

5-2015

Assessing the Nutrition Knowledge and Body Image Perceptions of Minority Freshman at East Tennessee State University

Michele L. Becerra
East Tennessee State University

Follow this and additional works at: <http://dc.etsu.edu/honors>



Part of the [Dietetics and Clinical Nutrition Commons](#)

Recommended Citation

Becerra, Michele L., "Assessing the Nutrition Knowledge and Body Image Perceptions of Minority Freshman at East Tennessee State University" (2015). *Undergraduate Honors Theses*. Paper 271. <http://dc.etsu.edu/honors/271>

This Honors Thesis - Open Access is brought to you for free and open access by Digital Commons @ East Tennessee State University. It has been accepted for inclusion in Undergraduate Honors Theses by an authorized administrator of Digital Commons @ East Tennessee State University. For more information, please contact digilib@etsu.edu.

Michele Becerra

Dr. Michelle Lee, Advisor

Assessing the Nutrition Knowledge and Body Image Perceptions of Minority Freshman at

East Tennessee State University

Table of Contents

Chapter 1. Introduction.....	3
Chapter 2. Literature Review.....	5
Chapter 3. Methodology.....	15
Chapter 4. Data Analysis.....	18
Chapter 5. Conclusion.....	26
References.....	28

Chapter One

Introduction

The health status of African American and Hispanic communities is in need of intervention. Each minority group is plagued with increasing incidences of chronic health issues such as heart disease, hypertension, obesity, and diabetes. Research has also documented the differences of chronic disease rates among African Americans, Hispanics, and other population groups in the United States.¹ These disparities occur across the country, including the local level.

This research project is addressing the need for nutrition interventions in the Johnson City, Tennessee minority community, specifically the African American and Hispanic populations. Prevention can be a useful tool in the reduction of health disparities. Freshman, minority students represent a suitable population to implement prevention strategies. East Tennessee State University's Quest Program is designed specifically for freshman, minority students. The focus group of this research project includes the participants of the Quest program at East Tennessee State University (ETSU). The purpose of this research is to determine the degree of nutrition knowledge and to assess perceptions of body image of minority freshman at ETSU.

The current research concerning health disparities among minority populations varies little from a shared consensus. There is a need to continue addressing the specific health issues, along with ideas of body perception, plaguing the African American and Hispanic populations in the United States. Such disparities typically include those who follow "western" diets, have a lack of exercise, are predisposed to chronic illness, as well as have a need for continuous education of the subject matter. The current health conditions that are predominant within the African American and Hispanic American minority groups include: heart disease, diabetes,

hypertension, and rising obesity rates, which is a precursor to many chronic diseases and metabolic syndrome.¹ There are several possible methods of intervention to assist in decreasing these disparities. One is the use of community action and involvement.

The most recent literature supports the need for early implementation in the lives of young adults concerning changes in health disparities. There is a need to assist college-age individuals in the formation of healthy lifestyle behaviors prior to graduation and adulthood.² Many of the health disparities that affect the African American and Hispanic minority groups develop in adulthood. Therefore, it would be beneficial to these populations to effectively intervene during the period of prevention. These individuals are forming personal behavior patterns that will last a lifetime. With the development of multiple community-based interventions college students may improve their future health behaviors, leading to better health outcomes.

Chapter Two

Literature Review

On the national level, the desire to improve the health status of the college-age demographic is prevalent and of concern. One such program addressing the matter is Healthy Campus 2020.³ It is a health initiative sponsored by the American College Health Association. The goal is to provide a framework that improves the overall health of college campuses through collaborations of academics, student affairs, administrative colleagues, and health facilities to foster healthy environments and behaviors. The desire is to use the guidelines from the United States Department of Agriculture (USDA) as well as research tools to create social and physical environments that promote good health for all. The importance of developing positive health behaviors in college is crucial because these behaviors will determine one's health status later in adulthood.³

Several college universities have initiated minority health programs on their campuses to gain knowledge for creating effective intervention tools. These institutions have gathered data relating to perceptions of obesity and nutrition status, exercise frequency and importance, and assessing the effectiveness of an interactive intervention program. A study conducted regarding the perceptions of college-age Hispanic students on the campus of Texas A&M University-Kingsville found Hispanic students perceived themselves as overweight twice as much as their counterparts. They also consumed fewer fruits and vegetables, yet consumed more fast foods.⁴ A subsequent study conducted with students at California State University in Fresno researched eating behaviors in the overweight/obese population.⁵ Their findings uncovered low consumptions of whole grains, fruits and vegetables, and increased consumption of meats and other calorie-dense foods, such as fast foods.⁵ The varied reasons for these consumption patterns

range from skipped meals, lack of refrigeration, and food costs.⁵ These research findings are important because they suggest how college students perceive themselves and what motivations are behind their health behaviors and patterns.

The understanding of motivation will allow for the most appropriate intervention. Understanding college students' behavioral patterns is key, as well as reaching them on their communication level. One such intervention tested methods of program implementation with this demographic. In the CHOICES (Choosing Healthy Options in College Environments) program, researchers wanted to discover the best method of program implementation.⁶ They used focus groups, social media testing, and pilot testing on students who were at risk for health disparities.⁶ Research uncovered that these students were motivated by incentives, such as a college credit for an informative course and use of social media for discussions. Age-appropriate, socially-enhanced methods are likely to prove the most effective when intervening in this target demographic.⁶

Population and Demographics

African Americans and Hispanic Americans comprise a significant percentage of the population in the United States (US). According to the Centers for Disease Control and Prevention (CDC) in 2012, the African American population (including individuals identified as African American and of more than one race) was estimated at 44.5 million (14.2% of the total US population), with the largest concentration (55%) residing in the South.¹ The CDC reports that there are an estimated 54 million Hispanics (17% of the population residing in the US), with the largest concentration found in California.¹ The state of Tennessee has a population of 6,454,914 residents as of 2012.⁷ There are approximately 1,049,391 African Americans (17%) and approximately 296,926 Hispanic Americans (4.6%) of the state's total population.⁶ As of

2012, Johnson City, Tennessee holds an estimated 64,528 residents of Washington County's population with Hispanic Americans representing 4.2% and 6.6% classified as African American.⁷

Significance of the Freshman Demographic

The college freshman population represents an age group that is beginning a transition in life that will mold their future lifestyles and health behaviors. According to a study by Lloyd-Richardson, Bailey, and Wins, rates of overweight and obesity dramatically increase in young adults, ages 18-29.⁸ Racette et al. reported freshman and sophomore students at Washington University in St. Louis as having a significant weight gain and attributing it to inactivity and unhealthy dietary behaviors.⁹ Poor lifestyle changes and behavioral habits formed during this time contribute to health issues in the future. Therefore, the implementation of prevention programs at this time may assist in developing better lifestyle choices, leading to more positive health outcomes in the future.

Significance of the Quest Program at ETSU

The Quest for Success program at ETSU is a college transition program. It assists underrepresented students to become acclimated to campus life, attend college activities, develop positive study habits, and learn time management.¹⁰ These students are primarily minorities. There are opportunities to further their academic careers, including internships, scholarships, and study abroad opportunities. These incentives allow the Quest program to have a large enrollment.

Health Risks and Disparities

The word disparity is defined as “a lack of similarity or equality; an inequality; a difference”.¹¹ This definition accurately and specifically describes the health risks facing Hispanic and African Americans in relation to other minority population groups in the United States.

The African American Population

It is reported that African Americans have the most, and many times, the largest differences in health risks when compared to other minority groups.¹² African Americans were also found to exhibit disparities in life expectancy, infant mortality, and other health status measures in comparison to other racial and ethnic populations.¹ These risks are found in both males and females and across age ranges.¹

The CDC publishes the “CDC Health Disparities and Inequalities Report (CHDIR)” highlighting health disparities found in multiple factors, such as diseases, healthcare access, income and behavioral risk factors.¹ It is reported that the highest death rates from heart disease and stroke in 2009 were in the African American population.¹ The CHDIR found that the greatest prevalence of hypertension included the African American community and there was a lower percentage of African Americans who were actively controlling their blood pressure in comparison to Caucasian Americans. In 2007-2010, obesity prevalence was the largest in African Americans, with African American adult females having the largest percentage. Finally, the report also stated that the prevalence of diabetes was approximately twice as great in the African American adult demographic as for that of Caucasian American adults in 2010.¹

The Hispanic Population

The Hispanic American community contains more health disparities in comparison to other ethnic groups. The CDC reports the Hispanic American population has a greater prevalence of obesity rates than Caucasian Americans.¹ The same findings are true for the prevalence of diabetes. The incidences of such chronic diseases should perhaps be considered underreported due to the significance of the illegal or the migrant worker population that is often not documented, studied, or reported.¹

Health Initiatives for African Americans and Hispanic Americans

In recent years, health programs and initiatives have been developed to bring attention to the health disparities of African American and Hispanic communities. Some are government sponsored and others are created on a local level. The foundation of the Federal Office of Minority Health, which was created in 1985, contributes resources toward many of these programs. The Office was established in the wake of studies detailing health disparities. On a state level, Tennessee created a similar department, the Tennessee Office of Minority Health (TOMH), to address the needs of the state's minority health disparities.

Federal Initiatives

1. The Community Initiatives to Eliminate Stroke program (CITIES) was founded by the United States Department of Health and Human Services Office of Minority Health in 2004. The program's objectives were to raise awareness and increase knowledge of hypertension and stroke in African American communities in the South. Adoption of lifestyle changes, early detection of high blood pressure and stroke, and enhancement of blood pressure rate control are among the objectives of this initiative.¹³

2. Closing the GAP Campaign – Closing the GAP was created in 2002 by the Office of Minority health as an educational campaign. The Department of Health and Human Services (HHS) focused on six areas in which minorities display large disparities. Some of these disparities include: diabetes, heart disease, stroke, and cancer.¹⁴

3. *Cuidando Mi Salud*/Take Care of My Health Initiative – *Cuidando Mi Salud* was funded for the time period between 2010-2013. The program’s objectives include chronic disease education, prevention and management. The program assists Hispanics in filling out medical papers and offering comprehension services to monthly clinical meetings with community members to promote prevention and self-management.¹⁵

4. Obesity Abatement in the African American Community Initiative – This initiative was created by the National Association for Equal Opportunity in Higher Education. The focus is to bring diverse segments of the African American community together to collect data, form nutrition programs, sponsor recreation, and educate to abate obesity in the community. The activities of this initiative were used to gather information on each factor’s successes and report which aspects are conducive to change.¹⁶

National Organization Initiatives

1. Black Barbershop Health Outreach Program/Black Beautyshop Health Outreach Program – The Black Barbershop Health Outreach Program started in 2007 and the female version (Black Beautyshop Health Outreach) in 2010. The two outreach programs were designed to offer information and screenings for hypertension and diabetes among African American populations. The goal is to bring awareness in common traditional settings: barber shops and beauty salons. This program is implemented in a comfortable, relaxed atmosphere.¹⁷

2. Black Girls Run! (BGR!) - is a program designed by two young women with a desire to give inspiration and a means of action toward maintaining a healthy lifestyle among the African American population. BGR! began in April 2010 and has increased by 102% since February 2012.¹⁸ The health disparity focus of BGR! is obesity in African American women. They offer running clinics, endurance training, and sponsor local and national distance races.
3. 100 Black Men of America – 100 Black Men is a corporation designed to increase the education, economic status and health of men in the African American community. In their health and wellness section, individuals can find programs to combat health disparities. Nutrition and Physical Activity the 100 Way program is designed to motivate young people in changing behaviors such as eating and exercise. The Healthy Weight Commitment Foundation is a CEO-led organization founded in the hopes of helping reduce obesity (especially in childhood) by 2015. The organization partners with local grocers, restaurants, sporting goods stores, and food and beverage manufacturers to promote ways to achieve a healthy weight through energy balance. 100 Black Men of America has founded chapters throughout the country.¹⁹
4. The Young Men’s Christian Association (YMCA) Initiatives - In 2012, the YMCA organization of the United States received a grant to improve the health disparity gaps found in the African American and Hispanic communities. The grant was funded by the CDC for over 2700 YMCA facilities in the U.S. Through this grant, Y-USA will expand its Healthier Communities Initiatives, which are community-based programs and strategies that promote well-being and eliminate barriers to healthy living.²⁰
5. Institute for Hispanic Health - This organization serves the Hispanic community in the United States. Their mission is to promote the health and well-being of Hispanic Americans by reducing the incidence, burden, and impact of health problems in this community.²¹ They offer newsletters

detailing disparities and how to improve one's health. They sponsor community events that are geared to nutrition education in the Hispanic American community.

The College-Aged Demographic

College Students and Body Image Perception

The role of body image perception plays an intricate part of wellness. Negative or positive feelings towards one's body image extend from the psyche and affect multiple aspects of that person's life, including their health status. Therefore, it is important to address this issue when researching nutrition knowledge of college-aged students. A study titled "Body Image and Generalized Contentment among Students" researched the correlation between the media's perception of body image and university students of both genders.²² They discovered that because the media has formulated the idea of "skinny" is beauty, the body image perception of students ages 16-21 is similar.²² These ideas have caused students to adopt particular diets to attain this image. The study reports that those who diet have a lower image perception of themselves as well. Negative body image perception may also increase participation in risky behaviors. James E. Leone, et al. found that students with negative body image perceptions increased such activities as aggressive physical training, weight management, and other risky behaviors.²³ Understanding and bringing attention to the body image perceptions of college students can impact their health outcomes and affect their nutritional health behaviors.

College Students and Nutrition Knowledge

When researching the body image perceptions of college-aged students, it may be implied that the risky behaviors that are practiced stem from a lack of knowledge about health and nutrition.² General nutrition knowledge is possibly not taught adequately throughout early education to high school. Upon entering college, many students who are now responsible for

their own nutritional health may lack the knowledge to maintain a healthy lifestyle. Grady et al. researched basic nutrition knowledge in college students by evaluating three topics related to the 2000 Dietary Guidelines for Americans and Food Guide Pyramid.² Their findings indicate that college students have a low level of awareness on the three topics and do not successfully correlate nutrition behaviors and their health.² College students are possibly underprepared to make proper food choices, leading to a future of poor health outcomes.

College Students and Nutrition Education

Basic nutrition education is an important tool that can be used to inform college students about developing successful health behaviors. Such courses are likely available on most college campuses, however, they are not part of required curriculum. Additionally, students may not be aware the courses are available. The development of nutrition programs offering basic information could also prove effective in improving college students' nutrition knowledge. Some researchers have evaluated the effectiveness of such courses. For example, Krakow reports that the Virginia Military Institute (VMI) implemented a wellness course for their first-year cadets, offering physical fitness as well as nutrition knowledge. By the end of the course, the students were content with the course, implementing the various techniques and information into their lives.²⁴ They received course credit, which is considered an incentive. The use of incentives for such courses may assist in positively changing college students' health outcomes.

Conclusion

In conclusion, there is a need to bring awareness to the health disparities suffered by the African American and Hispanic populations. The lack of support for interventions on a local level is a starting point to be addressed. A place to begin is on the campus of East Tennessee State University, where the student population is at a transition point for developing lifelong,

learned behaviors. Early intervention is essential to promoting positive future health outcomes. The college demographic has, through prior research, shown a need for general nutrition knowledge in order to positively affect future health outcomes. The purpose of this research study is to determine the degree of nutrition knowledge and the body image perceptions of incoming, minority freshman students at ETSU.

Chapter 3

Methods

Study Population Description

This study was conducted on the campus of East Tennessee State University with a convenience sample utilizing participants of the Quest Program. The Quest program is offered to incoming minority freshman students at East Tennessee State University. This study was conducted during the fall semester of 2014, with male and female Quest students participating. Eligibility criteria included: must be 18 years of age or older, be enrolled as a full-time student at ETSU, be classified as a freshman at ETSU, and be able to speak/understand English. Participants were asked to complete a survey to test their nutrition knowledge. Study staff measured participants' height and weight. Each participant's body mass index (BMI) was calculated using the NIH standard formula [weight (in kilograms)/height (in meters)²].²⁵

Survey Design and Data Collection

Data were collected from a 29 question survey tool developed by student and faculty thesis director. This study uses a quantitative research design with a convenient sample and no control group. The survey was validated for content by a group of ETSU dietetic interns and revised based on their comments and feedback.

Research Questions

The following three research questions were investigated using data obtained from completed surveys:

1. What is the general nutrition knowledge of incoming minority, freshman students at ETSU?
2. What is the perception of their own body image of incoming minority, freshman students at ESTU?

3. After attending nutrition workshops, did the general nutrition knowledge of incoming minority, freshman students at ETSU improve?

Institutional Review Board Approval

On June 13, 2014, a final approval was granted by the ETSU Institutional Review Board (IRB) through the Office for the Protection of Human Research Subjects.

Measures

The purpose of this research is to determine the degree of nutrition knowledge and the body image perceptions of incoming, minority freshmen students at ETSU. Measurements include: height, weight and BMI classifications of each participant; demographics; self-reported body image perception; and 14 nutrition related questions to assess nutrition knowledge. The Statistical Package for Social Sciences (SPSS), version 20.1 was used for all data analyses. Descriptive statistics were reported for demographical information, knowledge proficiency, and knowledge testing.

Interventions

Two basic nutrition education presentations were given in the fall semester on September 30, and November 11, 2014. The nutrition knowledge survey was administered at a Quest orientation meeting on August 21, 2014. The “Basic Nutrition Knowledge” presentation was presented at a weekly Quest meeting on September 30th. The outline for the presentation can be found in Table 1.

Table 1: “Basic Nutrition Knowledge” Outline

Introduction	Section 1: Basic Nutrition Knowledge	Section 2: Body Image	Section 3: Conclusion
A. Introductions	I. Intro to Nutrition A. What is nutrition? 1. Define nutrition 2. Define healthy diet 3. My Plate (ppt & handout) B. Nutrient Discussion 1. Macronutrients 2. Vitamins/Minerals 3. Water Needs 4. Calorie Needs C. How to make healthy food choices D. How to read a food label E. Food label reading activity	I. Healthy weight vs. healthy body A. Discuss maintaining healthy body weight through diet and exercise B. Discuss BMI C. Body image discussion	I. Summarize main points II. Question and Answer session III. Reminder for next meeting date

The second nutrition presentation occurred on November 11th and is titled “Eating Healthy on a Budget.” The outline for the second nutrition presentation can be found in Table 2. After the second nutrition presentation, the nutrition knowledge survey was administered to determine if participants retained any nutrition knowledge presented in the two presentations.

Table 2: “Eating Healthy on a Budget” Outline

Introduction	Section 1: Eating on a Budget	Section 2: Taste Testing	Section 3: Conclusion
A. Introductions	I. Discuss importance of eating healthy A. Summarize key points from “Basic Nutrition Knowledge” presentation B. Eating healthy on a budget discussion	I. Introduce recipes II. Cooking demonstration of recipes III. Tasting by participants IV. Recipe Handout	I. Summarize main points II. Question and Answer Session III. Administer Nutrition Knowledge Survey IV. Weigh participants (optional)

Chapter Four

Data Analysis

Demographics

The total sample consisted of 56 participants. Of these participants all were freshman and 82.1% reported being African-American, Hispanic/Latino, or other race. The self-reported body image of the participants were: 1.8% underweight, 60% normal weight, 36.4% overweight, and 1.8% obese. The level of satisfaction of body image of the participants were: 12.5% unsatisfied, 55.4% neutral, and 32.1% satisfied. The self-reported eating habits of the participants were: 5.4% unanswered, 42.9% healthy, and 51.8% unhealthy. Finally, the participants were asked about their interest in participating in a nutrition-related course. They reported as follows: 3.6% unanswered, 42.9% were interested, and 53.6% were not interested. All demographics are reported in Table 3.

Table 3: Demographic Characteristics

Variables	Frequency (n)	Percentage (%)
Race:		
White	10	17.9
African-American	35	62.5
Hispanic/Latino	4	7.1
Other	7	12.5
Classification:		
Freshman	56	100
Self-Reported Body Image:		
Underweight	1	1.8
Normal Weight	33	60
Overweight	20	36.4
Obese	1	1.8
Body Image Satisfaction:		
Unsatisfied	7	12.5
Neutral	31	55.4
Satisfied	18	32.1
Self-Reported Eating Habits:		
Blank	3	5.4
Healthy	24	42.9
Unhealthy	29	51.8
Interest in Nutrition Course:		
Blank	2	3.6
Yes	24	42.9
No	30	53.6

Research Question 1: What is the general nutrition knowledge of incoming minority, freshman students at ETSU?

The participants were given a survey with 14 questions relating to general nutrition knowledge. The same survey was administered once as a pre-test and the second time as a post-test. The questions covered topics concerning calories per gram of the macronutrients, weight and obesity definitions, fiber and fat source choices, and food label reading. The results of questions were varied. Overall, there was a need for nutrition education. Results of the nutrition knowledge questions from the pre-test are reported in Table 4.

Table 4: Nutrition Knowledge survey Pre-test Results

Questions/Answers	Frequency (n)	Percentage (%)
Q7: Kcal/g CHO		
*a	12	21.4
b	20	35.7
c	12	21.4
d	6	10.7
No Answer	6	10.7
Q8: Kcal/g protein		
*a	13	23.2
b	13	23.2
c	18	32.1
d	6	10.7
No Answer	6	10.7
Q9: Kcal/g fat		
a	7	12.5
b	7	12.5
c	12	21.4
*d	26	46.4
No Answer	4	7.1
Q10: Kcal/g alcohol		
a	14	25.0
b	11	19.6
*c	9	16.1
d	18	32.1
No Answer	4	7.1
Q11: CHO are...		
*a	43	76.8
b	10	17.9
No Answer	3	5.4
Q12: Amt. of Kcal/day		
*a	47	83.9
b	7	12.5
No Answer	2	3.6
Q13: Kcal to lose 1#/week		
a	23	41.1
b	18	32.1
c	10	17.9
*d	4	7.1
No Answer	1	1.8

Q18: BMI for obesity		
a	4	7.1
b	32	57.1
*c	18	32.1
No Answer	2	3.6
Q19: Dietary Source of fiber		
a	5	8.9
b	4	7.1
*c	43	76.8
d	2	3.6
No Answer	2	3.6
Q20: High fat food source		
a	1	1.8
b	2	3.6
c	3	5.4
*d	48	85.7
No Answer	2	3.6
Q21: Nutrition Facts Label 1		
a	33	58.9
*b	22	39.3
No Answer	1	1.8
Q22: Nutrition Facts Label 2		
*a	47	83.9
b	7	12.5
No Answer	2	3.6
Q23: Nutrition Facts Label 3		
1	12	21.4
2	32	57.1
3	7	12.5
4	2	3.6
No Answer	3	5.4
Q25: Sodium Intake		
a	2	3.6
b	12	21.4
*c	18	32.1
d	22	39.3
No Answer	2	3.6

Code: *indicates correct answer

Analysis of the data reveal that 100% of the 56 participants were not proficient in nutrition knowledge. Proficiency is defined as correctly answering 11 of 14 questions, or 80% or more.

Data is reported in Table 5.

Table 5: Nutrition Knowledge Proficiency of Quest Program Participants

	(n)	(%)
Proficient	0	0
Not Proficient	56	100

*Proficiency measured by answering 80% of nutrition knowledge questions from survey correctly (11 of 14 questions).

Research Question 2: What is the perception of the body image of incoming minority, freshman students at ETSU?

After the nutrition knowledge pre-test was given, participants had an opportunity to have their height and weight measured. The principle investigator was able to calculate body mass index (BMI) of all 56 participants. BMI measurements were classified into one of four categories. The categories are underweight (18.4kg/m^2 and $<$), healthy weight ($18.5\text{-}24.9\text{kg/m}^2$), overweight ($25.0\text{-}29.9\text{kg/m}^2$), and obese (30.0kg/m^2 and $>$).²⁵ The BMI classifications are reported in Table 6.

Table 6: BMI Classification of Quest Program Participants

BMI Classification (kg/m^2)	Frequency (n)	Percentage (%)
Underweight (18.4 & $<$)	0	0
Healthy Weight ($18.5\text{-}24.9$)	16	30
Overweight ($25.0\text{-}29.9$)	18	35
Obese (30.0 & $>$)	18	35

Fourteen participants are obese according to BMI classification, but did not report themselves as obese. Self-reported weight status are reported in Table 7.

Table 7: Self-Reported Weight Status

Weight Classification	Frequency (n)	Percentage (%)
Underweight	0	0
Normal Weight	33	64.7
Overweight	17	33.3
Obese	1	2.0

It was reported that 58.8% did not consider themselves to be overweight or obese even though their BMI reflects 70% are overweight or obese. One participant self-reported obese weight status and actually matched their BMI classification.

Research Question 3: After attending nutrition workshops, did the general nutrition knowledge of incoming minority, freshman improve?

Nutrition knowledge was re-tested after the nutrition presentations were given. The results from the post-test are reported in Table 8.

Table 8: Nutrition Knowledge Proficiency* of Quest Program Participants (post-test)

	Frequency (n)	Percentage (%)
Proficient	0	0
Not Proficient	17	100

*Proficiency measured by answering 80% of nutrition knowledge questions from survey correctly (11 of 14 questions).

Limitations

There were several limitations identified during this study. The interest level of the participants was fair. This may have caused a limit to the research by affecting the manner in which the answers were given. This may have also affected the return rate for the post-test survey. The sample size was small and therefore, not generalizable. Some participants may have benefited from specified incentives. These incentives could have included: course credit, extra credit toward a course grade, or a financial incentive. The Quest program had a limited schedule for the nutrition presentations, only allowing two. This may have limited the effect on the participants' retention. Earlier intervention may prove effective in increasing basic nutrition knowledge and body image perception in incoming college students. Nutrition interventions may need to begin at the junior high school and high school levels. More opportunities for hands-on presentations may have assisted in participant-retention.

Chapter 5

Conclusion

The purpose of this research was to determine the degree of nutrition knowledge and to assess the perceptions of body image of incoming minority, freshman students at ETSU. It has been established that African-Americans and Hispanic Americans have several health disparities, which increases their risk of certain diseases and health conditions. Similarly, these different ethnic groups hold various opinions concerning body image. What constitutes a healthy weight in these groups does not always fall into the healthy BMI range of 19-24 kg/m².²⁵ Therefore, the intent of the nutrition presentations was to encourage the adoption of healthy eating patterns and the formation of healthy weight goals.

The hypothesis of this research project stated there would be an improvement in the general nutrition knowledge of the participants. It was also hypothesized that the ranges of perceived body images would be more accurate to what constitutes a healthy body image versus what is unhealthy. Upon conclusion of the research project, the general nutrition knowledge of the participants did not improve after only two nutrition presentations.

There is much to be learned from the design and results of this research project. The research project provided two presentations, along with handouts, that covered the material on the surveys evaluating general nutrition knowledge. There was time given after each presentation for participants to ask questions, which many did. This reflects a need for repetition and reinforcement when presenting nutrition knowledge to this age group.

Research question one evaluated the general nutrition knowledge of incoming minority, freshman students at ETSU. Upon completion of the study, the data revealed that nutrition knowledge was not proficient. Research question two evaluated body image perception. The

study found that 58.8% of participants were incorrect in perceiving themselves as having a healthy weight when they actually were overweight or obese. Finally, research question three evaluated for an increase in general nutrition knowledge of incoming minority, freshman after completion of nutrition workshops. The participants did not reflect improvement in their nutrition knowledge from the beginning to the end of the program and presentations.

It would have possibly been beneficial to implement a nutrition intervention program to include grocery shopping excursions, devices and/or applications that could track daily exercise, keeping food journals, along with more presentations, encouragement, and development of personal goals could have positively affected the results of the research project. Future researchers may also chose to discuss campus dining options, with a focus on healthier food choices because the participants live on campus. This is a major part of their intake. More thorough planning, access to resources, and ample time could help develop this research project.

References

1. Centers for Disease Control and Prevention. Black or African American Populations. CDC Website. 2012. Available at: <http://www.cdc.gov/minorityhealth/populations/rem/pe/black.html> Accessed February 16, 2014.
2. Grady F, Howard A, McArthur L, Rosenberg R. Knowledge of college students regarding three themes related to dietary recommendations. *American Journal of Health Studies*. 2000;16:177. Available at: <http://go.galegroup.com.ezproxy.etsu.edu>. Accessed February 27, 2015.
3. Healthy Campus 2020. American College Health Association Website. 2014. Available at: <http://www.acha.org>. Accessed January 14, 2015.
4. Knight M, Killion L, Knight L. Nutrition, Exercise Habits, & Perceptions of Obesity in Hispanic College Students in South Texas: A 10 Year Follow-up. *International Journal of Applied Science and Technology*. 2014;4:15-22. Available at: ijastnet.com [PDF]. Accessed October 5, 2014.
5. Lee W. Eating Behaviors in Overweight/Obese California State University, Fresno Students. 2010. Available at: calstate.edu [PDF]. Accessed September 25, 2014.
6. Linde J, Sevcik S, Lytle L. Translating a health behavior change intervention for delivery to 2-year college students: the importance of formative research. *Translational Behavior Medicine*. 2014;4:160-169. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4041923/>. Accessed: September 25, 2014.
7. QuickFacts. Johnson City Demographics. QuickFacts from the US Census Bureau Website. 2012. Available at: <http://quickfacts.census.gov/qfd/states/47/4738320.html>. Accessed February 16, 2014.
8. Lloyd-Richardson E, Bailey S, Wing R. A Prospective Study of Weight Gain During the College Freshman and Sophomore Years. *Prevention Medicine*. 2009;48:256-261. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2696183/>. Accessed February 16, 2014.
9. Racette S, Deusinger S, Strube M, Highstein G, Deusinger R. Weight Changes, Exercise, and Dietary Patterns During Freshman and Sophomore Years of College. *Journal of American College Health*. 2005;53:245-251.
10. Quest for Success. ETSU Website. Available at: <http://www/etsu.edu>. Accessed February 23, 2015.
11. Harper D. "disparity". Online Etymology Dictionary. 2014. Available at: <http://dictionary.reference.com/browse/disparity>. Accessed February 16, 2014.

12. Minority Women's Health: African Americans. Womenshealth.gov Website. Available at: <http://womenshealth.gov/minority-health/african-americans/>. Accessed February 16, 2014.
13. The Community Initiatives to Eliminate Stroke Program (CITIES). The Office of Minority Health Website. Available at: <http://minorityhealth.hhs.gov/templates>. Accessed: February 17, 2014.
14. Closing the Health GAP Campaign, The Office of Minority Health Website. Available at: <http://minorityhealth.hhs.gov/templates>. Accessed: February 17, 2014.
15. Hispanic Health Initiative, Inc. The Department of Health and Human Services Website. Available at: <http://minorityhealth.hhs.gov/omh/content>. Accessed: October 5, 2014.
16. Obesity Abatement in the African American Community Initiative. The Office of Minority Health Website. Available at: <http://minorityhealth.hhs.gov/templates>. Accessed: February 17, 2014.
17. The Black Barbershop Health Outreach Program. The Black Barbershop Website. 2011. Available at: <http://blackbarbershop.org/about-us/>. Accessed: February 17, 2014.
18. Black Girls RUN!. Black Girls RUN! Website. 2012. Available at: http://www.blackgirlsrun.com/about_bgr/. Accessed February 17, 2014.
19. 100 Black Men of America, Inc. 100 Black Men of America Website. Available at: <http://www.100blackmen.org/healthwell.aspx>. Accessed: February 17, 2014.
20. YMCA of the USA Awarded CDC Grant to Support Local Y Efforts to Promote Health and Well-being in African-American and Hispanic/Latino Communities. YMCA Website. 2012. Available at: <http://www.ymca.net/news-releases/20121003-yusa-awarded-cdc-grant.html>. Accessed October 12, 2014.
21. Institute for Hispanic Health. National Council of La Raza Website. Available at: http://www.nclr.org/index.php/issues_and_programs/health_and_nutrition/hispanic_health/. Accessed October 12, 2014.
22. Hassan B, Zubair S, Riaz M, Tariq S. Body Image and Generalized Contentment among Students. *Pakistan Journal of Psychology*. 2012;43. Available at: <http://galenet.galegroup.com.ezproxy.etsu.edu>. Accessed February 27, 2015.
23. Leone J, Partridge J, Maurer-Starks, S. Psychobehavioral Attributes of Body Images in College Freshmen and Seniors: Implications for Long-Term Health. *Health Educator*. 2011;43:13. Available at: <http://galenet.galegroup.com.ezproxy.etsu.edu>. Accessed February 27, 2015.
24. Krakow M. Incorporating wellness into the first-year experience. *VAHPERD Journal*. 2013;34:9. Available at: <http://go.galegroup.com.ezproxy.etsu.edu>. Accessed February 27, 2015.

25. Calculate your body mass index. National Institutes of Health. U. S. Department of Health and Human Services website. Available at: <http://www.nhlbi.nih.gov/health>. Accessed March 22, 2015.