes about weight, pregnancy related weight gain, and postpartum weight retention, diet, and physical activity patterns, including personal, family, and community barriers, during and after pregnancy.

All interviewers were Latino women. Interviewers were trained by the academic research team who had extensive experience conducting community-based participatory research in Latino and African American communities using qualitative research methods. The sample consisted of eight dyads who were participant-husband pairs, two dyads were female only (one mother and one sister-in-law). The mean age of pregnant and postpartum women was 27.1 years old and the mean number of children was 1.5.

Detailed field notes were taken by the interviewer during and immediately after the interviews to document nonverbal cues and the social-environmental contexts of the interviews. There were three social support themes that emerged from the interviews which consisted of informational support (e.g. advice, information or guidance), emotional support (e.g. encouragement, criticism, or desire to please), instrumental support (material, financial or physical). The findings suggest that informational and emotional support of husbands were the most important and consistent influences on participants' weight, eating, and physical activity practices. Both eating and physical activity patterns were influenced by cultural beliefs and family rituals concerning safe and appropriate foods and physical activities during and after pregnancy. Absence of mothers and female relatives to provide companionship and advice about food was related to? poor diet. Geographical distance was the primary reason for Latinas being separated from close female centered networks, which seemed to interrupt the transmission of health related beliefs and behaviors.

Thorton, Kieffer, Salabarria-Pena, Odoms-Young, Willis, Kim and Salinas (2006) also found that informational support had the most influence on participants' diet and eating patterns and came from their small network of female relatives and friends. Women suggested informational support concerning eating vegetables, fruit, beans, lentils, and avoiding "contaminants" or "too many ingredients." Emotional support given by participants' husbands was an important motivating factor in what women chose to eat. For example, one participant suggested that "Yes, he likes it if I eat more healthy…it makes me feel good that he's happy that I eat good" (pg. 14, 2006). Another finding regarding emotional support and diet suggests that participants looked forward

to the companionship that came with eating meals with their husbands on a daily basis. Family rituals and events with friends were secondary sources of emotional support that influenced the eating patterns of both women and their husbands. Husbands' instrumental support was reported by participants as the most influential source of material aid that affected their diet and eating patterns, but household income was also noted as an important factor as well. For example, some participants noted eating or buying fewer healthy foods when they experienced financial "hardships," i.e., when their husbands' seasonal employment impacted the type of food they could purchase.

Like Thorton et. al., Pierce, Sheehan, and Ferris (2002) explored the impact of support on diet. More specifically, they explored what older adults perceived as barriers to "good nutrition" and the types of support they found helpful on overcoming those barriers to obtaining nutritional foods. Participants were recruited from four government subsidized housing complexes for the elderly. All four had congregate meal programs and Resident Service Coordinators to help residents access both informal (e.g. family, friends, etc.) and formal (professional, government, paid) support. The recruitment criteria for their study included female gender, age 75 to 90 years old, and widowed for at least five years. As noted by Pierce, Sheehan, and Ferris (2002), this criteria was established to maximize interpretation of results since socioeconomic status, gender, cohort, and widowhood all influence both food patterns and social networks systems.

The analysis consisted of focus groups which lasted one and one half hours with groups ranging from seven to twelve women. Following the focus groups were in-depth interviews which consisted of asking questions on sources and perceived support on nutrition. The findings from the focus groups and in-depth interviews suggested that the

most common concern in the study was participants' worries about high food costs. All of the women in the study believed that they should handle the concern of rising food costs on their own. Although the participants in the study had access to formal support (such as food stamps or meal programs) only one woman mentioned that as a means of helping with the issue of high food costs. The participants in this study noted several additional barriers to good nutrition. For example, transportation to the grocery store, diet modifications, difficulty shopping and preparing foods due to disabilities. Therefore, respondents described their need for instrumental support, including, help with transportation or physical food preparation.

Silverman, Hecht, and McMillin (2002) explored the impact of sociodemographic variables, social network and social support on diet behavior. The sample consisted of 298 participants aged 60 years old or older residing in 5 rural areas in Oregon. The linear regression analysis found significant predictors of diet behavior. Women were more likely to attempt to change their diet patterns compared to men. However, age was not related to attempting or changing diet. Surprisingly, income or education did not predict attempts or changes to dietary practices. Social support, specifically emotional support, from one's spouse predicted diet changes.

Locher, Ritchie, Roth, Baker, Bodner, and Allman (2005) investigated the relationship that social isolation, social support, and social capital may have on nutrition. The sample consisted of 1000 participants age 65 and older. The findings from multiple linear regression models revealed that emotional social support, was negatively related to nutritional risk. This study also had a measure of the quality of perceived social support. Those who felt their social support was "good" quality were more likely to

engage in positive diet changes. Social isolation had a negative impact on diet modifications. Those reporting they felt socially isolated did not change any prior eating patterns. Social capital did relate to diet as well. Those reporting higher social capital were more likely to made diet modifications.

This section explored research examining the role of social support on diet and nutritional intake. Again, consistent with the smoking and physical activity section, the literature presented here does not use social support as the sole predictor of diet and incorporates other variables as predictors. However, social support does have a positive relationship with one's diet. The next section will discuss sociodemographic variables and its relation to health behaviors.

Sociodemographic Variables and Health Behaviors

The previous sections discussed literature exploring the relationship between social support and health behaviors. This section discusses literature that has explored the relationship between sociodemographic variables and health behaviors (diet, smoking, and/or exercise). More specially, this section will highlight studies investigating the relationship of education, age, income, gender, and race to diet, smoking and physical activity. Link and Phelan (1995, 2010) have explored socioeconomic variables has predictors of health. More specifically, income, education and occupation may act as a "fundamental cause" to one's health and even health behaviors. That is, income, education and occupation act as a predictor of one's health and health behaviors. Income may reflect spending power in one's diet. Education may relate to one's knowledge concerning diet, exercise, or smoking. Those who are more

educated may simply be aware of healthy lifestyles. Occupation may relate to one's type of labor they engage in or their employment status may indicate what type of access to healthcare, availability of exercise facilities and healthy food choices, and norms for exercise, smoking, and diet choices among their coworkers. Exploring sociodemographic variables is imperative to explaining a person's health behaviors.

Education

This section will discuss literature that has explored the relationship between educational attainment and diet, smoking, and physical activity behaviors. Cutler and Lleras-Muney (2010) have explored the role of education in relation to health behaviors. Several datasets were employed in this study, National Health Interview Survey (NHIS), the National Longitudinal Survey of Youth (NLSY), the National Survey of Midlife Development in the United States (MIDUS), the Health and Retirement Study (HRS), the Survey on Smoking (SOS) and the National Childhood Development Study (NCDS). The authors noted that several datasets had to be used in order to address each of their research questions surrounding education and health. Cutler and Lleras-Muney's (2010) regression models tested the role of education on four separate outcomes; health behaviors, health resources, prices related to health behaviors, and finally health knowledge. Education was significantly related to the health behaviors. Cutler and Lleras-Muney (2010) found negative relationships with education and health behaviors. As education increased, reports of smoking, alcohol use, and drug use went down. Those participants with higher educational attainment were less likely to be obese as well. The findings also revealed highly educated? participants were more likely to engage in preventive care. Cutler and Lleras-Muney (2010) also discussed findings of

education related to income. Here, we see that those who are more educated tend to have higher income. Income then allows one to purchase goods and services that improve health. Income was related to health prices. The findings suggest that those with higher income are able to pay out of pocket for health care expenditures not covered by some form of health care plan. Finally, persons with more education were simply more knowledgeable about engaging in positive health behaviors.

Adams (2002) has also explored the degree to which education factored into one's health and health behaviors. The sample consisted of older U.S. adults ranging from age 51 to 61. The data employed for analysis consisted of the first wave of HRS 1992. The health behavior variable consisted of physical activity. Physical activity was measured by how often you walk a block, how often do you bend over and pick up objects, and how often do you climb a set of stairs. Those who were more educated were more likely to engage in physical activity. In addition, education also played a factor in physical activity. Here, the findings suggest that knowing when too much physical activity may be "damaging" to one's health is related to higher education.

Wetter, Cofta-Gunn, Irvin, Fouladi, Wright, Daza, Mazas, Cincirpini and Gritz (2005) also explored the relationship between sociodemographic variables and health behaviors. The sample consisted of among employed adults living in the southeastern United States. Wetter et.al. (2005) used educational level , occupational status, age, gender, marital status, and race as predictors of smoking in a population of smokers (defined as people who have smoked 100 cigarettes in their life) The findings revealed those participants who were more educated were more likely to report wanting to quit smoking. Those who reported receiving support from their co-workers reported a

stronger desire to quit smoking. Participants in the sample who were married were more likely to quit smoking or smoked less. This study found no racial differences. Education had the strongest relationship to smoking behavior.

Age

Dowda, Ainsworth, Addy, Saunders, and Riner (2003) explored the relationship between age and physical activity. Using the National Health and Nutrition Examination Survey Wave III, Dowda et. al. used a sample of 18 to 30 year olds to explore this demographics physical activity patterns. Multiple regression models were employed in the analysis. Physical activity (dependent variable) was measured by using two separate variables asking about participants' levels of moderate and vigorous activities. Other control variables were race, sex, and education. Years of education was positively related to moderate and physical activity. Family size was negatively related to physical activity for women. African Americans were more likely to be physically active in comparison to other racial groups. However, among women in the sample, it was whites who were more physically active. This study only explored an age range between 18 to 30. but it did reveal sex and race differences within this age range.

Kandel, Schaffran, Hu, and Thomas (2011) explored the relationship between age and race in the amount of smoking. This study explored whether smoking patterns differed by age between whites and African Americans. The data used for this study was the National Survey on Drug and Health. The sample consisted of white and African Americans who reported they were a current smoker. This study was comparing three age ranges of 18-25, 26-34, and 35-49 year old by whites and African

Americans to see any similarities or crossovers in smoking patterns. The findings revealed that education was pivotal factor in the differences of smoking between whites and African Americans. More specifically, the whites in the sample had higher educational attainment. Higher education equaled lower rates (amount of cigarettes smoked in the last month) of smoking. Exploring the age groups differences by race found that rates of smoking are higher among African Americans than whites. This was the same for the age group 35-49. African Americans reported higher rates of smoking in comparison to whites. This study found that smoking patterns can vary by age group.

Income

Darmon and Drewnowski (2008) investigated the relationship between social class and diet quality. This review of other studies explored the relationship that income level in particular has on the types of food consumed by people of varying class levels. Darmon and Drewnowski's (2008) review found that food prices and diet costs are a factor. lLower social class individuals may not be able to consume healthier food options due to high cost of healthy foods. They reviewed a study based on the U.S. Department of Agriculture Thrifty Food Plan which revealed that implementing healthier food options may cost up to 35-40% of a low income family's food budget. So, even when lower income families try and develop a money budget to obtain higher quality foods it still may not reflect an adequate healthy food diet, that is, their budget still did not allow for healthier eating. Darmon and Drewnowski's (2008) review also found that food access in one's physical environment correlates to diet. Being in close proximity to supermarkets increases the likelihood of eating fruits and vegetables. Those that live in lower income neighborhoods tend to eat lower amounts of fruits, vegetables, fish, etc. If

a family owns a car or has access to one, they are not “trapped” by their environment compared to a family who does not own a car. In summary, social class does matter in terms of diet and types of foods consumed. More affluent people tend to eat better because they can afford a healthy diet and have fewer problem accessing healthy food.

Like Darmon and Drewnowski (2008), McCabe-Sellers, Bowman, Stuff, Champagne, Simpson and Bogle (2007) researched the relationship between income level and diet. The sample consisted of 1,699 lower Mississippi Delta adults, and data were collected by telephone. The diet quality of those residing in the Lower Mississippi Delta adults was compared to whites and African Americans adults in the National Health and Nutrition Examination Survey (NHANES, 1999-2000), which had a nationally represented sample. Data from the Healthy Eating Index was compared to the NHANES eating index. High income households had a higher vegetable score in comparison to lower income households. There was no difference between sex groups in this study. Older participants consumed a higher quality diet (higher fruits and vegetables intake) in comparison to other age groups. Considering race, this study found that African Americans had significantly lower scores on the Health Eating Index (HEI) in comparison to other racial groups. Also, consistent with other studies, those that had higher educational attainment had higher scores on the Healthy Eating Index (measure the diet quality of daily food consumption set by federal dietary guidelines).

Lantz, Lynch, House, Lepkowski, Mero, Musick, and Williams (2001) also explored whether health risk behaviors vary by social class. The data consisted of the Americans Changing Lives (ACL) survey. In addition to income, age and education were used as predictors of health behaviors. Education was measured in as total years

of completed education as was grouped as 0-11, 12-15, and 16 or more. Income was grouped in three categories as well, $0-$9,999, $10,000-$29,999, and $30,000 or more. Health behaviors consisted of physical activity, smoking, alcohol consumption. The smoking coding consisted of never smoked, former smoker, and current smoker. Alcohol consumption was coded using three categories as well. Nondrinkers consisted of 0 drinks in the past month, moderate drinkers 1-89 drinks in the past month and then heavy drinker consisted of 90 drinks or more. Physical activity was coded as an index based on how often the respondents took walks, did gardening or yard work, or engaged in sports or exercise. The multivariate regression findings showed that participants with lower levels of income and education were more likely to say that they were smokers. Persons with lower levels of income and education were more likely to report lower levels of physical activity.

Gender

This section discusses literature based on gender differences in health behaviors. One can argue that men and women do not act the same in the health behavior domain. This is arguably related to gender roles related to masculinity and femininity. Mahalik, Burns, and Syzdek (2007) explored the impact of masculinity and male norms surrounding men's health behaviors. The sample consisted of 140 men age 18-78 years old. The men in the sample answered questions assessing masculinity, questions assessing perceptions of health behaviors for men and women, and finally, questions assessing 8 health behaviors (alcohol use, seatbelt use, smoking, physical fighting, use of social support, exercise, diet behavior, and use of healthcare services related to annual checkups). Multiple regression models revealed that males'

perceptions of masculinity did predict their health behaviors. Males who scored higher in the masculinity measures were engaging in damaging health behaviors. Those that scored lower in the masculinity scale were more likely to engage in promoting health behaviors. These findings suggest that social norms surrounding gender do impact the behavior of the genders.

Johnson (2005), like Mahalik, Burns, and Syzdek (2007), investigated the relationship between gender and health behaviors. Johnson explored gender difference in health behaviors within a sample of African Americans. The sample consisted of 223 African Americans living in the southeastern United States. Marital status and education were significantly related to positive health behaviors. Both males and females with higher income and higher education levels had higher health promoting behaviors. Marital status was positively related to health promoting behaviors as well. Those who were married and/or living with a significant other had higher levels of behaviors that promoted health. However, there were some gender differences in the sample. The findings revealed African American women in this sample did report higher nutrition scores than men and had higher levels of positive diet behaviors.

Race

Thus, health behaviors vary by education, income, and gender. Previous studies suggest that racial groups do not have the same levels of health practices and behaviors. Sudano and Baker (2006) investigated the impact of socioeconomic status, health behaviors, and health insurance in explaining racial health disparities. The nationally represented sample consisted of 6,286 participants. The racial groups

included whites, African Americans, and Hispanics. The outcome variable consisted of self reported overall health. There were also several sociodemographic variables in addition to race, which consisted of education, marital status, and age. The findings revealed that in comparison to whites, the other racial groups had higher levels of poor health. In comparison to whites, African Americans were twice as likely to report poor health, have chronic diseases, and more physical limitations which may impede health behaviors (e.g. exercise). A similar pattern emerged when comparing Hispanics to whites. There were differences in health insurance coverage between the racial groups. reflecting racial differences in employment status' and health insurance packages offered by employers. The differences in employment opportunities can be a factor in explaining racial health differences and health behaviors.

Farmer and Ferraro (2005) tested the impact of socioeconomic variables on racial health disparities between whites and African Americans. The data employed for this study consisted of the National health and Nutrition Examination Survey Wave I. The predictor variables consisted of employment status and education. The outcome variable was self rated health. The findings revealed whites had higher educational attainment in comparison to whites. Employment status was a factor was well. Like Sudano and Baker (2006), Farmer and Ferraro (2005) found that employment opportunities did differ by race. The findings here suggest that employment status can reflect several vital aspects related to health and health behaviors. Again, with employment comes the availability of health insurance, spending power on diet and housing that aids in health enhancing opportunities (e.g. living in neighborhoods that offer healthy foods).

This section explored literature that relates sociodemographic variables. Health and health behaviors vary by education, income, age, gender, and race. Those that are more educated are more aware of the "merits of healthy living" (Link and Phelan, 1995, 2010). Income can reflect one's spending power in one's diet or where one can afford to live. Age is factor as well. Literature highlights younger people are healthier in comparison to that of older populations. Males and females do not behave the same surrounding health practices/behaviors either. Here, masculinity may play a factor for males in not seeking out preventive care or "watching" their diet. Finally, racial health disparities exist. This may boil down to racial discrimination in housing, employment and in education.

Social Support

Social support is a "broad term encompassing a variety of constructs, including support perceptions (perceived support) and receipt of supportive behaviors (received social support) (Haber, Cohen, Lucas, and Baltes pg. 133, 2007). The literature on social support and health/health behaviors points to perceived social support as the predictor of health. That is, it is the quality of percieved social support that is the predictor of health behaviors, not received. While research findings may point to perceived social support, not receive social support, as the predictor of health and health behaviors, there needs to be a discussion about stress in relation to social support and health behaviors. In others words, when is social support needed? Lucas, Alexander, Firestone and Lebreton (2008) suggest that social support is needed most when someone is feeling stressed and cannot cope with a given situation. Here, social support may be of value due to the ability to help someone complete a given task.

However, when a given person does not experience or perceive stress they may feel they can accomplish a task on their own, therefore, social support is not needed. When someone feels they cannot complete a task, or interpret stress surrounding a behavior, social support is applicable and is of value.

The theory for this project is social support. Social support may be divided into three separate forms of support. Emotional support may consist of encouragement or advice. Financial support may consist of support in an economic sense. Finally, there is instrumental support. This form of support may consist of what is called "hands on" support. For example, giving someone a ride or helping someone fill out a medical form/document.

Social support may also be viewed as *received social support* and *perceived social support.* Received social support may be defined as "specific supportive behaviors that are provided to recipients by their support network" (Haber, Cohen, Lucas & Baltes, 2007). Perceived social support may be defined as "measures that assess recipients 'perceptions concerning the general availability of support and/or global satisfaction with support provided (Sarason, Sarason, & Pierce, 1990, Haber, Cohen, Lucas & Baltes, 2007). These distinctions are important. For example, "Joe Smith" may have nine different sources of social support he can cite. "Jon Doe" could have three, but this does not necessary mean that "Joe Smith" is automatically better support. If "Jon Doe" has better quality of his three sources of social support he may actually be in better shape. That is, it may be the quality of support not necessarily the quantity of support that may be of importance.

Perceived and received support may also differ in terms of when they become important to someone. Perceived social support may be most important when encountering a stressful event or when someone is having trouble coping with a given circumstance. Here, we can argue that perceived support would be very important. This may give a person who needs support a feeling of love or caring by others that could then reduce stress and contribute to psychological well being. Also, this may lead to as stronger sense of self efficacy. However, we cannot ignore the importance of received social support. Here one can talk about the need to a social support group to be present. Arguably one still needs to have social support groups available to them. Without any social support groups to cite we cannot anticipate any help or support quality.

Social Support and the Relation to Health/Health Behaviors

Our social relations do relate to health and our health behaviors. We are socially related to each other therefore our behaviors are related to each other as well. Simply, our social relationships may influence the development of one's health and health behaviors. One's social support groups or social influences can control or even pressure our behavior. A given person can receive support that either promotes or even discourages a given health behavior. This raises an issue of how receptive people may be to social support and the influence of social support. Schwarzer and Leppin (1991) explored individual differences to receiving social support which then impacts our behaviors. For example, with high self esteem may not need social support, especially emotional support. They may feel they do not need it or they may feel they have the level of self efficacy needed to engage in a given behavior. Schwarzer and Leppin

(1991) also noted social competence. Social competence is the "propensity to seek help by communicating skillfully with network members, which in turn, would be a prerequisite for social mobilization" (Schwarzer and Leppin, 1991). Poor social competence may reduce the likelihood of social support seeking. For example, one may not be willing to accept social support due to them feeling belittled or inferior.

Social support may be complex. Social support may be explored in terms of who is giving the support and the person receiving support. That is, the individual receiving social support may also play a vital role in how effective social support may be. This may relate to health behaviors by way of how receptive people or an individual may be to social support. Therefore, when exploring social support in terms of one's behavior it is explained in terms of whether someone has social support groups (received social support), perceived social support (the quality of social support sources, and also on the individual (how willing are people in accepting social support.

Gaps

There are gaps in the literature on social support and health behaviors. My project explored several sources of social support. More specifically, I used several sources of social support as predictors of health behaviors. Past literature has not employed several social support sources. Another gap is exploring how several social support sources may act across several health behaviors. Previous literature has not employed more than one health behavior. My project used three health behaviors (diet, smoking, and physical activity).

Chapter 3: Methodology

The following chapter discusses the research methodology of this project, including the database, sample and the variables used in this project. This chapter will also discuss the order of analysis. Finally, the chapter will conclude with a discussion of the hypotheses tested.

My project analyzed secondary analysis of the NHANES. Specifically, this project employed the National Health and Nutrition Examination Survey (NHANES) Wave III (2005-2006). The NHANES dataset was designed to assess the health of children and adults in the United States. The data was collected by personal interviews, audio computer assisted self-interview, computer-assisted personal self-interviews, face to face interviews and on-site questionnaires from different populations across the United States. For the NHANES 2005-2006 dataset the sample size consisted of 10,348 participants. Survey questions consisted of smoking, alcohol consumption, sexual practices, drug use, physical activity and fitness, weight, and dietary intake. The sample for the survey was selected to represent the entire United States population of all ages. However, I used only those participants who were 40 years old or older for this project.

There were separate “sub data sets” within the NHANES collection. I first had to merge the social support (independent variable) data with the diet, smoking and physical activity data. Once these four datasets were merged I was then able to test the social support variables on the health behavior variables. However, after merging the data sets together there was a substantial amount of missing cases. I then performed

listwise deletion to address the missing cases in the data. This allowed me to analysis participants who had answered all the survey questions on social support, diet, smoking, and physical activity. The initial sample size consisted of 3,055 participants for the merged sub datasets. After the listwise deletion was performed, the sample size consisted of 2,821 participants. Next, I ran frequencies on all variables in the project to explore the distribution of the variables.

Prior to the multivariate analysis, multicollinearity tests and factor analysis had been conducted. The multicollinearity tests revealed no multicollinearity among the variables in the project. All variables were mutually exclusive. The factor analysis was conducted to explore any underlying constructs. The factor analysis on the diet variables did reveal some underlying constructs. The diet variables were then collapsed into three separate variables. The three diet variables were then labeled have you heard of food programs, do you check food labels, and do you use food labels. The factor analysis on the other variables in the project revealed no concerns. (Factor analysis appears in appendix A,B, & C).

The dependent variables consisted of physical activity/exercise, smoking and exercise. There were six separate measures for physical activity: have you walked/biked over the past 30 days, have you done moderate physical activity over the past 30 days, have done vigorous physical activity over the past 30 days, have you done muscle strengthening activities over the past 30 days, have you done tasks around the home/yard over the past thirty days. All of these variables were dichotomous, with 1 = yes and 0 = no. The last six and final physical activity measure consisted of average level of physical activity. The coding consisted of 1 = sit during the

day and do not walk, 2 = stands/walks a lot but does not lift, 3 = lifts light loads or climbs stairs or hills, and finally, 4 = does heavy work or carries loads.

The smoking dependent variable had four separate measures. The four smoking measures consisted of: have you smoked 100 cigarettes in your life, do you now smoke, how soon after waking do you smoke, and what is the average number of cigarettes per month. Have you smoked 100 cigarettes in your life and do you now smoke were both dichotomous, 1 = yes and 0 = no. How soon after you wake do you smoke was coded as; 1 = with the first 5 minutes, 2 = 6 to 30 minutes, 3 = 30 minutes to 1 hour, 4 = more than 1 hour. The average number of cigarettes per month variable was continuous.

The diet variable consisted of three separate diet measures. The three measures consisted of; have you heard of food labels, do you check food labels and finally do you use food labels. Heard of food labels consisted of dietary guidelines, heard of food guide pyramid and 5-a-day programs. The coding consisted of 0 = you have heard of none, 1 = heard of one, 2 = heard of two, and finally, 3 = you have heard of all three. Do you check food labels consisted of; do you check calories on food label, do you check calories from fat on food label, do you check total fat on food label, do you check trans fat on food label, do you check saturated fat on food label, do you check cholesterol on food label, do you check sodium on food label, do you check fiber on food label, and finally do you check sugar on food label. The coding consisted of how many of these do you check on a food label 0 = check none of them, 1 = sometimes check food labels, 3 = most of the time check food labels, to 4 = always check of them. The final diet variable consisted of use of food label. This consisted of: do you use nutritional facts panel on food labels, do you use ingredients list on food label, and do

you use serving size information on food labels. The coding consisted label 0 = use none of them, 1 = sometimes use food labels, 3 = most of the time use food labels, to 4 = always use food labels.

The predictor variables consisted of spousal support, family support, and other support (other and church support). Family support was comprised of sibling support, parental support, and other relative support. Other support was comprised of church support and friend support.

Table 1: Social Support Variables

Spousal Support	Family Support (Sibling, parent, other relative)	Other Support (Friend and Church Support)
n = 1,1337 (47.4%)	n = 1,382 (49%)	n = 792 (28.1%)

Bivariate analysis was conducted between the predictor variables and the dependent variables. This allowed me to explore several aspects. I was able to establish if there was statistical significance between social support and the three health behaviors. The bivariate analysis also allowed me to analyze the strength of the correlation (if a correlation was present at all) and also the direction of the relationship between the independent and dependent variables. After the bivariate analysis, I then conducted the multivariate analysis which consisted of logistic regression and OLS regression. The same set of predictor variables was used across all three dependent variables (physical activity, smoking, and diet). The predictor variables consisted of spousal support, family support (brother/sister, parent, other relative), and other support

(friend and church support). Along with social support variables, several control variables were implemented as predictors of diet, smoking and physical activity. The control variables consisted of age, race (white, African American, Mexican American), gender (male and female), and income. The multivariate analysis models allowed me to analyze if social support and the control variables act the same across each of the three health behavior variables. This discussion of the methods needs major expansion. Remember that readers should be able to replicate what you did. There are not enough details here.

Sample Characteristics

The following section discusses the variables in this project. This section will have three separate sub-sections. The first section will discuss the control variables (socio-demographic variables), the second section will discuss the independent variables (social support variables) and the final section will discuss the dependant variables (diet, smoking and physical activity).

Socio-demographic variables

This project is has five socio-demographic variables consisting of gender, age, race, education and income. The total sample size consists of 2,821 participants. Gender consists of males and females. There are 1,431 males and 1,390 females. The sample is 50.7% male and 49.3% female.

Table 2: Sex groups (Male and Female)

Males	Females
n = 1,431 50.7%	n = 1,390 49.3%

Age ranged from age 40 to over 85 years old. The average for age was 59.95 and the median age was 59. The standard deviation was 13.452 years.

Race variable had five separate categories: Mexican American (16%), Other Hispanic (2.2%), Non-Hispanic white (55.4%), Non-Hispanic black (22.8%), and other race (3.5%).

Table 3: Race Groups

Whites	African Americans	Mexican Americans	Other Hispanic	Other Race
n = 1,564 55.4%	n = 644 22.8%	n = 452 16%	n = 63 2.2%	n = 98 3.5%

The education variable is has five separate categories. The categories consist of less than the 9th grade (14.1%), 9-11th grade which includes 12th grade with no diploma (14.6%), high school graduate/GED or equivalent (24.2%), some college or Associates

degree (26.4%), and college graduate or above(20.7%) The mean for the education variable is 3.2513, the median is 3, and the mode is 4. The standard deviation is 2.98997. The average education level of the sample is a high school/GED diploma.

Table 4: Sample Education

Less than 9th grade	9-11th grade which includes 12th grade with no diploma	High school diploma graduate/GED equivalent	Some college or Associates degree	College graduate or above
n = 397	n = 412	n = 682	n = 745	n = 585

The last socio-demographic variable to discuss is income. The income variable has eleven different categories. Out of the sample, 1.2% had an income of $0 to $4,999 dollars. Next, 5.4% of the sample had a salary range of $5,000 to $9,999; 8.5% of the participants in the sample had a $10,000 to $14,999 range; 7.8% had a salary range $15,000 to $19,999. A total of 8.4% of the sample had a $20,000 to $24,999; 13.4% of the sample had a $25,000 to $34,999 range; 10.2% were $35,000 to $44,999. Out of the sample 9.8% fell between $45,000 to $54,999; 6.4% of the sample had a salary range of $55,000 to $64,999; 5.2% of the category had a $65,000 to $74,999 range. Finally 23.7% of the sample had a salary of $75,000 and over.

Table 5: Sample Income Level

$0-$4,999	$5,000-$9,999	$10,000-$14,999	$15,000-$19,999	$20,000-$24,000	$25,000-$34,999	$35,000-$44,999	$45,000-$54,000	$55,000-$64,999	$65,000-$74,999	$75,000 and over
n = 35	n = 153	n = 241	n = 220	n = 236	n = 378	n = 287	n = 277	n = 180	n = 146	n = 668

Summary of Variables

The following section discusses the variables used in this project. This section will reveal the independent variable and the three dependent variables used in exploring the relationship between social support and smoking, diet and exercise. The control variables will also be discussed in this section.

The independent variable for this project is social support. Social support is used as a predictor of three separate health behaviors (smoking, diet and exercise). The social support for this project uses emotional support. Participants were first asked if they receive emotional support. If participants answered "yes" to receiving emotional support they were then allowed to choose from thirteen different sources of emotional support. The different sources of emotional support consisted of spouse, daughter, son, sibling, parent, other relative, neighbor, co-worker, church, friends, club members, professional, and others. Those participants that answered "yes" to having emotional support was 91.5%. Participants were then allowed to choose more than one source of emotional support. Out of the options of emotional support sources to choose from: 47.5% chose spouse, 24% daughter, 16.3% son, 15.8% sibling, 7.6% parent, other relative 7.1, 1% neighbor, 1.3% co-workers, 5.2% church, 25.2 friends, .3% club

members, .9% professional, and 2.1% participants chose others. Participants who report no social support were coded as zero. The most common type of support was spousal support. This may be due to 58.5% of the sample reported being married. The social support predictors were then broken down into three separate groups. Spousal support was not collapsed, it was left as its own category. However, daughter, son, sibling, parent and other relative was made into a "family support" variable. Church support and friend support was made into an "other support" variable.

The dependent variables consist of exercise (physical activity), smoking and diet. The exercise questions ask participants about their physical activity, how much physical activity they partake in and also questions asking to rate your own muscle strengthening activities. Participants were asked how many times they had walked or biked over the past 30 day. Those that answered yes were 23%, no 73.7% and 3.4% participants answered unable to do activity. Participants were then asked if they have done any tasks around the home/yard over the past 30 days. Those that answered yes was 62.4%, no was 34.1% and 3.5% answered unable to do activity. The next question under the physical activity variable asked respondents about their average level of physical activity each day. This variable had four separate responses to choose from. The responses were "you sit during the day and not walk," 25.7% participants chose this response, "you stand or walk a lot but do not lift," 51%, "you lift light loads or climb stairs or hills had 17% respondents, and finally "you do heavy work or carry loads" had 6.1% responses. There is then a set of questions/variables that inquire about the participants' activity over the past 30 days in terms of vigorous and moderate activity. Those participants that reported vigorous activity was 23.8%, 44.5% reported no vigorous

activity, 4.1% reported they were not able to do vigorous activities. Concerning moderate activity, 51.4% responded yes, 44.5% said no, and 4.1% reported unable to do moderate activity. The final physical activity variable/question asked participants about their muscle strengthening activities. Those that reported doing muscle strengthening activities were 23.9%, 71.5% said no and 4.6% chose the option of unable to do activity. Roughly 20% of the sample reported exercising in the past 30 days. Therefore, the bulk of the sample is not engaging in physical activities.

Table 6: Performed Physical Activity in the past 30 days

Walked/biked	Vigorous activity	Moderate activity	Muscle strengthening activity	Tasks around home/yard	Average level daily physical activity
n = 648	n = 670	n = 1,450	n = 674	n = 1,761	n = 171

The next dependent variable to discuss is smoking. One question asked participants if they have smoked at least 100 cigarettes in their life. Those that responded yes were 52.8%, 47.2% said no. Participants were then asked if they now smoke cigarettes; everyday was 18%, 2.5% said some days, 52.8% responded not at all. The final smoking question used for this project consists of the number of cigarettes smoked per day now. This variable is continuous and it ranges from 1 cigarette to 90 per day.

Table 7: Sample Smoking

Smoked 100 cigarettes in life	Smoke now	How soon after waking do you smoke?	Average number of cigarettes smoke per month
n = 1,489	n = 578	Average 2.21 (6-30 minutes)	Average number = 17.59 Median number = 15

The final dependent variable is diet. Several questions then ask participants about their diet knowledge. One question asks participants about dietary guidelines. Those participants that responded yes to hearing about dietary guidelines was 44.2%, 55.1% said no, and .6% responded with don't know. Participants were then asked about their hearing about the food pyramid. Those participants that responded yes were 64.2%, no was 35.7%, and .1% participants said don't know. Participants that heard about 5-a-day programs was 42.4%, no was 57% and .6% participants responded don't know. Three questions ask about the use of food labels. Those participants that use the nutritional facts panel on food labels are 19.1% always, most of the time 20%, 20.5% sometimes, rarely 8.7%, never seen a nutritional facts panel was 4.3%. Those participants that use ingredients list on food labels were 14.9% as always, 16.4% most of the time, 23% sometimes, 12.1% rarely, and never seen 3.7%. Finally, use of serving size information on food labels was asked. Thirteen percent of participants said always, 14% responded most of the time, 19.9% sometimes, rarely 12.2%, 37.1% never, and never seen was 3.7%. Below is a table with the diet variables in the project, which displays the mean and median for each diet variable employed in the project. Concerning heard of food labels the sample is reporting that on average

they have “most of the time” heard of food labels. Check food labels is the same. The sample had reported most of time they check food labels. However, the sample is report they rarely use food labels.

Table 8: Diet Labels

Heard food labels	Check food labels	Use food labels
Average = 1.5 Median = 2	Average = 2.2 Median = 2	Average = 4.99 Median = 5.00

Marital status was broken down into six categories. Those are that married 58.7%, widowed 13.7%, divorced 13.5%, separated 3.3%, never married 6.6%, and 4.3% participants reported living with a partner.

Table 9: Marital Status

Married	Widowed	Divorced	Separated	Never Married	Living with a partner
n = 1,649	n = 386	n = 382	n = 93	n = 187	n = 120

Chapter 4: Social Support and Physical Activity

The following section discusses the relationship between the predictor of social support and physical activity. Social support was defined by three variables: spousal support, family support (son, daughter, parent, brother/sister, and other relative support) and other support (friend and church support) where 1 = yes and 0 = no. Spousal support was specific to participants reporting they have a spouse. This does not include cohabitating couples, but rather, this variable reflects marital status. There are 1,484 participants in the sample that did not report having a spouse so were they coded as zero on this variable?. Physical activity was measured by 6 separate dimensions. Participants were asked about 1) walking and biking over the past 30 days, 2) moderate physical activity over the past 30 days, 3) vigorous physical activity over the past 30 days, 4) performing tasks around the home/yard over the past 30 days, 5) muscle strengthening activities over the past 30 days and 6) average level of daily physical activity. The coding of the first five dependent variables was dichotomous with *yes* =1 and no and "unable to do activity" coded as 0.The sixth measure, the average level of physical activity, was continuous with the variables ranging from 1= you sit during the day do not walk, 2 = you stand and/or walk a lot but not lift, 3 = you lift light loads or climb stairs or hills and finally you do heavy work or carry loads. Control variables included age, education, income, gender and race. The analysis employed different sample filters. The first model discusses findings based on all participants, and then the role of social support is examined separately for gender and for racial groups. The regression models test whether social support acts the same across the different physical activity variables. The model also explores if social support acts the same for men and women and for different races.

Social support and Physical Activity

This section will discuss the relationship between social support and physical activity. All cases were included in the following regression models (n = 2,821). The same model was used across all the physical activity variables. The predictor variables consisted of spousal support, family support and other support (friend and church support) and the control variables (gender [males = 1 and females = 2), [age was continuous], [education 1= Less than 9th grade, 2 = 9-11th grade which includes 12th grade with no diploma), 3 = High School Graduate/GED or Equivalent, 4 = Some College or AA degree, 5 = College Graduate or above] , [income 1 = $0 to $4,999, 2 = $5,000 to $9999, 3 = $10,000 to $14,999, 4 = $15,000 to $19,999, 5 = $20,000 to $24,999, 6 = $25,000 to $34,999, 7 = $35,000 to $44,999, 8 = $45,000 to $54,000, 9 = $55,000 to $64,999, 10 = $65,000 to $74,000, 11= $75,000 and over] and race [whites 1 = white and 0 = all other races.

The first physical activity dependent variable asked the participants if they have walked or biked in the past 30 days (see Table 10). Those who reported having other support (friend and church support) were also more likely to report having walked or biked in the past 30 days. The relationship was a weak positive coefficient of .238. Spousal and family supports were not significant. The findings suggest that biking and walking may occur more often with friends, rather than spouses or other relatives. Gender, age, education, income and race were all significant. Males were more likely than females to report walking and/or biking in the past 30 days (-.248). Age had a weak negative coefficient. As participants got older they were less likely to report walking/biking over the past 30 days. Those participants who were more educated

were more likely to report walking/biking over the past 30 days. The coefficient showed a weak positive relationship at .109. As income increased, participants were less likely to report walking and/or biking over the past 30 days, therefore making it a negative relationship. Finally, whites were more likely to report walking or biking over the past 30 days in comparison to the other racial groups. The overall model and the chi square were significant. The Nagelkerke R square was .026.

Table 10. Social Support and Walking and/or Biking Over the Past 30 Days

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.128	.099	.026	2991.198	49.392
Family Support	-.088	.095			
Other Support	.238*	.100			
Females	-.248**	.094			
Age	-.013**	-.013			
Education	.109**	.040			
Income	-.047**	.017			
Whites	.231*	.097			
Constant	.050	.325			

P<.01**P<.05**

Table 11 shows the predictors of *tasks around the home/yard over the past 30 days.* The question asked participants if they have performed any tasks in or around their home and/or their yard in the past 30 days that caused light sweating or a slight to moderate or greater physical effort. The only social support variable of significance was spousal support. Those who reported spousal support were more likely to report doing tasks around the home/yard. This finding had a positive moderate strength coefficient of .300. All the control variables were significant. Females were less likely to report doing tasks around the home/yard (-.258). However, the wording of the survey question

may be a factor. The question asked about both home and yard which may lead the participants to focus on heavy lifting tasks. As participants got older they were less likely to report doing any tasks around the home, therefore, this finding had a negative correlation. More educated participants were more likely to report doing tasks (.153). As education went up so does the chance of the participants performing tasks around the home/yard over the past 30 days. As income increased participants were more likely to do tasks around the home/yard (positive coefficient at .088). Finally, whites were more likely to do tasks around the home/yard in comparison to the other racial groups (.562). The overall model and chi square was significant. The Nagelkerke R square was indicates that the predictor variables explained 13.8% of the variance in the dependent variable.

Table 11: Social Support and tasks around the home/yard in the past 30 days.

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spouse Support	.300**	.089	.138	3433.884	300.82**
Family Support	-.116	.086			
Other Support	-.003	.093			
Female	-.258**	.086			
Age	-.022**	.003			
Education	.153**	.035			
Income	.088**	.016			
Whites	.562**	.089			
Constant	.751*	.295			

Muscle strengthening was another physical activity variable. The question asked participants if they have done any muscle strengthening activities in the past 30 days. The multiple regression findings in Table 12 revealed that *other support (church and friend support)* was significant. Those that reported having other support (friend

and church support) were more likely to report doing muscle strengthening activities in the past 30 days. This finding had a positive relationship with a weak coefficient at .204. Also, this finding may suggest that these activities are done more with friends than with other groups. Age, education, and income were all significant control variables as well. As the participants got older they were less likely to have reported doing muscle strengthening activities, therefore this finding had a weak negative relationship at -.009. There was a moderate positive relationship between education and muscle strengthening activities. Those participants with more education were more likely to report yes to the muscle strengthening activity (.327 coefficient). Consistent with education, income level had a positive coefficient as well. Participants with higher income were more likely say that have done muscle strengthening activities over the past 30 days (.086). The Chi square was significant and the Nagelkerke R Square demonstrates that the predictor variables explained 9.9% of the variation in the dependent variable.

Table 12: Social Support and Muscle Strengthening Activities in the past 30 days

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.015	.100	.099	2908.798	193.368**
Family Support	-.104	.097			
Other Support	.204*	.100			
Female	-.143	.095			
Age	-.009*	.004			
Education	.327**	.042			
Income	.086**	.018			
Whites	-.160	.098			
Constant	-2.081**	.342			

Respondents were also asked if they were doing any moderate activity in the past 30 days (see Table 13). No social support predictors reached statistical significance. Among the control variables, age, education and income were significant. There was a weak negative coefficient with age and moderate physical activity. When participants got older they were less likely to report doing any moderate physical activity over the past 30 days (-.007). Education had a moderate positive coefficient. Those that were more educated were more likely to report doing moderate physical activity (.370). Finally, those that had higher income were more likely to report moderate physical activity in the past 30 days. The Chi Square was significant and the predictor variables explained 11.7% of the variance in the dependent variable.

Table 13: Social Support and Moderate Physical Activity over the past 30 days

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.111	.087	.117	3648.354	260.17**
Family Support	-.015	.084			
Other Support	.171	.089			
Female	-.036	.082			
Age	-.007*	.003			
Education	.370	.035			
Income	.049**	.015			
Whites	.153	.085			
Constant	-1.204	.228			

P<.01**P<.05**

Participants were asked if they have done any vigorous activity in the past 30 days. No social support variable was significant (Table 14). Gender, age, education, and income had statistical significance. Females were less likely to report doing any vigorous physical activity in the past 30 days (-.368). The regression findings revealed

that age and vigorous activity had a weak negative coefficient. As the age of the participants in the sample increased, their vigorous activity decreased (-.041). Persons with higher educational attainment were more likely to say yes to doing vigorous physical activity (.417). Finally, there was a weak positive relationship between income and vigorous physical activity. More specifically, as income increased so did reports of vigorous physical activity in the past 30 days. The overall model was significant. The Nagelkerke R Square indicated the predictor variables explained 19.3% of the variance in the dependent variable.

Table 14: Social Support and Vigorous Activity over the past 30 days

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.005	.103	.193	2705.557	387.31**
Family Support	-.040	.101			
Other Support	.106	.104			
Female	-.368**	.099			
Age	-.041**	.004			
Education	.417**	.044			
Income	.077**	.019			
Whites	-.112**	.101			
Constant	-.259**	.349			

P<.01**P<.05**

The final physical activity variable to discuss is average level of daily physical activity. This question had asked participants what was there average level of physical activity each day. The range of the responses consisted of 1= you sit during the day do not walk, 2 = you stand and/or walk a lot but not lift, 3 = you lift light loads or climb stairs or hills and finally you do heavy work or carry loads. Table 6 shows that family support and other support were both significant. Participants who reported family support were

less likely to do heavy lifting carry heavy loads and walking up and down stairs (-.081). Those with other support (friend and church support) were less likely as well to do physically demanding tasks everyday (-.092). Females were less likely than males to do tasks that were physically demanding (-.224). As participants aged, they were also less likely to do physical tasks around the home. Those in the sample who had high education were less likely to do these tasks. As income increased, participants were more likely to lift heavy loads and walk up and down stairs each day (.015). Finally, whites were more likely to do physically demanding activities each day (.068). The predictors only explained 5.7% of the variation in the dependent variable.

Table 15: Social Support and Average Level of Daily Physical Activity

Variable	B coefficients	Standard Error	R Square	F
Spousal Support	-.008	.033	0.057 21.225**	
Family Support	-.081*	.032		
Other Support	-.092**	.034		
Female	-.224**	.031		
Age	-.009**	.001		
Education	-.038**	.013		
Income	.015*	.006		
Whites	.068*	.033		
Constant	2.981**	.11		

P<.01**P<.05**

Conclusion

Social support does not act the same across each of the physical activity variables. Spousal support was only statistically significant once, family support was only statistically significant once, and other support (friend and church support) was statistically significant for three of six physical activity measures. Therefore, out of the

social support sources, those with other support (friend and church support) were more likely to report exercise/physical activity. The most statistically significant variable was education. Those participants with high educational attainment were more likely to be physically active. Males were more likely to be physically active. Finally, as age increased, physical activity decreased. However, this may suggest as people age they are physically unable to exercise or engage in heavy lifting.

Social Support and Physical Activity (Males and Females)

The following section discusses social support and physical activity by gender. Social support findings here is discussed by males and then by females. The same regression models are used for both sampling filters. Spousal support, family support and other support (friend and church support) are used as predictors across all the physical activity questions. In addition, the same sociodemographics variables are employed.

Males

Table 16 shows the predictors for men who were asked, “have you walked and/or biked over the past 30 days?” Males who reported spousal support were less likely to say they had walked or biked in the past 30 days. This finding had a moderate negative coefficient. Education had a weak positive coefficient. Males who were more educated were more likely to report walking and/or biking. White males were less likely to report walking and/or biking in the past 30 days in comparison to the other racial groups. The Chi square was significant and the predictor variables explained only 2.9% of the variation in the dependent variable.

Table 16: Social Support and Walking and/or biking over the past 30 days: Males

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.300*	.132	.029	1567.987	28.659**
Family Support	-.014	.131			
Other Support	.142	.142			
Age	-.006	.005			
Education	.180**	.054			
Income	-.032	.024			
Whites	-.342**	.133			
Constant	-.809*	.395			

P<.01**P<.05**

Table 17 shows that males with spousal support were more likely to do household tasks (.440). Older males were less likely to report doing tasks around the home. As education attainment increased, males reporting a greater likelihood of doing tasks around the home. Higher income was related to doing tasks around the home. Whites male were more likely to report doing tasks around the home compared to other races. In this model the Chi square was significant and the Nagelkerke R Square indicated that the independent variables explained 14.6% of the variation in the dependent variable.

Table 17: Social Support and tasks around the home/yard in the past 30 days: Males

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.440**	.124	.146	1669.629	158.927**
Family Support	-0.14	.122			
Other Support	-.029	.139			
Age	-.011*	.005			
Education	.178**	.049			
Income	.117**	.023			
Whites	.565**	.127			
Constant	-.487	.372			

P<.01**P<.05**

Males who reported other support were more likely to say they have done muscle strengthening activities in the past 30 days (See Table 18). Older males were less likely to report doing muscle strengthening activities (-.012). Higher educated males said "yes" to performing muscle strengthening activities in the past 30 days (.275). Males with high income were also more likely to do muscle strengthening activities (.109). White males were less likely to report doing muscle strengthening activities (-.329). Consistent with previous models, the Chi square was significant. The predictor variables explained 11.3% of the variation in the dependent variable.

Table 18: Social Support Muscle Strengthening Activities over the past 30 day: Males

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.035	.138	.113	1498.711	113.433**
Family Support	-.174	.137			
Other Support	.358*	.143			
Age	-.012*	.005			
Education	.275**	.056			
Income	.109**	.026			
Whites	-.329*	.137			
Constant	-2.014**	.417			

P<.01**P<.05**

Results presented in Table 19 show that social support did not predict the likelihood of engaging in moderate activity in the past 30 days. Only education and income had any significance. Both sociodemographic variables had positive coefficients in relation to moderate physical activity. Males with higher education were more likely to engage in moderate physical activity. Those males with high income were also more likely to report doing moderate physical activity. The independent variables explained 13.5% of the variation in moderate physical activity variable. Like other models, the Chi square statistic was significant.

Table 19: Social Support and Moderate Physical Activity over the past 30 days: Males

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.027	.120	.135	1829.867	152.102**
Family Support	.077	.118			
Other Support	.199	.131			
Age	.001	.005			
Education	.368**	.048			
Income	.093**	.022			
Whites	.111	.120			
Constant	-2.004	.363			

P<.01**P<.05**

Table 20 shows similar results for vigorous activity. Social support had no significant relationship with this type of physical activity. Age, education, and income were the significant variables. Older males were less likely to report doing vigorous physical activity. The males in the sample who had high education and those with high income reported doing vigorous physical activity. With race, white males were less likely to say that they did any vigorous physical activity in the past 30 days. The Chi Square was significant in this model. The Nagelkerke R Square was .198.

Table 20: Vigorous Physical Activity over the past 30 days: Males

Variable	B coefficients	Standard Error	Nagelkerke R Sqaure	Log Likelihood	Chi Square
Spousal Support	-.031	.140	.198	1441.875	208.46**
Family Support	.108	.139			
Other Support	.065	.147			
Age	-.039**	.006			
Education	.476**	.060			
Income	.071**	.026			
Whites	-.263*	.139			
Constant	-.828*	.415			

The final table in this series (Table 21) asked participants about their average level of physical activity each day. Males who said they have family support were less likely to say they do heavy lifting, carry heavy loads and walk up and down stairs each day. Older males were less likely to report doing physically demanding tasks around the home. Finally, the males in the sample who had high educational attainment were less likely to partake in activities that were physically demanding. The predictor variables explained 5.4% of the variance in the dependent variable.

Table 21: Social Support and average level of daily physical activity: Males

Variable	B coefficients	Standard Error	R Square	F
Spousal Support	.014	.049	.054 11.555**	
Family Support	-.019	.048		
Other Support	-.136*	.053		
Age	-.014	.002		
Education	-.062**	.019		
Income	.015	.009		
Whites	.025	.049		
Constant	3.115	.145		

P<.01**P<.05*

Consistent with other findings in this study, education is the predictor of whether or not males partake in physical activity or exercise. The relationship with age and physical activity is a negative relationship. When age increases physical activity decreases. Finally, social support is not consistent across each of the physical activity variables.

Females

The following section only discusses findings pertaining to females participants. The same model was used across all the physical activity questions. The predictor variables consisted of spousal, family, and other support (friend and church support). Table 22 shows that other support was significant in and increased the likelihood of walking and/or biking over the past 30 days. Age and income were also significant. Older females were less likely to report walking or biking. Also, as income increased so does the likelihood of the females in the sample stating they walked and/or biked over the past 30 days. The overall model was significant. The social support and control variables explained only 3.3% of the variance in the walking and/or biking in the past 30 days.

Table 22: Social Support and walking and/or biking over the past 30 days: Females

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.051	.149	.033	1409.675	29.916**
Family Support	-.134	.139			
Other Support	.342*	.141			
Age	-.021**	.006			
Education	.018	.059			
Income	-.067**	.025			
Whites	-.098	.144			
Constant	.350	.447			

P<.01**P<.05*

In Table 23 social support was not a predictor for women completing tasks around the home and/or yard. As females got older they were less likely to report doing tasks around the home. Females with higher education said they were more likely to do

tasks around the home and/or yard. There was a weak positive relationship with income and tasks around the home. When income increased, female participants stated they performed tasks around the home. Finally, white females were more likely to do home tasks. The overall model was significant. The Nagelkerke R Square was .132.

Table 23: Social Support and tasks around the home/yard in the past 30 days: Females

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.092	.130	.132	1743.423	143.945**
Family Support	-.085	.123			
Other Support	.041	.127			
Age	-.035**	.005			
Education	.110*	.051			
Income	.061*	.022			
Whites	.598**	.127			
Constant	1.337**	.387			

Table 24 summarizes the predictors of muscle strengthening activities for women. Participants were asked if they performed any muscle strengthening activities in the past 30 days. Among women, only education and income were significant variables. As education increased so did the likelihood of the females participants responding “yes” to doing muscle strengthening activities. When income increased female, participants were also reporting muscle strengthening activities. The Chi Square was significant and the Nagelkerke R Square was .094 suggesting that the independent variables explained 9.4% of the variance in the muscle strengthening variable.

Table 24: Social Support and muscle strengthening activities over the past 30 days: Females

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.036	.148	0.094	1398.738	89.002**
Family Support	-.048	.141			
Other Support	. 062	.143			
Age	-.006	.006			
Education	.394**	.064			
Income	.066*	.026			
Whites	.028	.143			
Constant	-2.712	.471			

P<.01**P<.05**

Table 25 examines the predictors of women doing moderate physical activities over the past 30 days. Consistent with the muscle strengthening activities findings, only the social demographic variables were significant and all the social support measures were insignificant. As age increased, females in the sample were not doing moderate physical activity. Finally, as the education of the female participants increased so did their likelihood of doing moderate physical activity. This model had a Nagelkerke R Square of .112 and the model was significant.

Table 25: Social Support and Moderate physical activity over the past 30 days: Females

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.163	.127	.112	1804.695	121.69**
Family Support	-.097	.12			
Other Support	.157	.123			
Age	-.015**	.005			
Education	.363**	.051			
Income	.006	.022			
Whites	.212	.122			
Constant	-.470	.380			

P<.01**P<.05**

Table 26 shows a familiar pattern for women. Social support was not a significant predictor for vigorous activity, but age, education, and income were significant predictors. As age increased females were less likely to say they performed vigorous physical activity. When the educational attainment of the females increased, so did the probability of reporting vigorous activity. When income increased females in the sample were more likely to perform vigorous activity over the past 30 days. The predictor variables explained 18.3% of the variation in the dependent variable. Consistent with other models, this model was also significant.

Table 26: Social support and vigorous physical activity over the past 30 days: Females

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.033	.154	.183	1257.26	174.45**
Family Support	-.175	.147			
Other Support	.125	.150			
Age	-.044**	.006			
Education	.352**	.067			
Income	.082**	.027			
Whites	.047	.150			
Constant	-.680	.490			

P<.01**P<.05**

The final physical activity question asked the females in the sample about their daily physical activity. The responses ranged from sitting all day, not walking or carrying any heavy loads to participants being able to choose a response of walking all day and carrying heavy loads. The OLS regressions in Table 6 show that women with family support were less likely to engage in carrying heavy loads and walking around the home all day. The older females in the sample were less likely to report carrying heavy loads and having to walk up and down stairs in their home. As income increased they were more likely to engage in physically demanding tasks. Finally, white females reported doing heavy lifting and going up and down stairs. The R Square for this model was low, only 3.1% of the variance in the dependent variable was explained by social support and the control variables.

Table 27: Social Support and average level daily physical activity: Females

Variable	B coefficients	Standard Error	R Square	F
Spousal Support	-.008	.044	.031 6.215**	
Family Support	-.149**	.042		
Other Support	-.065	.043		
Age	-.004*	.002		
Education	-.005	.017		
Income	.015*	.007		
Whites	.096*	.042		
Constant	2.116**	.132		

P<.01**P<.05**

Exploring the gendered samples, social support was not a consistent predictor of the physical activity variables, a finding reported for the entire sample. Again, the most consistent variable was education. Higher educated participants were more likely to engage in physical activity. This finding coincides with the other sampling filters as well.

Social Support and Physical Activity by Racial Groups

The following section discusses the findings according to racial groups. Three separate analyses were performed, one for whites, then African Americans, and finally Mexican Americans. The same regression models were conducted across each racial group. The predictors consisted of spousal support, family support and other support (friend and church support). Each of the previous physical activity variables was explored.

Whites

Whites were the largest racial group in the sample (n = 1,564). Other support (friend and church support) was a significant predictor of walking and/or biking over the

past 30 days (Table 28). However, it was a moderate negative coefficient. Whites with other support were less likely to say they had walked and/or biked over the past 30 days. The higher educated whites in the sample were less likely to say they had walked and/or biked over the past 30 days. While the overall model was significant, the independent variables explained only 2.5% of the variance in the dependent variable.

Table 28: Social Support and walking and/or biking over the past 30 days: Whites

variable	B coefficients	Standard Error	Nagelkerke R Square	log Likelihood	Chi Square
Spousal Support	.051	.141	.025	1580.992	25.397**
Family Support	.114	.135			
Other Support	-.341*	.138			
Females	.179	.131			
Age	.010	.005			
Education	-.123*	.061			
Income	-.008	.025			
Constant	1.001*	.490			

P<.01**P<.05**

As shown in Table 29, spousal support was significantly related to tasks around the home in the past 30 days. Whites who reported having spousal support were more likely to say they performed tasks around the home. Among whites, females were less likely to do tasks around the home and/or yard. Older whites had a lower probability of doing tasks around the home and/or yard. The higher the educational attainment, the more likely whites did tasks around the home. Higher income whites had a higher probability of doing tasks around the home. The overall model was significant. The predictor variables explained 17.7% of the variation in the dependent variable.

Table 29: Social Support and tasks around the home/yard over the past 30 days: Whites

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	. 393**	.130	.177	1736.536	211.316**
Family Support	-.115	.125			
Other Support	-.072	.134			
Females	-.332**	.122			
Age	-.028**	.005			
Education	.130*	.053			
Income	.131**	.023			
Constant	1.59**	.452			

P<.01**P<.05**

When asked about performing muscle strengthening activities over the past 30 days only education and income were significant (Table 30). Higher educated whites were more likely to say they did muscle strengthening activities over the past 30 days. Those whites with higher income had a higher probability of doing muscle strengthening activities. This model was significant and the variables explained 12.7% of the variance in muscle strengthening activities.

Table 30: Social Support and Muscle Strengthening over the past 30 days: Whites

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.038	.139	.127	1597.602	139.067**
Family Support	-.153	.135			
Other Support	.191	.138			
Females	.067	.128			
Age	-.007	.005			
Education	.406**	.064			
Income	.114**	.025			
Constant	-3.236**	.508			

P<.01**P<.05*

Consistent with the previous findings, Table 31 shows only sociodemographic variables were related to performing moderate physical activity in the past 30 days. Whites with higher education were more likely to do moderate physical activity. Higher income whites were more likely to say they engaged in moderate physical activity. This model too was significant. The predictors explained 13.1% of the variance in the dependent variable.

Table 31: Social Support and Moderate Physical Activity over the past 30 days: Whites

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.180	.120	.131	1986.99	161.327**
Family Support	-.154	.116			
Other Support	.231	.123			
Females	.015	.112			
Age	-.008	.004			
Education	.347**	.051			
Income	.089**	.021			
Constant	.1.274**	.418			

Table 32 shows results for predictors of vigorous physical activity over the past 30 days. The overall model was significant and the Nagelkerke R Square was .236. The findings revealed when age increased for whites they were less likely to say they did any vigorous physical activity over the past 30 days. Whites who were more educated were more likely to do vigorous physical activity. The higher the income, the higher the probability of whites stating they engaged in vigorous physical activity.

Table 32: Social Support and Vigorous Physical Activity over the past 30 days: Whites

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.024	.147	.236	1452.523	268.113**
Family Support	-.298	.143			
Other Support	.167	.144			
Females	-.221	.135			
Age	-.038**	.005			
Education	.530**	.070			
Income	. 108**	.026			
Constant	-1.361	.516			

P<.01**P<.05**

The final physical activity variable shown in Table 33 asked participants' about their daily physical activity habits. As noted in previous sections, the coding 1= you sit during the day do not walk, 2 = you stand and/or walk a lot but not lift, 3 = you lift light loads or climb stairs or hills and finally you do heavy work or carry loads. Whites who said they had family support were less likely to say they did physically demanding tasks around the home (-.108). In addition, whites who reported having other support (friend and church support) were also less likely to say they did physically demanding tasks each day -(.145). Females were less likely to embark on physical demanding tasks

each day (-.141). The older the participant the more likely they were not having physically demanding days (-.006). Finally, whites who reported higher income increased the chance of having physically demanding days (.019). The model, while significant, explained 4.3% of the variance.

Table 33: Social support and average level of daily physical activity: Whites

Variables	B coefficients	Standard Error	R Square	F
Spousal Support	-.016	.046	.043 9.976**	
Family Support	-.108*	.044		
Other Support	-.145**	.046		
Females	-.141**	.042		
Age	-.006**	.002		
Education	.019	.019		
Income	.008	.008		
Constant	2.667**	.159		

P<.01**P<.05**

Consistent with other findings, social support is not consistent across the physical activity variables. However, like other findings, education is the significant variable across all the physical activity dependent variables. Those who are more educated are more likely to engage in physical activity. All the models were significant. Finally, the predictors did not explain much variance in the dependent variables. For the most part, the Nagelkerke R square values were low.

African Americans

This section will discuss social support and its relation to physical activity only for African Americans n = 644. Only sociodemographic variables were significantly related to walking and/or biking over the past 30 days in Table 34. Males were more likely to

report walking and/or biking over the past 30 days. As African Americans got older they were less likely to walk and/or bike. Those African Americans who were more educated were more likely to say they had walked and/or biked. The higher the income the less likely they were to engage in this physical activity. The model was significant, however. The Nagelkerke R square was on the lower end at .089.

Table 34: Social Support and Walking/biking over the past 30 days: African Americans

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.205	.220	.089	671.522	39.282**
Family Support	-.112	.203			
Other Support	.197	.200			
Females	-.438*	.202			
Age	-.031**	.009			
Education	.273**	.094			
Income	-.142**	.037			
Constant	1.373	.767			

P<.01**P<.05**

The next dependent variable shown in Table 35 asked participants about performing tasks around the home. African American males were more likely to perform tasks around the home and/or yard. Older African Americans were less likely to engage in such a physical activity. Those African Americans who had higher income were more likely to report doing tasks around the home/yard. Consistent with other models, the model was significant. The predictors explained 10.2% of the variance in the dependent variable.

Table 35: Social Support and tasks around the home/yard over the past 30 days: African Americans

Variables	B coefficients	Standard Error	Nagerlkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.124	.190	.102	840.588	50.968**
Family Support	-.274	.177			
Other Support	-.059	.175			
Females	-.375*	.175			
Age	-.027**	.008			
Education	.134	.078			
Income	.075*	.075			
Constant	1.488	.656			

P<.01**P<.05**

Table 36 indicates that muscle strengthening was significantly related to education and age for African Americans. The higher the age, the less likely African Americans were doing muscle strengthening activities. Higher educated African Americans were more likely to partake in muscle strengthening activities. The model was significant with the Chi square being .000. The Nagelkerke R square was low at .086.

Table 36: Social Support and Muscle Strengthening activities over the past 30 days: African Americans

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.071	.208	.086	700.114	39.152**
Family Support	-.307	.197			
Other Support	-.029	-.029			
Females	-.265	-.265			
Age	-.023*	-.023			
Education	.254**	.254			
Income	.047	.047			
Constant	-.359	-.359			

P<.01**P<.05**

African Americans in the sample were also asked about moderate physical activity over the past 30 days (Table 37). Only age and education were related to moderate physical activity for African Americans. Older participants were not engaging physical activity (-.016). However, those African Americans who educated were more likely to have done moderate physical activity (.341). Consistent with previous models, this regression was significant as well. The predictor variables explained 6.8% of the variance in dependent variable.

Table 37: Social Support and moderate physical activity over the past 30 days: African Americans

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.107	.187	.068	858.862	33.911**
Family Support	.058	.175			
Other Support	.043	.172			
Females	-.134	.172			
Age	-.016*	.007			
Education	.341**	.078			
Income	-.041	.032			
Constant	.321	.645			

P<.01**P<.05**

Consistent with previous findings, only sociodemographic variables were related to vigorous physical activities (Table 38). Males were more likely to engage in vigorous activities (.610). Older African Americans were not reporting vigorous physical activities (-.063). Higher educated African Americans were partaking in such activities (.382). The predictor variables explained 19.9% of the variance in the dependent variable and the equation was significant.

Table 38: Social Support and vigorous activity over the past 30 days: African Americans

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.070	.219	0.199	625.181	92.44**
family Support	-.093	.209			
Other Support	-.080	.208			
Females	-.610**	.211			
Age	-.610**	.010			
Education	.382**	.100			
Income	-.013	.038			
Constant	2.187**	.815			

P<.01**P<.05**

The final physical activity question inquired about daily physical activities (Table 39). Females were less likely to say they carry heavy loads each day or are walking up and down stairs several times a day (-.307). Older participants were not engaging in heavy load lifting or walking around (-.014). The model was significant and explained 7.3% of the variance.

Table 39: Social support and daily physical activity (African Americans)

Variables	B coefficients	Standard Error	R Square	F
		.071		
Spousal Support	-.036	.073		7.188**
Family Support	.041	.066		
Other Support	-.015	.065		
Females	.307**	.065		
Age	-.014**	.003		
Education	-.029	.029		
Income	.003	.012		
Constant	3.28**	.245		

P<.01**P<.05**

In conclusion, social support was not a predictor of physical activity for African Americans in the sample. As with other models, higher education consistently predicted activity levels All the models were significant. But, consistent with other sampling filters, the predictor variables (social support and the control variables) were not explaining much variation in the physical activity variables.

Mexican American

The final racial group to discuss is Mexican Americans (n = 452). No social support groups or sociodemographic variables were related to walking and/or biking over the past 30 days (Table 40). This is not consistent with other sample filters. Also, the model was not significant unlike other models in this chapter. The Chi square was not significant.

Table 40: Social Support and Walking and/or biking over the past 30 days: Mexican Americans

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.276	.223	.024	530.991	7.736
Family Support	.092	.221			
Other Support	.199	.264			
Females	-.352	.222			
Age	.010	.009			
Education	.059	.086			
Income	-.048	.041			
Constant	-.764	.748			

P<.01**P<.05**

Table 41 indicates that Mexican Americans who are more educated were more likely to report doing tasks around the home/yard in the past 30 days. Education was the only significant finding in relation to performing tasks around the home/yard in the past 30 days. However, this finding was consistent with other models in this project. The model explained 10.5% of the variance and was significant.

Table 41: Social Support and tasks around the home/yard in the past 30 day: Mexican Americans

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.400	.208	.105	581.137	36.937**
Family Support	.315	.208			
Other Support	.306	.260			
Females	-.097	.207			
Age	.002	.009			
Education	.357**	.084			
Income	.054	.039			
Constant	-1.18	.711			

Mexican Americans who were more educated were also more likely to do muscle strengthening activities (.297) (See Table 42). Those participants who stated they have other support (friend and church support) were more likely to do muscle strengthening activities (.775). Consistent with other models, this model was significant as well. The Nagelkerke R Square was .110. Therefore the social support and control variable explained 11% of the variance in the muscle strengthening activities variable.

Table 42: Social Support and muscle strengthening activities in the past 30 days: Mexican Americans

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.088	.26	.110	413.208	32.422**
Family Support	.389	.261			
Other Support	.775**	.280			
Females	-.465	.261			
Age	.010	.011			
Education	.297**	.096			
Income	.084	.048			
Constant	-2.911	.921			

P<.01**P<.05**

Family support was significantly related to moderate physical activity (Table 36). Mexican Americans who had family support were more likely to report doing moderate physical activity (.572). The higher the education, the more likely they were engaging moderate activity (.522). The overall model was significant and the predictor variables explained 16% of the variance in the dependent variable.

Table 43: Social support and Moderate Physical Activity over the past 30 days Mexican Americans

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	.004	.219	.160	540.231	56.268**
Family Support	.572**	.22			
Other Support	.014	.261			
Females	-.197	.218			
Age	.014	.009			
Education	.522**	.086			
Income	.048	.04			
Constant	-2.845	.77			

Family support was also related to vigorous activity over the past 30 days (Table 44). Mexican Americans who said they have family support were more likely to report vigorous activity (.694). Females were less likely to do vigorous activity (-.622). The older the participant the less likely they were to report vigorous physical activities (-.030). The higher the education (.396) and income (.151) the more likely participants were performing vigorous activities. The over model was significant and the Nagelkerke R square was .207. This was one of the highest percentages of explained variance in the project.

Table 44: Social Support and Vigorous Physical Activity in the past 30 days: Mexican Americans

Variables	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.212	.260	.207	400.435	64.394**
Family Support	.694*	.268			
Other Support	.268	.299			
Females	-.622*	.265			
Age	-.030*	.012			
Education	.396**	.097			
Income	.151**	.048			
Constant	-1.093	.903			

The final variable to discuss is daily physical activity (Table 45). Females were less likely to engage in daily physical activity. Also, those who were more educated were less likely to engage in daily physical activity. Age was also significant. Those participants who are older were less likely to report daily physical activity. The model, consistent with other, is significant. The R square was .112. .

Table 45: Social Support and Daily Physical Activity: Mexican Americans

Variables	B coefficients	Standard Error	R Square	F
Spousal Support	.012	.079	.112	7.985**
Family Support	-.115	.079		
Other Support	.020	.097		
Females	-.403**	.079		
Age	-.012**	.003		
Education	-.064*	.031		
Income	.019	.015		
Constant	3.479**	.271		

Chapter Conclusion

This chapter explored the relationship between social support and physical activity. It had three separate forms of social support consisting of spousal support, family support, and finally other support (friend and church support) as predictors of physical activity. There were also control variables (age, education, gender, race, income) acting as predictors of physical activity as well. Social support was not a consistent predictor of whether participants were likely to engage in physical activity variables. sociodemographic characteristics were more likely to predict activity levels. More specifically, education was the most consistent variable. Those participants who were more educated were more likely to report partaking in physical activity. Education was not predictive only in one model. This suggested that the predictor variables did play a factor in whether the participants were engaging in physical activity. But, the strength of the predictor variables was weak at times and the predictor variables did not explain much variation in the physical activity variables. This may suggest that there

are other variables that may play a more significant role in the explanation of whether people are going in partake in physical activity or not.

Table 46: Summary Table for Social Support and Physical Activity

Independent Variable	All	Male	Female	Whites	African American	Mexican American
Spousal Support	1/6	2/6	0	1/6	0	0
Family Support	1/6	0	1/6	1/6	0	2/6
Other Support	3/6	2/6	1/6	2/6	0	1/6
Gender	4/6	N/A	N/A	2/6	4/6	2/6
Age	6/6	3/6	5/6	3/6	6/6	2/6
Education	5/6	6/6	4/6	5/6	4/6	5/6
Income	6/6	4/6	5/6	4/6	2/6	1/6
Whites	4/6	3/6	2/6	N/A	N/A	N/A

The table above displays the number of significant predictors of social support and sociodemographic variables on six separate measures of physical activity. The six physical activity measures are walking/biking in the past 30 days, vigorous activity in the past 30 days, moderate activity in the past 30 days, muscle strengthening activities in the past 30 days, tasks around the home past 30 days, and average level of physical activity. The table is broken down by sample filter. The rows across the top displays all cases, then only males and only females, and then by race, only whites, African Americans and Mexican Americans.

Concerning the whole sample, those reporting spousal support were more likely to do physical activities around the home in the past 30 days. Participants who reported family support less likely to do tasks around the home/yard. Family support was significant for three separate physical activity measures. Participants reporting other support were more likely to walk/bike over the past 30 days and do muscle

strengthening activities but were less likely to do daily physical activity. Females were less likely to walk/bike, do vigorous physical activity, tasks around the home/yard and were less likely to do daily physical activity. Age was significant across all physical activity measures. As age increased participants were less likely to be physically active. Education was statistically significant for all but one measure of physical activity; moderate physical activity over the past 30 days. Those who were more educated were more likely to be physically active. Income was significant across all physical activity measures as well. The only negative relationship with income was walking/biking over the past 30 days. Those with higher income were less likely to report walking/biking over the past 30 days. Finally, race was significant for four of six physical activity measures. Whites were more likely to report walking/biking, do tasks around the home/yard and were more likely to report doing more daily physical activities. However, whites were less likely to report vigorous activity.

Males in the sample who reported spousal support were more likely to say they have walked/biked over the past 30 days and were more likely to report doing tasks around the home/yard over the past 30 days. Males reporting other support (church and friend support) were more likely to do muscle strengthening activities but were less likely to engage in high amounts of physical activity. Age was significant for three physical activity measures. As age increased males in the sample were reporting less vigorous activity, less muscle strengthening activities and less tasks around the home/yard. Education was significant for all six measures. It had a positive relationship except for average level of daily physical activity. Income was related to four of six measures. As income increased male participants were more likely to report vigorous

physical activity, moderate physical activity, muscle strengthening activities and were more likely to report doing tasks around the home/yard. White males were less likely to report walking/biking over the past 30 days and do muscle strengthening activities but were more likely to doing tasks around the home/yard over the past 30 days.

Females in the sample had no significance with any spousal support in relationship to physical activity. Females reporting family support were more likely to report lower levels of daily physical activity. Those who reported other support were more likely to walk/bike over the past 30 days. Age was significant for five of six physical activity measures. As age increased females in the sample reported less physical activity. The only physical activity measure not statistically related to age was muscle strengthening activities over the past 30 days.

Whites in the sample who reported spousal support were more likely to report doing tasks around the home/yard over the past 30 days. Those who reported family support were less likely to report high amounts of daily physical activity. White participants were less likely to report walking/biking over the past 30 days and less likely to report high amounts of daily physical activity when reporting they had other support. White females were less likely to report doing tasks around the home/yard and they also reported lower levels of daily physical activity.

African Americans in the sample had no significant social support predictors. Only sociodemographic variables were significant. African American females were less likely to report walking/biking over the past 30 days, vigorous activity over the past 30 days, and were less likely to do tasks around the home/yard in the past 30 days.

However, African American females were more likely to report higher levels of daily physical activity. Age was significant for all 6 physical activity measures. As age increased physical activity decreased. Education was significant for four physical activity measures. As education increased African American participants were more likely to report walking/biking over the past 30 days, vigorous and moderate physical activity over the past 30 days and were more likely to report muscle strengthening activities. As income increased reports of walking/biking decreased. However, as income increased tasks around the home/yard over the past 30 days increased.

Mexican Americans in the sample who reported family support were more likely to report vigorous activity and moderate physical activity over the past 30 days. Those who reported other support (church and friend support) were more likely to do muscle strengthening activities. Mexican American females were less likely to report vigorous physical activities and less likely to report doing high amounts of daily physical activities. Age was only significant for two of six physical activity measures. As age increased reports of vigorous physical activity over past 30 days decreased as did reports of doing daily physical activities. Education was related to five of six measures. As education increased so did measures of physical activity except for average amount of daily physical activity. Walking/biking over the past 30 days had no relation to education. Finally as income increased for Mexican Americans so too did levels of vigorous activity.

Chapter 5: Social Support and Smoking

The following section discusses the relationship between the predictor of social support and smoking. As noted in the previous chapter, social support was defined by three variables: spousal support, family support (son, daughter, parent, brother/sister, and other relative support) and other support (friend and church support). Smoking was measured by four separate dimensions. Participants were asked 1) have you smoked 100 cigarettes in your life, 2) do you now smoke 3) how soon after waking do you smoke, 4) and average number of cigarettes smoked a month. The coding for *smoked 100 cigarettes in your life* consisted of 1 = yes you have smoked 100 cigarettes in your life and 0 = no you have not smoked 100 cigarettes in your life. The coding for *do you now smoke* consisted of 0 = not at all, 1 = sometimes and 2 = every day. The coding for *how soon after waking do you smoke* consisted of 1 = more than one hour, 2 = from more than 30 minutes to an hour, 3 = from 6 to 30 minutes and 4) within 5 minutes of waking up. Finally, *average number of cigarettes a month* was a continuous variable.

The control variables consisted of age, education, income, gender, and race. Gender consisted of (1 = males and 2 = females), age (coding was continuous), education (1= Less than 9th grade, 2 = 9-11th grade which includes 12th grade with no diploma), 3 = High School Grad/GED or equilvalent, 4 = Some College or AA degree, 5 = College Graduate or above) , income (1 = $0 to $4,999, 2 = $5,000 to $9999, 3 = $10,000 to $14,999, 4 = $15,000 to $19,999, 5 = $20,000 to $24,999, 6 = $25,000 to $34,999, 7 = $35,000 to $44,999, 8 = $45,000 to $54,000, 9 = $55,000 to $64,999, 10 = $65,000 to $74,000, 11= $75,000 and over) and race (whites 1 = white and 0 = all other

races, African Americans 1= African American and 0 = all other races, and Mexican Americans 1 = Mexican American 0 = all other races).

The analysis employed different sample filters. The first model will discuss findings based on all participants, then for gender and for racial groups. The regression models test whether social support acts the same across the different smoking variables. The model explores if social support acts the same for men and women and for different races.

Social Support and smoking (all cases included)

The following section discusses the relationship between social support and smoking based on all participants. Only spousal support was significantly related. Those participants who reported spousal support were less likely to say they have smoked 100 cigarettes in their life. Several control variables were related as well. Females were less likely to say they have smoked 100 cigarettes in their life. Both income and education had negative relationships. As income and education increased participants were less likely to report having smoked 100 cigarettes in their life. Whites were more likely to say they have smoked 100 cigarettes in their life. The predictors explained 9.2% of the variance in the dependent variable.

Table 47: Social support and smoked 100 cigarettes in life

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.258**	.086	.092	3700.285	201.709**
Family Support	-.009	.083			
Other Support	.128	.089			
Gender	-.985**	.082			
Age	-.004	.003			
Education	-.112**	.034			
Income	-.039*	.015			
Whites	.469**	.086			
Constant	2.307**	.291			

The next findings to report are based on the variable *do you now smoke?* Spousal support was statistically significant. Participants who reported this form of support were less likely to smoke. All control variables were significant in this model. Females were less likely to report smoking every day. Older participants were less likely to report smoking. As education and income increased participants were less likely to report smoking. Whites were more likely to say they smoked in comparison to the other racial groups. The overall model was significant.

Table 48: Social Support and Do you now smoke

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.164**	.030	.097	37.553**
Family Support	.050	.029		
Other Support	.024	.031		
Females	-.147**	.029		
Age	-.016**	.001		
Education	-.062**	.012		
Income	-.038**	.005		
Whites	.146**	.146		
Constant	1.997**	.101		

Spousal support was related to the *number of cigarettes smoked per month.* Participants who reported spousal support smoked lower amounts of cigarettes. As in the previous model, all control variables were significant. Females were more likely to smoke less. Older participants were smoking fewer cigarettes in a month. As education and income increased people were smoking less. Finally, whites smoked more cigarettes a month. The predictors explained 9.3% of the variation in the dependent variable.

Table 49: Social Support and Average Number of Cigarettes a Month

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-1.400**	.328	.093	36.082**
Family Support	.325	.318		
Other Support	.050	.339		
Females	-1.555**	.312		
Age	-.166**	.012		
Education	-.616**	.130		
Income	-.396**	.058		
Whites	3.158**	.325		
Constant	19.084**	1.092		

The final smoking variable to discuss is *how soon after waking do you smoke*. Consistent with other models, spousal support was statistically related. Those in the sample who reported spousal support were less likely to smoke immediately after waking. Females were less likely to report smoking right after waking. In addition, older participants were less likely to smoke right after waking. As both income and education increased reports of smoking right after waking decreased. Whites were more likely to smoke soon after waking. The overall model was significant.

Table 50: Social Support and How soon do you smoke after waking?

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.219**	.046	.086	33.272**
Family Support	.072	.044		
Other Support	.009	.048		
Females	-.174**	.044		
Age	-.022**	.002		
Education	-.093**	.018		
Income	-.060**	.008		
Whites	.305**	.046		
Constant	2.700**	.153		

This section had discussed the relationship between social support and smoking. The previous models had included all cases in the models. Of the social support groups, spousal support was the significant variable. Those who stated they had spousal support were less likely to report smoking 100 cigarettes in their life, were more likely to not smoke, were more likely to smoke less and were less likely to smoke soon after waking. Sociodemographic variables had significance as well. As the age of the participants increased the reports of not smoking and/or smoking less were present. Both education and income had similar findings. As income and education increased reports no smoking and/or smoking less were noted. The next section will discuss findings based on gender filters. The first section will discuss findings on males in the sample and then females.

Social Support and Smoking (Males only)

The males in the sample consisted of 1,431 participants. There was no significance with any social support groups in relation to smoking 100 cigarettes in one's life. Older males were more likely to report smoking 100 cigarettes in their life.

However, as education and income increased, participants were more likely to say they have *not* smoked 100 cigarettes in their life. White males were more likely to have smoked 100 cigarettes in their life. The predictor variables did not explain much variation in the dependent variable, only 4.9%.

Table 51: Social Support and Smoked 100 cigarettes in life: MALES

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.229	.121	.049	1822.647	51.810**
Family Support	-.149	.119			
Other Support	.153	.132			
Age	. 013**	.005			
Education	-.160**	.048			
Income	-.045*	.022			
Whites	.233	.121			
Constant	.647	.358			

The next model to discuss is based on the variable, *do you now smoke?* Males in the sample who cited spousal support were less likely to smoke. Several of the control variables had similar relationships. As age increased reports of smoking decreased. When education level and income increased reports of smoking decreased. White males were more likely to report smoking. The overall model was significant.

Table 52: Social Support and Do you now Smoke? MALES

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.206**	.043	.106	24.133**
Family Support	.039	.043		
Other Support	.029	.047		
Age	-.016**	.002		
Education	-.060**	.017		
Income	-.038**	.008		
Whites	.088*	.044		
Constant	1.908	.129		

The next set of findings to discuss is the average number of cigarettes smoked per month. Males who reported spousal support were smoking less each month. Age, education, income, and race were all significant variables. As age increased MALE participants reported lower levels smoking. Participants with higher education were more likely to smoke less. Those with high income were smoking less. Finally, white males were smoking more cigarettes a month. The overall model was significant.

Table 53: Social Support and Average Amount of cigarettes in a Month: MALES

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-1.796**	.501	.091	20.346**
Family Support	.052	.494		
Other Support	.302	.549		
Age	-.175**	.019		
Education	-.594**	.199		
Income	-.424**	.093		
Whites	3.344**	.506		
Constant	18.332**	1.492		

The final variable to discuss is *how soon after waking do you smoke*? Males with spousal support were more likely to not smoke right after waking. Older males were did not smoke soon after waking. Those with higher education did not smoke right when

they had woken up. As income increased participants reports of smoking as soon as one woke up decreased. White males were more likely to smoke soon after waking. The overall model was statistically significant.

Table 54: Social Support and how soon after waking do you smoke?:MALES

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.292**	.065	.095	21.296**
Family Support	.046	.064		
Other Support	.042	.071		
Age	-.021**	.002		
Education	-.091**	.026		
Income	-.063**	.012		
Whites	.275**	.066		
Constant	2.557**	.194		

This section had discussed findings only on males in the sample. Consistent with the previous section's findings, spousal support was the only social support group that was related to the smoking variables. Sociodemographic variables were more likely to be significant predictors. Those with higher income and education were less likely to smoke or smoke less frequently. As age increased among the males in the sample, reports of smoking decreased. Finally, white males were more likely to smoke and more likely to smoke more often. All models were significant. The next section will discuss findings only on females in the sample.

Social Support and smoking (Females only)

There were 1,390 Females in the sample. Females who reported spousal support were less likely to have reported smoking 100 cigarettes in their life. Older females were less likely to report smoking 100 cigarettes in their life. White females

were more likely to report having smoked 100 cigarettes in their life. The overall model was statistically significant.

Table 55: Social Support and Have you smoked 100 cigarettes in life? (FEMALES)

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.374**	.127	.052	1831.982	54.703**
Family Support	.159	.119			
Other Support	.101	.122			
Age	-.022**	.005			
Education	-.074	.050			
Income	-.034	.021			
Whites	.746**	.124			
Constant	1.043**	.381			

The next findings are based on the variable *do you now smoke?* Consistent with the previous model, spousal support was significant. Females who reported spousal support were less likely to smoke. Several sociodempgraphic variables were relevant. As age increased participants reported not smoking. Education and income were similar. That is, as education and income increased females in the sample were more likely to not smoke. White females were more likely to report smoking. The predictors explained 8.3% of the dependent variable.

Table 56: Social Support and Do you now smoke? FEMALES

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.111*	.043	.083	17.930**
Family Support	.066	.041		
Other Support	.018	.042		
Age	-.015**	.002		
Education	-.062**	.017		
Income	-.039**	.007		
Whites	.204**	.041		
Constant	1.624**	.130		

Spousal support was significantly related to the average number of cigarettes per month. Females in the sample reporting spousal support were smoking less a month. Older females did not smoke as much each month. Higher educated females were smoking less. Those with higher income had similar findings to that of smoking. The higher the income the less likely one is to smoke. White females were more likely to smoke more a month. The overall model was significant.

Table 57: Social Support and Average number of cigarettes a month FEMALES

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.887*	.421	.089	19.367**
Family Support	.592	.398		
Other Support	-.150	.409		
Age	-.154**	.016		
Education	-.628**	.166		
Income	-.366**	.071		
Whites	2.960**	.406		
Constant	14.894**	1.268		

The final variable to discuss is *how soon after waking do you smoke?* Females in the sample who cited having spousal support were likely to not smoke soon after waking. Older females were less likely to smoke soon after waking. Those with higher

education and income were less likely to smoke soon after waking up. Finally, white females were more likely to smoke right after waking. The overall model was significant.

Table 58: Social Support and How soon after waking do you smoke? FEMALES

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.136*	.065	.077	16.366**
Family Support	.104	.062		
Other Support	-.022	.063		
Age	-.022**	.002		
Education	-.092**	.026		
Income	-.056**	.011		
Whites	.336**	.063		
Constant	2.286**	.197		

Females had similar findings to males in the sample. Of the social support groups, spousal support was the significant source for predicting smoking patterns. Coinciding with other models, sociodemographic variables were the predictors of smoking. Those with higher education and income were more likely to not smoke, and if they smoked, were more likely to smoke less. White females were more likely to smoke and to smoke more often. All models were significant, however. The next section will discuss race filters, arbitrarily starting with whites.

Social Support and Smoking (whites only)

The following section only discusses findings based on whites in the sample. Whites in the sample consisted of 1,564 participants. Other support was significantly related smoking 100 cigarettes in one's life. Whites who reported other support (friend and church support) were more likely to report smoking 100 cigarettes in their life.

White females were less likely to report smoking 100 cigarettes in their life. Older whites were more likely to report not smoking 100 cigarettes in their life. As income and education increased whites in the sample said they have not smoked this amount in their life.

Table 59: Social support and have you smoked 100 cigarettes in life: WHITES

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.198*	.119	.072	2057.186	85.844**
Family Support	-.072	.397			
Other Support	.250*	.121			
Females	-.820**	.110			
Age	-.009*	.004			
Education	-.131**	.050			
Income	-.056**	.021			
Constant	2.977**	.427			

Whites in the sample who reported spousal support stated they do not smoke. White females were less likely to smoke. Older whites did report smoking. As education and income increased so too did the likelihood of whites not smoking. The overall model was significant.

Table 60: Social support and Do you now smoke? whites

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.181**	.041	.153	40.274**
Family Support	.014	.039		
Other Support	.012	.041		
Females	-.087*	.037		
Age	-.020**	.001		
Education	-.102**	.017		
Income	-.045**	.007		
Constant	2.545**	.141		

Those whites reporting spousal support were less likely to smoke each month. White females were more likely to smoke less each month. As education and income increase reports of smoking each month decreased. The overall model was significant.

Table 61: Social Support and Average Number of Cigarettes Smoked per Month whites

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-1.594**	.517	.137	35.146**
Family Support	-.054	.497		
Other Support	-.216	.525		
Females	-1.610**	.477		
Age	-.245**	.018		
Education	-1.244**	.215		
Income	-.547**	.091		
Constant	30.925**	1.801		

Whites who reported spousal support were more likely to not smoke soon after waking. White females are not smoking right after waking. As age increased the likelihood of smoking right after one wakes up decreased among whites in the sample. As education and income increased reports of smoking soon after waking decreased. The overall model was significant.

Table 62: Social support and how soon after waking do you smoke? whites

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.217**	.063	.153	40.170**
Family Support	.021	.061		
Other Support	.018	.064		
Females	-.131*	.058		
Age	-.032**	.002		
Education	-.174**	.026		
Income	-.072**	.011		
Constant	3.933**	.220		

Spousal support was significant for the whites in the sample. Participants who reported spousal support were less likely to report smoking and/or smoking less. Consistent with other models/filters, sociodemographic variables were the consistent predictor. Those that are more educated and have higher income were less likely to smoke. Finally, as age increased, whites were not smoking and/or smoking less.

Social Support and Smoking (African Americans only)

The following section's findings are based only on African Americans in the sample. African Americans in the sample consisted of 644 participants. African Americans who reported spousal support were less likely to report smoking 100 cigarettes in their life. African American females were less likely to report smoking 100 cigarettes in their life. Finally, as education increased the likelihood of smoking 100 cigarettes in their life decreased. The predictors explained 10.6% of the dependent variable.

Table 63: Social Support and Smoked 100 Cigarettes in Life African Americans

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.387*	.191	.106	838.856	53.415**
Family Support	.131	.178			
Other Support	-.180	.175			
Gender	-1.007**	.177			
Age	.004	.007			
Education	-.206**	.078			
Income	.002	.032			
Constant	1.986*	.662			

No social support groups were related to *do you now smoke?* Only sociodemographic variables were related. African American females were less likely to

say they smoke. Older African Americans in the sample did not report smoking. As education and income increased the likelihood of smoking everyday decreased. The overall model was significant.

Table 64: Social Support and Do you now smoke? African Americans

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.124	.070	.078	7.641**
Family Support	.113	.066		
Other Support	-.045	.065		
Females	-.245**	.065		
Age	-.013**	.003		
Education	-.090**	.029		
Income	-.023*	.012		
Constant	2.024**	.243		

Among African Americans in the sample, no social support groups were related to amount of cigarettes smoked a month. African American females were less likely to smoke a high number of cigarettes each month. As age increased the amount of cigarettes smoked a month decreased. Educated and higher income African Americans had lower reports of smoking each month. The predictor variables only explained 5.9% of the dependent variable.

Table 65: Social Support and average number of cigarettes a month African Americans

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.741	.559	.059	5.650**
Family Support	.959	.523		
Other Support	-.133	.516		
Females	-1.587**	.516		
Age	-.087**	.022		
Education	-.521*	.231		
Income	-.229*	.094		
Constant	13.227**	1.942		

The last model to discuss in the African American filter is *how soon after waking do you smoke?* No social support variables were significant. African American females were less likely to smoke soon after waking. As age increased reports of smoking right when one wakes up decreased. Finally, higher educated African Americans did not report smoking right when waking up.

Table 66: Social support and how soon do you smoke after waking? African Americans

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.187	.108	.050	4.803**
Family Support	.162	.101		
Other Support	-.147	.099		
Females	-.228*	.099		
Age	-.014**	.004		
Education	-.109*	.045		
Income	-.032	.018		
Constant	2.294	.374		

Unlike other filters, African Americans did not have spousal support as a consistent significant factor when exploring the relationship to smoking and frequency of smoking. However, this filter was consistent with other filters in that sociodemographic variable did. The higher the education and income the more likely African Americans reported not smoking and/or lower amounts of smoking. The final filter to discuss is Mexican Americans.

Social Support and Smoking (Mexican American only)

The section only discusses findings on Mexican Americans in the sample. Mexican Americans consisted of 452 participants. No social support variables were related to smoking 100 cigarettes in one's life among Mexican Americans in the sample.

Females were less likely to report smoking 100 cigarettes in their life. No other sociodemographic variables were related. However, the model was significant.

Table 67: Social Support and smoking 100 cigarettes in life Mexican Americans

Variable	B coefficients	Standard Error	Nagelkerke R Square	Log Likelihood	Chi Square
Spousal Support	-.077	.211	.148	573.222	53.242**
Family Support	-.142	.209			
Other Support	.017	.256			
Gender	-1.384**	.209			
Age	.007	.009			
Education	-.030	.081			
Income	-.025	.039			
Constant	1.958**	.714			

Spousal support was related to the do you now smoke variable. Those who reported spousal support were less likely to say they smoke every day. Females were less likely to report smoking every day. Finally, those Mexican Americans with high income were more likely to report not smoking. The overall model was significant.

Table 68: social support and do you now smoke? Mexican Americans

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.157*	.069	.068	4.653**
Family Support	.052	.069		
Other Support	.007	.084		
Females	-.235**	.069		
Age	-.005	.003		
Education	-.020	.027		
Income	-.047**	-.047		
Constant	1.370**	.236		

The next findings to discuss are based on the amount the cigarettes the participants smoked a month. Mexican Americans who cited spousal support were more likely to smoke a lower amount of cigarettes. Females reported smoking a lower amount of cigarettes a month. Finally, those with higher income did not smoke a high amount a month. The predictors did not explain much variation in the dependent variable, only 5.3%

Table 69: Social Support and average number of cigarettes a month Mexican Americans

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.993*	.473	.053	3.568**
Family Support	.414	.472		
Other Support	.038	.577		
Females	-1.570**	.471		
Age	-.009	.020		
Education	-.027	.184		
Income	-.268**	.089		
Constant	6.494**	1.615		

The final variable to discuss is *how soon after waking do you smoke?* Consistent with other filters/models, spousal support was significant. Participants who reported spousal support were less likely to report smoking soon after waking. Females were less likely to report smoking soon after waking. Finally, those with higher income were not smoking soon after waking. The overall model was significant.

Table 70: Social Support and How soon after you wake do you smoke? Mexican Americans

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.216*	.086	.079	5.475**
Family Support	.070	.086		
Other Support	.034	.105		
Females	-.261**	.086		
Age	-.002	.004		
Education	-.018	.034		
Income	-.070	.016		
Constant	1.368**	.295		

Table:71
Summary
Smoking

Independent Variable	All	Male	Female	Whites	African American	Mexican American
Spousal Support	4/4	3/4	4/4	4/4	1/4	3/4
Family Support	0	0	0	0	0	0
Other Support	0	0	0	1/4	0	0
Females	4/4	N/A	N/A	4/4	4/4	4/4
Age	3/4	4/4	4/4	4/4	3/4	0
Education	4/4	4/4	3/4	4/4	4/4	3/4
Income	4/4	4/4	3/4	4/4	2/4	2/4
Whites	4/4	3/4	4/4	N/A	N/A	N/A

The most consistent social support source related to smoking was spousal support. Those that reported spousal support were less likely to smoke, less likely to report smoking 100 cigarettes in their life, smoke less a month and less likely to smoke soon after waking up. Family support was not significant at all. Other support only significant one for whites in the sample for having smoked 100 cigarettes in their life.

Whites who reported other support (friend and church support) were less likely to report smoking 100 cigarettes in their life.

However, social demographic variables were related to smoking behaviors. Females were less likely to smoke in comparison to males. Age was related to smoking as well. As age increased reports of smoking went down for all sample filters. Education was a strong predictor of smoking. Those participants that were more educated were less likely to report smoking 100 cigarettes in their life, smoked fewer cigarettes per month, were less likely to smoke soon after waking, and were less likely to smoke in general. Income was similar to that of education. As income increased, reports of smoking went down. Finally, race was correlated to smoking.

Chapter Summary

This chapter explored the relationship between social support and smoking. Three sources of social support (spousal support, family support, other support) were tested on four separate smoking variables. The smoking variables had asked participants if they have smoked 100 cigarettes in their life, do they smoke now, how soon they smoke after waking up, and their average amount of cigarettes per month. Several sampling filters were implemented in this chapter. First all participants were included then filters by gender (male and female) and race groups (whites, African American, Mexican American) were explored. Spousal support was the significant social support group across all sample filters. Participants who reported spousal support were less likely to smoke and if they smoked they were more likely to smoke less. Sociodemographic variables were significant as well. Participants with higher

education and income were more likely to not smoke and if they were a smoker were likely to smoke less frequently. Age had similar findings as well. As age increased smoking decreased.

Chapter 6: Social Support and Diet

The following section discusses the relationship between the predictor of social support and diet. As noted in the previous chapter, social support was defined by three variables: spousal support, family support (son, daughter, parent, brother/sister, and other relative support) and other support (friend and church support). Diet was measured by three separate dimensions. Participants were asked 1) have you heard about diet programs, 2) do you check food labels 3) and do you use food labels.

The diet variables have been recoded due to factor analysis findings (See Appendix A). The variable "have you heard about diet programs " initially consisted of three separate variables: 1) have you heard about 5-a-day programs, 2) have you heard of dietary guidelines, 3) and have you heard of the food guide pyramid? The original coding consisted of 1 = yes, 2 = no, and 9 = don't know. After conducting a factor analysis (See Appendix A) these three separate variables were collapsed into one variable labeled "heard of diet programs." The "heard of diet programs" variable was then recoded into an additive index. The recode consisted of: 0 = respondents said they had not heard about any of the following: dietary guidelines, food pyramids, and 5-a-day programs, 1 = respondents have heard of one of the diet programs, 2 = respondents have heard of two of the diet programs, and finally, 3 = respondents have heard of all three diet programs.

Like the previous variable (heard of diet programs), "check food labels" had been recoded. This variable initially consisted of ten variables: check calories on food labels, check calories from fat on food label, check total fat on food label, check trans fat on food label, check saturated fat on food labels, check cholesterol on food label, check

sodium on food label, check carbohydrates on food label, check fiber on food label, and check sugars on food label. The original coding consisted of: 1= always, 2 = most of the time, 3 = sometimes, 4 = rarely, 5 = never, 9 = don't know. Factor analysis findings (See Appendix A) suggested collapsing the previous ten variables into one diet variable which was labeled "check food labels." The recode consisted of: 0 = never, 1 = rarely, 2 = sometimes, 3 = most of the time, and 4 = always.

Like the other two diet variables, *use food labels* initially consisted of several other diet variables. Comprising *use food labels* was: use nutrition facts panel on food label, use ingredients list on food label, use serving size information on food label, and use health claims on food packages. The original coding consisted of: 1= always, 2 = most of the time, 3 = sometimes, 4 = rarely, 5 = never, 9 = don't know. Factor analysis findings suggested that the previous variables be collapsed into one variable which was labeled "use food labels" in this analysis. The recode consisted of: 0 = never, 1 = rarely, 2 = sometimes, 3 = most of the time, and 4 = always.

The control variables consist of age, education, income, gender, and race. The analysis employed different sample filters. The control variables consisted of gender (1 = males and 2 = females), age (coding was continuous), education (1= Less than 9^{th} grade, 2 = $9\text{-}11^{th}$ grade which includes 12^{th} grade with no diploma), 3 = High School Grad/GED or Equilvalent, 4 = Some College or AA degree, 5 = College Graduate or above) , income (1 = $0 to $4,999, 2 = $5,000 to $9999, 3 = $10,000 to $14,999, 4 = $15,000 to $19,999, 5 = $20,000 to $24,999, 6 = $25,000 to $34,999, 7 = $35,000 to $44,999, 8 = $45,000 to $54,000, 9 = $55,000 to $64,999, 10 = $65,000 to $74,000, 11= $75,000 and over) and race (whites 1 = white and 0 = all other races, African

Americans 1= African American and 0 = all other races, and Mexican Americans 1 = Mexican American 0 = all other races).

The first model will discuss findings based on all participants, then for gender and for racial groups. The regression models test whether social support acts the same across the different diet variables. The model also explores if social support acts the same for men and women and for different races.

Social Support and Diet (Heard about food plans/programs)

This section will discuss the relationship between social support and diet. All participants have been included in the following models (n = 2,821). Three separate diet models are discussed in this section. Social support was used to predict whether the entire sample had: 1) heard of diet programs, 2) check food labels 3) and use food labels. The first diet variable to discuss is *heard about diet programs/plans.* The predictor variables consisted of spousal support, family support, and other support (friend and church support). The coding consisted of 1 = yes you have this support and 0 = no you do not.

The significant social support predictors were spousal and other support (church and friend support). Those participants that reported these support groups were more likely to report having heard of all diet programs. All control variables were significant in this model. Females were more likely to have reported hearing about all the diet programs. There was a moderate positive relationship between education and having heard of all diet programs. The more educated the participants the more likely they have heard of the three diet programs. Income had the same relationship as

education. This was a weak positive relationship and those that reported higher income were more likely to have heard of the diet programs. Whites were more likely to report hearing about all diet programs. Age had a weak negative relationship. Older participants were less likely to report hearing about the diet programs. The overall model was significant and the predictors explained over 28% of the variation in the dependent variable.

Table 72: Social Support and Diet (Heard of diet programs)

Variable	B coefficients	Standarard Error	R square	F Statistic
Spousal Support	.087*	.042	.288	142.473**
Family Support	-.077	.041		
Other support	.101*	.043		
Females	.457**	.040		
Age	-.012**	.002		
Education	.301**	.017		
Income	.022**	.007		
whites	.506**	.042		
Constant	.075	.140		

p<.01** p<.05*

The next diet variable to discuss is “check food labels.” The same social support predictors (spousal, family and other support) and control variables (gender, age, education, income, and race) were implemented from the previous model. Other support was significantly related to “check food labels.” Participants that reported other support (friend and church support) were more likely to always check food labels. There was a strong gender correlation; females were more likely to always check food labels. Education had a moderate positive relationship. The more educated one is the more likely they were to check food labels. As with education, income had similar

findings. The higher the participants' income the more likely participants were to report always checking food labels. The overall model was significant. The R Square was .140 which states the predictor variables explained 14% of the variance in the diet variable of checking food labels.

Table 73: social support and diet (Check food labels)

Variable	B Coefficients	Standard Error	R Square	F Statistic
Spousal Support	.520	.522	.140	56.984**
Family Support	-.866	.505		
Other Support	1.595**	.540		
Females	6.584**	.497		
Age	.022	.020		
Education	2.560**	.207		
Income	.255**	.093		
Whites	-.582	.517		
Constant	-5.376**	1.737		

p<.01** p<.05*

The final diet variable to discuss is, *use food labels*. The only social support variable that was significantly related to use food labels was other support (friend and church support). Participants that reported other support were more likely to say they had always used food labels. Females were more likely to report using food labels. There was also a positive relationship with education. Those that were more educated were more likely to report always using food labels. The overall model was significant. The predictors did not explain much variation in the diet variable. The R square was .061. That is, the predictors only explained 6.1% of the variation in the use food labels variable.

Table 74: Social Support and Diet (Use food labels)

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	.148	.154	.158	65.822**
Family Support	-.114	.149		
Other Support	.407*	.159		
Females	2.046**	.146		
Age	.001	.006		
Education	.850**	.061		
Income	.053	.027		
Whites	-.167	.152		
Constant	-1.288*	.512		

p<.01** p<.05*

In summary, other support was significantly related to the three diet variables. One can infer that people may rely on friend and/or church support in regards to hearing about, checking, and using food labels. However the models suggest that sociodemographic variables are essentially the predictors of diet. More specifically, education is the predictor of diet. Those that are more educated are more likely to have heard about diet programs, always check food labels and to always use food labels.

Gendered Social Support and Diet

The following section is filtered by males and females. The same social support predictors and control variables were employed. In addition, the same diet variables were used as well. The model significance and the R square will be reported as well.

Males

The following models are males only. The males in the sample consisted of 1,431 participants. The first diet variable findings to discuss are “heard of diet programs.” Males in the sample had no statistical significance between social support

and *heard of diet programs*. Control variables were significant. Age had a weak negative relationship. Older males were less likely to have heard of all diet programs. Education had a moderate positive relationship. As education increased so did reports of males having heard of all diet programs. Participants with higher income were more likely to report having heard of diet programs. White males were more likely to have heard of all diet programs. The overall model was significant. The Nagelkerke R Square was .318, which notes the predictors explained 31.8% of the variation in the dependent variable.

Table 75: Male Social Support and Diet (Heard of diet programs)

Variable	B coefficient	standard error	R Square	F Statistic
Spousal Support	.086	.058	.237	63.083**
Family Support	-.047	.057		
Other Support	.110	.063		
Age	-.009**	.002		
Education	.300**	.023		
Income	.011	.011		
Whites	.454**	.058		
Constant	.468**	.172		

p<.01** p<.05*

The next variable to discuss is *check food labels.* Consistent with the previous model, no social support variables were significantly related to checking food labels. Only control variables were significant. Education had a positive relationship; those that reported higher education were more likely to report checking all food labels. Also, participants in the sample that had high income had a higher probability of checking all food labels. This model, consistent with other models, was statistically significant. The

predictors explained 7.5% of the variation in the check food labels variable (R square .075).

Table 76: Male Social Support and diet (Check food Labels)

Variables	B Coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.300	.717	.075	16.520**
Family Support	-1.284	.706		
Other Support	.515	.785		
Age	.046	.027		
Education	2.168**	.285		
Income	.428**	.132		
Whites	-1.478*	.724		
Constant	1.200	2.134		

p<.01** p<.05*

The final variable to discuss is *use food labels*. No social support predictors were significantly related to using food labels. However, education, income and race were significant predictors. Those males that had higher education were more likely to report using all food labels. White males were less likely to use all food labels in comparison to other racial groups. Those males that had higher income were more likely to report using all food labels. The overall model was significant. The predictor variables explained 8.9% of the variation in the use food labels variable.

Table 77: Male Social Support and Diet (Use food labels)

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-.149	.213	.089	19.868
Family Support	-.151	.210		
Other Support	.118	.233		
Age	.013	.008		
Education	.796**	.085		
Income	.096*	.039		
Whites	-.609**	.215		
Constant	.415	.634		

p<.01** p<.05*

In summary, social support does not act as a significant variable in predicting diet among the males in the sample. Coinciding with previous findings, sociodemographic variables are indicative of diet practices and knowledge. Education is the most significant finding for males in the sample. Those males that are more educated are more likely to have knowledge about diet labels and the use diet labels.

Females

The following section discusses findings only among female participants in the sample. As with previous finding sections, the same social support and control variable predictors will be used across the diet variables. Females consisted of 1,390 participants. The first diet findings to discuss are *heard of diet programs*. Among the females in the sample no social support sources were significantly related to *heard of diet programs*. However, age, education, income and race were significant. As age increases females were less likely to report having heard of all three diet programs. Education had a moderate positive relationship with having heard of all diet programs. When education increased reports of hearing about the three diet programs increased

as well. As income increased among the female participants so did reports of hearing about the all the diet programs. White females were more likely to report hearing about diet programs. The overall model was significant. The R square was .295, which suggests the predictor variables explain 29.5% of the variation in the dependent variable.

Table 78: Female Social Support and Diet (Heard of food programs)

Variable	B coefficient	Standard Error	R Square	F Statistic
Spousal Support	.072	.062	.295	82.466**
Family Support	-.102	.058		
Other Support	.080	.060		
Age	-.014**	.002		
Education	.306**	.024		
Income	.033**	.010		
Whites	.557**	.059		
Constant	1.052**	.185		

p<.01** p<.05*

The next diet variable to discuss is *check food labels*. The females in the sample had statistical significance with other support in relation to checking all food labels. Females that stated having other support (friend and church support) were more likely to report checking all food labels. Education was significantly related. Those females with higher education were more likely to check all food labels. The overall model, however, was significant. The predictor variables explained 10.9% of the variation in the diet variable.

Table 79: Female Social Support and Diet (Check food labels)

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	1.411	.766	.109	24.214**
Family Support	-.265	.725		
Other Support	2.617**	.745		
Age	.001	.028		
Education	2.991**	.302		
Income	.076	.130		
Whites	.363	.739		
Constant	7.338**	2.309		

p<.01** p<.05*

The final dependent variable to discuss is *use food labels*. Spousal support and other support was significantly related to the *use food labels* variable. Females that reported spousal and other support were more likely to use all the food labels. Education was significantly related as well. As education increased so did the probability of females in the sample reporting use of all food labels. The overall model was significant. The social support sources and control variables did cause variation in the diet variable. The R Square was .121 which translates into the predictors explaining 12.1% of the variation of the dependent variable.

Table 80: Female Social Support and Diet (use food labels)

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	.447*	.223	.121	27.284**
Family Support	.004	.211		
Other Support	.667**	.217		
Age	-.010	.008		
Education	.910**	.088		
Income	.006	.038		
Whites	.298	.216		
Constant	3.095**	.673		

p<.01** p<.05*

In summary, social support was not a consistent significant factor in relation to the diet variables. Only sociodemographic variables were related to the diet variables. Again, education is the variable that emerged as the consistent predictor of diet. Essentially, this may suggest that social support is not the predictor of diet, rather sociodemographic variables are.

Whites

The following section discusses findings based on whites in the sample. Consistent with other models, social support and several control variables were employed as predictors of diet. There were 1, 564 white participants in the sample. The first diet variable findings to discuss are “have you heard of diet programs.” Spousal support acted as a predictor of white participants hearing about diet programs. The whites in the sample that reported spousal support were more likely to report hearing about all diet programs. White females were more likely to have reported hearing about all diet programs. As age increased whites were less likely to report such

a finding. Education had a moderate positive relationship with the heard about diet programs variable. The more educated the participant the higher the probability of saying they have heard about all diet programs. The overall model was significant and the R square was .209. Therefore, the predictors explained 20.9% of the variation in the dependent variable.

Table 81: White Social Support and Diet (Heard of food programs)

Variable	B coefficient	Standard Error	R Square	F Statistic
Spousal Support	.118*	.508	.209	58.794**
Family Support	-.088	.055		
Other Support	.030	.059		
Females	.516**	.053		
Age	-.014**	.002		
Education	.251**	.024		
Income	.016	.010		
Constant	.897**	.201		

p<.01** p<.05*

The next set of findings to discuss is based on the diet variable, “check food labels.” Within the white racial group, other support was significant. Participants who stated having other support were likely to report checking all diet labels. Control variables were significantly related as well. White females were more likely to report checking all food labels. Education and income both had positive relationships with check diet variable. The more educated participants and those with higher income had more of a probability of checking all food labels.

Table 82: White Social Support and Diet (Check food labels)

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	1.086	.691	.139	35.972**
Family Support	-1.189	.665		
Other Support	1.421*	.702		
Females	7.775**	.639		
Age	-.002	.024		
Education	1.753**	.288		
Income	.365**	.122		
Constant	-4.259	2.410		

p<.01** p<.05*

The final diet variable to discuss is *use of food labels*. No social support variables were significant. White females were more likely to use food labels. Those whites that were more educated were also more likely to use food labels. Education and income had positive relationships. Participants with higher education and income were likely to report using all food labels. Like other regression models, this model too was significant.

Table 83: Social Support and Diet (use food labels)

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	.341	.205	.159	42.163**
Family Support	-.222	.197		
Other Support	.304	.208		
Females	2.527**	.189		
Age	-.006	.007		
Education	.592**	.085		
Income	.086*	.036		
Constant	-1.084	.714		

p<.01** p<.05*

Whites in the sample did have significant relationships with social support and diet. More specifically, spousal support and other support were related to the diet variables. White participants who reported those sources of social support were more likely to always check food labels or report hearing about diet programs. Consistent with the theme of findings, sociodemographic variables acted as the predictors. Both income and education had positive relationships. When income and education increased so did the likelihood of participants hearing about food labels, checking food labels and using food labels. Females were more likely to use labels in comparison to males.

African Americans

The following section discusses findings based on an African American filter. African Americans consisted of 644 participants in the sample. The first diet variable to discuss is *heard of diet programs.* African American females were more likely to report having heard of all the diet programs. Education had a moderate positive relationship with having heard of all diet programs. Higher educated African Americans reported having heard of diet programs. Age, however, had a negative relationship. As age increased reports of hearing about the diet programs decreased. The model was significant and the R Square was .194. The social support and the control variables caused 19.4% of the variation in the dependent variable (heard of diet programs).

Table 84: African American Social Support and Diet (Heard of food programs)

Variable	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	.035	.097	.194	21.842**
family Support	-.045	.091		
Other Support	.053	.090		
Females	.358**	.090		
Age	-.009*	.004		
Education	.310**	.040		
Income	.032	.016		
Constant	-.049	.338		

p<.01** p<.05*

The next diet variable findings to discuss are *check food labels*. No social support groups were related to the check food labels variable. African American females were more likely to check food labels. Education had positive relationships with this diet variable. The higher the education the more likely participants reported checking all food labels. The overall model was significant. The R square was .088.

Table 85: African American Social Support and Diet (Check food labels)

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	1.679	1.246	.088	8.795**
Family Support	.358	1.166		
Other Support	1.095	1.151		
Females	5.795**	1.150		
Age	.063	.049		
Education	2.469**	.515		
Income	-.072	.210		
Constant	-4 .086	4.330		

p<.01** p<.05*

The final diet variable to discuss is *use food labels.* Only education and gender were significant. As education increased so did reports of using food labels. African American females were more likely to use all food labels. The model was significant and the R square was at .097.

Table 86: Social support and use of food labels African American

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	.142	.357	.097	9.728**
Family Support	.113	.334		
Other Support	.330	.330		
Females	1.454**	.330		
Age	.013	.014		
Education	.840**	.148		
Income	-.016	.060		
Constant	-.425	1.241		

p<.01** p<.05*

In summary, social support was not significantly related to the diet variables within the African American sample. However, consistent with previous findings, sociodemographic variables were the predictor. More specifically, those participants with more education were more likely to have heard of diet programs, check food labels and use food labels. Gender was significant as well. Females were more likely to use the labels.

Mexican American

The final sample filter findings to discuss are Mexican Americans. Mexican Americans consisted of 452 participants. Those that reported other support (friend and

church support) were more likely to report having heard of all diet programs. Mexican American females were more likely to have heard of all diet programs. Those that are more educated were more likely to have heard of all diet programs. As age increased participants were less likely to report having heard of diet programs. The model was significant. The R square was high in comparison to other models. The predictor variables explained 34.9% of the variation in the dependent variable (heard of diet programs).

Table 87: Mexican American Social Support and Diet (Heard of diet programs)

Variable	B Coefficients	Standard Error	R Square	F Statistic
Spousal Support	.067	.092	.349	34.048**
Family Support	.021	.092		
Other Support	.369**	.113		
Females	.461**	.092		
Age	-.011**	.004		
Education	.394**	.036		
Income	.020	.017		
Constant	-.251	.316		

p<.01** p<.05*

The next variable to discuss is *check food labels*. Other support (friend and church support) were related to checking all food labels. Those participants that stated having other support had a likelihood of always checking food labels. Females were more likely to report checking food labels. Those with more education and higher income were more likely to report checking all food labels. The overall model was significant. The R square was .198. Therefore the predictors explained 19.8% of the variation in the dependent variable.

Table 88: Social support and Check Food Labels subgroup

Variables	B coefficients	Standard Error	R Square	F Statistic
Spousal Support	-2.128	1.178	.198	15.649**
Family Support	-.688	1.177		
Other Support	2.966*	1.437		
Females	4.863**	1.174		
Age	.054	.050		
Education	3.089**	.457		
Income	.514*	.221		
Constant	-8.356*	4.025*		

p<.01** p<.05*

The final diet variable to discuss is *use food labels.* No social support sources were statistically significant. Females were more likely to report using food labels. Education had a positive relationship with food labels. Those that were more educated were more likely to report using food labels. The overall model was significant which is consistent with other models. The predictor variables explained 22.7% of the variation in the dependent variable.

Table 89: Social Support and Use Food Labels (Mexican American subgroup)

Variables	B coefficients	Standard Error	R square	F Statistic
Spousal Support	-.349	.361	.227	18.633**
family Support	.170	.360		
Other Support	.781	.440		
Females	1.628**	.359		
Age	.008	.015		
Education	1.140**	.140		
Income	.109	.068		
Constant	-2.475*	1.232		

p<.01** p<.05*

The Mexican American findings coincide with the other sample filter findings. Social support and its relation to diet are sporadic. Social support does not act the same across the diet variables and is not consistent. Arguably the predictors of hearing about diet programs, checking food labels and using food labels are sociodemographic variables. More specifically, those participants with higher education are essentially the predictor. Females were also more likely hear about diet programs, check food labels and use food labels as well.

Table 90: Summary of Social Support Significance

Independent Variable	All	Male	Female	Whites	African American	Mexican American
Spousal Support	1/3	0	1/3	1/3	0	0
Family Support	0	0	0	0	0	0
Other Support	3/3	0	2/3	1/3	0	2/3
Females	3/3	N/A	N/A	3/3	3/3	3/3
Age	1/3	1/3	1/3	1/3	1/3	1/3
Education	3/3	3/3	3/3	3/3	3/3	3/3
Income	2/3	2/3	1/3	2/3	0	1/3
Whites	1/3	3/3	1/3	N/A	N/A	N/A

The table above shows that spousal support was related to diet for the entire sample, gender, and race were significant for some of the diet variables. Participants who reported spousal support were more likely to have heard of diet/food programs. Females who stated they had spousal support were more likely to report using food labels and whites citing spousal support reported hearing about food diet/programs. Family support had no relationship with any of the diet measures. However, other support (friend and church support) did have significance. Other support was not relevant for the males and African Americans. For females who reported using and

checking food labels incomplete sentence. Whites who had other support were more likely to have heard of food/diet programs and more likely to check food labels. Finally, Mexican Americans who stated other support have heard of food/diet programs and to check food labels.

Sociodemographic variables were more of the predictor of diet. The strongest was education, the more educated the more likely one was to report having heard of food/diet programs, check food labels and use food labels. As age increased reports of having heard of diet/food programs went down.

Chapter Summary

This chapter explored the relationship between social support and diet. The models consisted of three sources of social support: 1) spousal, 2) family, and 3) other support (friend and church support). Sociodemographic variables (gender, age, income, education, and race) were considered as well. One of the main findings was social support does not act as consistent predictor of diet. Social support was sporadic at best. The consistent predictor was sociodemographic variables, more specifically, education. Across all the models, those participants that were more educated were more likely to report hearing about diet programs, check food labels and use food labels. This finding was present across all the gender and racial group filters. However all model were significant. The amount of variation the predictor variables explained in the diet dependent variable was not consistent either.

Chapter 7: Conclusions

The following chapter summarizes the main findings of this project. This chapter will restate the specific aim of the project and the importance of the project as well. This chapter will also summarize the methodology (i.e. database, sample and variables employed). The hypotheses will also be discussed in relation to the findings. This chapter will then discuss the strengths and limitations of the project. Finally, the chapter will conclude with suggestions for future research in relation to this topic and also any policy implications.

Specific Aim and Substantive Importance

The specific aim of this project was to discover whether social support is related to health behaviors. The health behaviors consisted of smoking, diet and physical activity. Exploring any variables that may correlate to these three health behaviors is important for several reasons. A healthy life may consist of partaking in regular exercise, eating an adequate diet of fruits and vegetables, and avoiding negative health behaviors such as smoking.

In addition to smoking prevention, maintaining a healthy diet also contributes to a healthy life. Individuals who eat fast food one or more times per week are at increased risk for weight gain and obesity. Checking food and drink labels may help one establish a knowledge base on their food's sugar, sodium, cholesterol, etc. levels.

From CDC's statistics it is clear that public health efforts focus on prevention of smoking, establishing a diet with fruits/vegetables, and starting or maintaining an exercise regimen. However, people may have difficulty making health behavior

changes by themselves. Therefore, establishing health behaviors for oneself related to smoking cessation, diet, and exercise is often done with support from others. Empirical evidence suggests social support (e.g. help from friends, family, etc.) and social relations may impact one's exercise habits, diet practices or health practices in general. Three sources of emotional support were employed for this project; spousal support, family support (brother/sister, parent, and other family support) and finally other support (friend and church support). Participants simply reported having this support or not.

Methodology

This section will discuss both the data analysis and research methods of my project. The dataset chosen for my project is the National Health and Nutrition Examination Survey (NHANES, 2005-2006). This dataset was designed to assess the health and nutritional status of adults and children in the United States. This dataset had a nationally represented sample. The sample used for this project consisted of 2,821 participants. This project had also ran regression models by gender and race subgroups. There were 1,431 males in the sample and 1,390 females in the sample. There were also 1,564 whites, 644 African Americans, and 452 Mexican Americans in the sample. The age range consisted of participants age 40 and over.

Variables Used in the Project

Social support was defined by three variables: spousal support, family support (son, daughter, parent, brother/sister, and other relative support) and other support (friend and church support) where 1 = yes and 0 = no. Spousal support was specific to participants reporting they have a spouse. This does not include cohabitating couples,

but rather, this variable reflected marital status. There are 1,484 participants in the sample that did not report having a spouse.

Physical activity was measured by 6 separate dimensions. Participants were asked about 1) walking and biking over the past 30 days, 2) moderate physical activity over the past 30 days, 3) vigorous physical activity over the past 30 days, 4) performing tasks around the home/yard over the past 30 days, 5) muscle strengthening activities over the past 30 days and 6) average level of daily physical activity. The coding of the first five dependent variables was dichotomous with *yes* =1 and no and "unable to do activity" coded as 0.The sixth measure, the average level of physical activity, was continuous with the variables ranging from 1= you sit during the day do not walk, 2 = you stand and/or walk a lot but not lift, 3 = you lift light loads or climb stairs or hills and finally you do heavy work or carry loads. Control variables included age, education, income, gender and race. The analysis employed different sample subgroups. The first model discusses findings based on all participants, and then the role of social support is examined separately for gender and for racial groups. The regression models test whether social support acts the same across the different physical activity variables. The model also explored if social support acts the same for men and women and for different races.

Smoking was measured by four separate dimensions. Participants were asked 1) have you smoked 100 cigarettes in your life, 2) do you now smoke, 3) how soon after waking do you smoke, 4) and average number of cigarettes smoked a month. The coding for *smoked 100 cigarettes in your life* consisted of 1 = yes you have smoked 100 cigarettes in your life and 0 = no you have not smoked 100 cigarettes in your life. The

coding for *do you now smoke* consisted of 0 = not at all, 1 = 70 and 2 = every day. The coding for *how soon after waking do you smoke* consisted of 1 = more than one hour, 2 = from more than 30 minutes to an hour, 3 = from 6 to 30 minutes and 4) within 5 minutes of waking up. Finally, average number of cigarettes a month was a continuous variable.

Diet was measured by three separate dimensions. Participants were asked 1) have you heard diet programs, 2) do you check food labels 3) and do you use food labels.

Analysis

Social support was used as a predictor of diet, smoking, and physical activity/exercise. More specifically, the independent variables consisted of spousal support, family support and other support (friend and church support). The following control variables were included in the analysis; race (whites, African Americans, Mexican Americans) gender (male and female), education, age, and income were employed as predictors of health behaviors. The same set of predictor variables were used in the multivariate regression models for each dependent variable (smoking, diet, and exercise). The regression models allowed one to empirically see if social support acted as same across each health behavior. More specifically, three separate hypotheses were tested. I used OLS regression for dependent variables that were continuous and logistic regression for dependent variables that were dichotomous.

Hypotheses

This section will discuss the three hypotheses of this project. This project had proposed three separate hypotheses, which are stated below. This section will discuss each finding pertaining to the three hypotheses. Each sample filter findings will be discussed by gender and racial group.

H1: Sociodemographic variables (age, education, income, gender and race) will impact health behaviors (smoking, diet, and exercise).

H2: Controlling for sociodemographic characteristics, the impact of social support on health behaviors will vary across the health behaviors (smoking, diet, and exercise).

H3: Controlling for age, income, and education, the impact of social support on health behaviors will vary by race and gender.

Hypothesis 1

The first hypothesis stated that sociodemographic variables will be significantly related to diet, smoking and exercise. This hypothesis was accepted in this project. In addition to the social support variables, this project had also included education, age, race, gender, and income as predictors of health behaviors.

Education

Of the sociodemographic variables, education was the most significant. Those that were more educated were more likely to exercise. More specifically, educated participants were more likely to report walking/biking in the past 30 days, do tasks around the home/yard, report doing muscle strengthening activities, report doing

vigorous activities over the past 30 days, and less likely to report daily physical activity. Out of the six physical activity measures, education was statistically significant. The only physical activity measure where education was not significant was moderate physical activity in the past 30 days.

Education had statistical significance across the diet measures as well. The diet measures consisted of; have you heard of food programs, do you check food labels and do you use food labels. Higher educated participants were more likely to report having heard of food programs. They were also more likely to report checking food labels and using food labels as well.

Finally, education was significantly related to smoking. The smoking measures consisted of do you now smoke, how soon after waking do you smoke, average number of cigarettes per month, and have you smoked 100 cigarettes in your life? Education was statistically related to all smoking measures. Those participants that were more educated were more likely to not smoke, were more likely to smoke less a month, were more likely to report not smoking 100 cigarettes in their life, and were more likely to not smoke soon after waking.

Income

Income was also significantly related to the health behaviors in this project. Income had statistical significance with the physical activity measures. Those participants with higher income were more likely to report walking/biking in the past 30 days, more likely to report doing tasks around the home/yard in the past 30 days, more likely to say they engaged in muscle strengthening activities in the past 30 days, more

likely to report moderate and vigorous physical activity over the past 30 days, and finally, more likely to report higher levels of daily physical activity.

Income was also related to diet. Those participants with higher income were more likely to report knowing about food programs, check food labels and use food labels. Income was also related to smoking as well. Those participants with higher income were more likely to not smoke, not smoke soon after waking, smoke less month and less likely to say they have smoked 100 cigarettes in their life.

Age

Age was another sociodemographic variable that was significantly related to the health behaviors in this project. Age was related to all of the physical activity measures. Age had a negative relationship with the physical activity measures. As the age of the participants went up the participants were less likely to report physical activity/exercise. This was consistent across all six measures. One may conclude that it is not that older participants don't want to engage in physical activities or exercise but rather they cannot. This may be due to older participants being afraid of hurting oneself or simply not have the strength or stamina of a younger participant.

Age was related to diet as well. However, age was negatively related to hearing about food programs. The older the participant the more likely one was to report not hearing about food programs. Age was not related to using food labels or checking food labels. It is possible that food knowledge has changed over time. One can make the case that food labels have become prevalent over the years and younger generations may be more apt to checking and using food labels.

Finally, age had a relationship with the smoking measures. As age increased participants were less likely to report smoking, more likely to report smoking less a month, and more likely to not smoke soon after waking. Age had no relationship with smoking 100 cigarettes in one's life.

Race

Each race subgroup had varying significance in relation to sociodemographic variables and health behaviors. Education had a positive relationship with physical activity and diet. Those that were more educated were more likely to have heard of and check food labels. For each of the race subgroups, when age increased physical activity declined. Income was not as significant for African Americans and Mexican Americans in relation to diet, smoking and exercise. However, whites in the sample did have significance with income in relation to the health behaviors.

Gender

The study had also explored sex (male and females) subgroups in relation to diet, smoking and exercise. Females were less likely to smoke in comparison to males. Females were also more likely to use food labels. Finally, males were more likely to report having done muscle strengthening activities.

In summary, sociodemographic variables were greatly related to the health behaviors of this project. As education and income went up people were more physically active, more diet conscientious, and were less likely to smoke and if they smoke, were more likely to report smoking less. Age was a factor as well. Age had a

negative relationship with physical activity. Again, this may be due to older participants not being “body-abled” for exercise/physical activity.

Hypothesis 2

The second hypothesis proposed that social support will vary and/or will act differently across the three health behaviors of smoking, diet, and exercise. This hypothesis was supported, that is, social support did not act the same across the three health behaviors. Social support was most consistent with the smoking variable. Participants who reported spousal support were less likely to report smoking, less likely to smoke soon after waking, more likely to smoke less a month, and were less likely to say they have smoked 100 cigarettes in their life. No other sources of social support had this relationship with the smoking measures/variables.

Social support was sporadic in its relation to physical activity. Other support (friend and church support) had the most significance with the physical activity measures. More specifically, those who reported other support were more likely to engage in muscle strengthening activities. This may suggest that people often exercise with their friends and that friend support plays a role. Or, it may also suggest that those who report support from their religious congregation are more likely to exercise.

Social support did have significance in relation to the diet measures. However, like physical activity, social support was not consistent. Those that reported spousal support and other support were more likely to check food labels, use food labels, and have heard of food labels. The most consistent social support source was spousal support in relation to smoking. Otherwise, social support was not all too consistent

across the other health behaviors. The type of social support made a difference for the health behaviors. Spousal support may have had more significance due to people spending more time with their spouse and perceiving more quality from that particular source of social support in comparison to the other sources used in this study.

Hypothesis 3

The third hypothesis, the impact of social support will vary by gender and race. Social support did not act the same across each of the health behaviors (physical activity/exercise, smoking, and diet) when considering the sample filters.

Entire sample (no sample subgroups)

Concerning the entire sample for physical activity those reporting other support (friend and church support) were more likely to report walking/biking over the past thirty days. Another physical activity measure was tasks around the home/yard in the past 30 days. Participants who reported spousal support were more likely to do tasks around the home/yard. Other support (friend and church support) was related to performing muscle strengthening activities in the past 30 days. Finally, concerning the entire sample, family support and other support was significant for average level of daily physical activity. However, this was a negative relationship. Those who reported family support and other support were less likely to report daily physical activity.

Spousal support was significantly related to smoking. Those participants who reported spousal support were more likely to not smoke and if they smoke, they were smoking less. Of the three social support predictors, other support was related to the

diet measures. Those who reported other support were more likely to say they have heard of diet programs, check food labels, and use food labels.

Males

This section will discuss social support and the health behaviors for males in the sample. For males, social support was not likely to be related to physical activity. Other support (friend and church support) was significant with muscle strengthening activities over the past 30 days. Those males that reported other support were more likely to report doing muscle strengthening activities over the past 30 days. Also, other support had a negative relationship with average level of daily physical activity. Males reporting other support reported less physical activity. Spousal support was significantly related to walking/biking over the past 30 days for males. Males reporting spousal support said they had walked/biked over the past 30 days.

Males who reported spousal support were less likely to smoke. Spousal support was related to all four smoking measures except for smoking 100 cigarettes in your life. There was no relationship present. No social support sources were of any significance for the diet measures for males in the sample.

Females

The following section discusses social support and physical activity, smoking and diet only among females in the sample. Females reporting other support (friend and church support) were more likely to report walking/biking over the past 30 days. Females reporting family support did not do daily physical activities. Like the males in the sample, females who reported spousal support were less likely to smoke. Spousal

support was significant to all four smoking measures among females in the sample. Spousal support was the strongest predictor of smoking for females. Concerning the diet measures, only spousal and other support was related to the use of food labels for females. Also, females who reported other support (friend and church support) were more likely to check food labels. These were the only significant relationships found concerning social support and diet for females in the sample.

Whites

This section will summarize the findings between social support and health behaviors for whites in the sample. Whites in the sample had statistical significance with other support and walking/biking over the past 30 days. However, this was a negative relationship. Those who reported other support were actually less likely to report walking/biking over the past 30 days. Whites who said they had spousal support were more likely to do tasks around the home/yard. Finally, whites reporting family and other support were less likely to do daily physical activities. Consistent with the gender (males and females) filters, spousal support was a strong predictor of smoking for whites. Spousal support was significant with all four smoking measures. However, whites who reported other support (friend and church support) were more likely to say they have smoked 100 cigarettes in their life. There were only two significant relationship concerning social support and diet for whites in the sample. Whites who reported other support were more likely to check food labels. In addition, those reporting spousal support were more likely to say they have heard of food programs. These were the only statistically significant relationship.

African Americans

For African Americans in the sample there was no social support source that had a statistical relationship to any of the physical activity measures. However, consistent with other filters in this project, spousal support mattered for smoking. The only model where spousal support was of important was smoking 100 cigarettes in their life. African Americans who reported spousal support said they had not smoked 100 cigarettes in their life. None of the social support groups were related to diet for African Americans in the sample.

Mexican Americans

The final sample filter to discuss is Mexican Americans. There was statistical significance with social support and some of the physical activity measures. Mexican Americans reporting other support (friend and church support) were more likely to report doing muscle strengthening activities. This was a strong positive correlation at .775; this was the strongest relationships in the project for physical activity. Family support had a positive relationship with moderate and vigorous physical activity for Mexican Americans. Those who reported spousal support were less likely to report smoking and were likely to smoke less a month. Finally those reporting other support were more likely to check food labels.

In summary, social support does have a relationship with health behaviors. However, social support does not act the same across all health behaviors (diet, smoking and physical activity/exercise). The most consistent relationship was spousal support and smoking. Those that reported spousal support were less likely to smoke.

The type of social support does make a difference in relation to health behaviors. By and large social support does not predict health behaviors as much as other variables. Whites in the sample had the most significance with social support and health behaviors in comparison to African Americans and Mexican Americans. Males and females also differed. Spousal support was the only consistent source of social support in relation to smoking. Besides that, social support was sporadic for males and females concerning diet and physical activity/exercise. Education, age and income were better predictors in this project. Those that were more educated were more likely to engage in physical activity/exercise, check diet labels, and less likely to smoke. Income had a similar relationship. Those with higher income were more likely to engage in physical activity/exercise, check diet labels, and less likely to smoke. Finally, age was related to health behaviors as well. As age increased levels of physical activity went down.

Strengths and Limitations of the Project

This project had some weaknesses and strengths worth noting. One of the strengths of this project is the dataset. This project used a nationally represented data. This arguably allowed me to make larger generalizations beyond certain regions of the country. The sample may also be deemed a strength. There were good "n sizes" for each race and gender group. This again, makes for stronger generalizability to race and gender groups. The measures were also well tested. There were ample questions for me to analyze for each health behavior (diet, smoking and exercise/physical activity).

However, there are some weaknesses that need to be highlighted. For one, the social support measure was vague. The social support question only asked about

emotional support. There was no social support question that asked about instrumental or financial support. This could have been of value to this project. The dataset also did not allow me measure the quality of emotional support. Again, this could have been of value. There was also an age restriction. The findings are only based on people who are 40 years old and older. Therefore, "younger" people were not analyzed in this project therefore no conclusion could be made for people under 40. Another shortcoming is this is self reported data. That is, people are reporting on themselves how much they smoke, exercise, and what their diet patterns are. Not to assume that people are dishonest, but how accurate people or truthful people are being when reporting on diet, smoking and exercise may be debated. Finally, there was not data on current illnesses. Again, this could have been of value to this project.

Directions for Future Research

There are some future research ideas derived from this project. One could explore what is the role of one's environment in relation to social support and health behaviors. Or, what is the role of social capital for that matter? One's neighborhood and social capital within that neighborhood could act as a significant predictor of diet, smoking and physical activity. Also, what is the nature of social relations one has and what is its relation to health behaviors could be something to explore.

Policy Implications

There are some policy implications one could make from this project. It may be important to discover the social relations one has and how it may relate to their health practices. In saying that, physicians may need to inquire more about their patients

social relations. Two points can be made here. One, does a given patient even have social relations? And two, what is the quality of their social relations? These are two important aspects to think about. Just because someone has a source of social support does necessarily mean it can change their health behaviors. It is the quality that matters in relation to behavior modification. When a given person sees that social support source as important or is of worth they may be more likely to adhere to their social support. Therefore, not only should physicians inquire about social relations but what is the quality of one's social relation is more important.

This study explored emotional support sources and its relation to diet, smoking and exercise. While each social support source was not consistently related to each of the health behaviors, there was statistical significance. One can conclude that one's social relations may impact our health behaviors. Social isolation may actually impede our ability to change our health behaviors and having social support sources to rely on is advantageous. Social support does impact a given person's diet, smoking, and physical activity patterns.

APPENDIX A DIET FACTOR ANALYSIS

Communalities

	Initial	Extraction
Heard of dietary guidelines?	1.000	.471
Heard of food guide pyramid?	1.000	.593
Heard about 5-a-day program?	1.000	.459
Use nutrition facts panel on food label	1.000	.543
Use ingredients list on food label	1.000	.470
Use serving size info on food label	1.000	.479
Use health claims on food packages	1.000	.060
Check calories on food label	1.000	.657
Check calories from fat on food label	1.000	.748
Check total fat on food label	1.000	.780
Check trans fat on food label	1.000	.654
Check saturated fat on food label	1.000	.758
Check cholesterol on food label	1.000	.663
Check sodium on food label	1.000	.589
Check carbohydrates on food label	1.000	.600
Check fiber on food label	1.000	.622
Check sugars on food label	1.000	.586

Extraction Method: Principal Component Analysis.

APPENDIX B DIET FACTOR ANALYSIS

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.216	48.332	48.332	8.216	48.332	48.332
2	1.516	8.919	57.251	1.516	8.919	57.251
3	.978	5.751	63.002			
4	.890	5.234	68.236			
5	.805	4.734	72.971			
6	.723	4.255	77.225			
7	.651	3.828	81.053			
8	.560	3.297	84.350			
9	.460	2.703	87.053			
10	.445	2.618	89.671			
11	.370	2.177	91.848			
12	.348	2.047	93.894			
13	.305	1.793	95.687			
14	.288	1.694	97.382			
15	.200	1.177	98.559			
16	.142	.836	99.395			
17	.103	.605	100.000			

Extraction Method: Principal Component Analysis.

APPENDIX C DIET FACTOR ANALYSIS

Component Matrix[a]

	Component	
	1	2
Heard of dietary guidelines?	.098	.680
Heard of food guide pyramid?	.182	.748
Heard about 5-a-day program?	.109	.668
Use nutrition facts panel on food label	.734	.067
Use ingredients list on food label	.685	-.010
Use serving size info on food label	.691	.046
Use health claims on food packages	.240	-.051
Check calories on food label	.810	-.036
Check calories from fat on food label	.864	-.031
Check total fat on food label	.883	-.022
Check trans fat on food label	.807	.049
Check saturated fat on food label	.871	-.006
Check cholesterol on food label	.805	-.127
Check sodium on food label	.764	-.072
Check carbohydrates on food label	.773	-.047
Check fiber on food label	.788	-.045
Check sugars on food label	.761	-.089

Extraction Method: Principal Component Analysis.

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ABSTRACT

SOCIAL SUPPORT AND HEALTH BEHAVIORS

by

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Degree: Doctor of Philosophy

Empirical evidence exists showing a correlation between social support and health behaviors. However, does social support act the same across several health behaviors? The purpose of this study was to determine if social support has an impact across diet, physical activity and smoking in adults. The participants were 2,821 adults over the age of 40 from the National Health and Nutrition Examination Survey (2005-2006, NHANES III). Multiple regression models were used to explore such a correlation. The findings suggest that social support does not act the same across varying health behaviors. The findings also suggest that educational attainment was the consistent predictor of adult health behaviors. Those participants that had higher education were more likely to exercise, less likely to smoke and more likely to adhere to food labels. The results from this study suggest that varying sources of social support is not a consistent predictor of health behaviors.

AUTOBIOGRAPHICAL STATEMENT

I was born and raised in Saginaw, Michigan. I attended Northern Michigan University for two years. I then transferred to Western Michigan University where I received my B.A. in political science in 2003. I received my M.A. in sociology from Wayne State University in 2008. I received my PhD in medical sociology in 2013.