



Food Insecurity in the Development of Chronic Diseases



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INTRODUCTION

- Over 48 million Americans, including 12 million children and 7 million seniors, live in homes with food insecurity and limited access to adequate nutritious food.
- In a Chicago, Illinois suburb, the non-profit organization, *Loaves and Fishes*, provides hunger relief and emergency assistance to low income families. Over 132,000 people are served yearly by *Loaves and Fishes*. Approximately 72% of their clients have incomes at or below 100 percent of the Federal Poverty Level.
- Food insecure adults are more likely to develop chronic illness, such as diabetes, hypertension, and heart disease. Difficulty paying for food and daily needs can lead to poor self-care behaviors and poor control for diabetes and chronic illness..
- Type 2 diabetes and depression are common co-morbid high-prevalence chronic disorders.
- The focus of this research study is to understand how food insecurity impacts the overall health of this adult population.
- The objective was to try to identify potential links between food insecurity and chronic illness in order to provide public health recommendations for improving awareness and education.
- This study was approved by the Midwestern University Institutional Review Board and Loaves and Fishes.
- Body mass index (BMI) is used in this study as an indication of fitness.

HYPOTHESIS

- There is a correlation between food insecurity and chronic diseases in low income adults currently receiving food and assistance from Loaves and Fishes.
- There is a higher incidence of diabetes mellitus Type 2 than in the general population.
- There is an inverse relationship between the BMI and quality of life. There is also an inverse relationship between BMI and perception of health.

METHODS

- Adults currently receiving food assistance from Loaves and Fishes were asked to voluntarily complete a Nutrition and Health Questionnaire prior to and after voluntarily attending an educational session which focused on diabetes, hypertension, heart disease, and nutrition.
- The survey was offered in both English and Spanish, with personal assistance from the Principal Investigator, if requested.
- All responses were completely anonymous; a three question identifier was used to match pre- and post-survey results.
- The survey contained both 10 point Likert Scale questions as well as free response.
- 203 pre-surveys were completed. After the initial surveys were completed, health care and nutritional information were offered to all participants.
- Seventy adults have participated in an educational program and learned about chronic illness prevention, healthy eating, and positive lifestyle changes. This included resources from MyPlate and the Diabetes Education Program.
- Post-surveys were conducted to determine the potential impact of the educational sessions on food choices and lifestyle habits. Thirty one post-surveys have been conducted, to date.

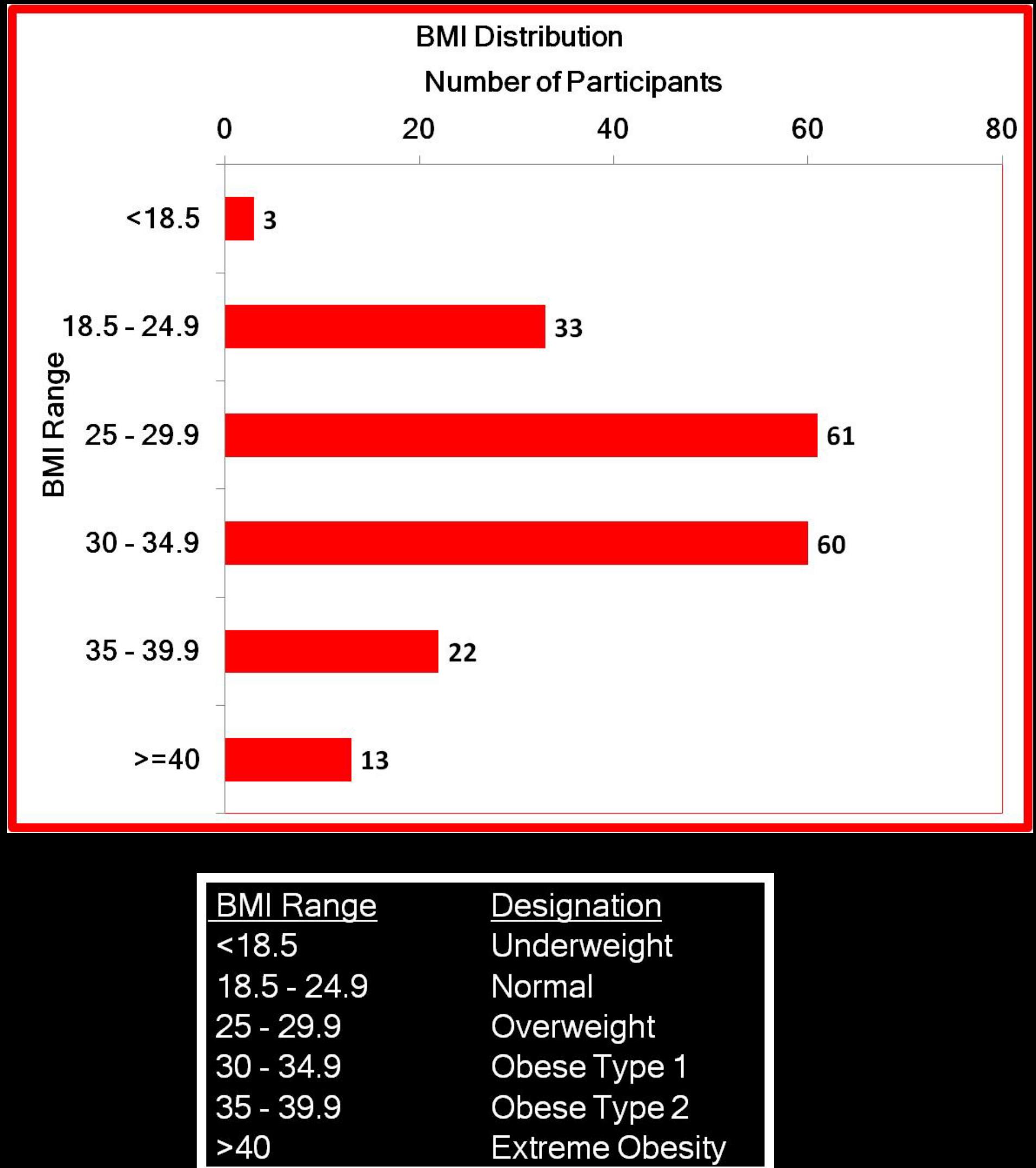
Likert Scale Used For Self-Assessment
0 Poor 1 2 3 4 5 6 7 8 9 10 Excellent

OBSERVATIONS

Gender Distribution	#
Male	50
Female	147
Declined to State	6

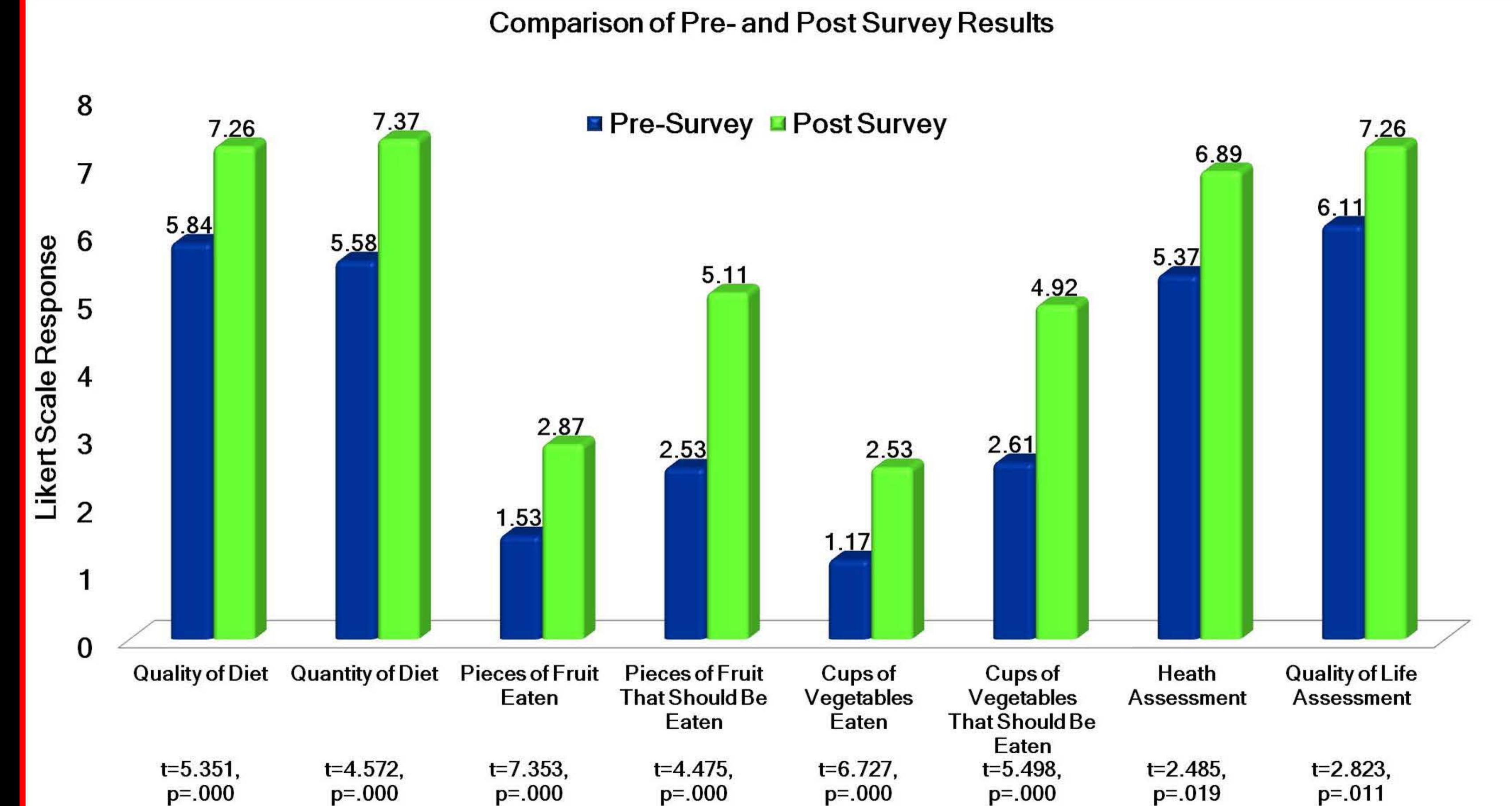
Race Distribution	#
American Indian/Alaska Native	2
Asian	9
Black/African American	46
Caucasian	68
Hispanic/Latino	59
Indian	1
Native Hawaiian/Pacific Islander	0
Two or More Races	6
Other	9
Declined to State	3

Age Distribution	#
<30	24
30-39	50
40-49	42
50-59	43
60-69	25
70-79	6
80-89	4
>90	0
Declined to State	9



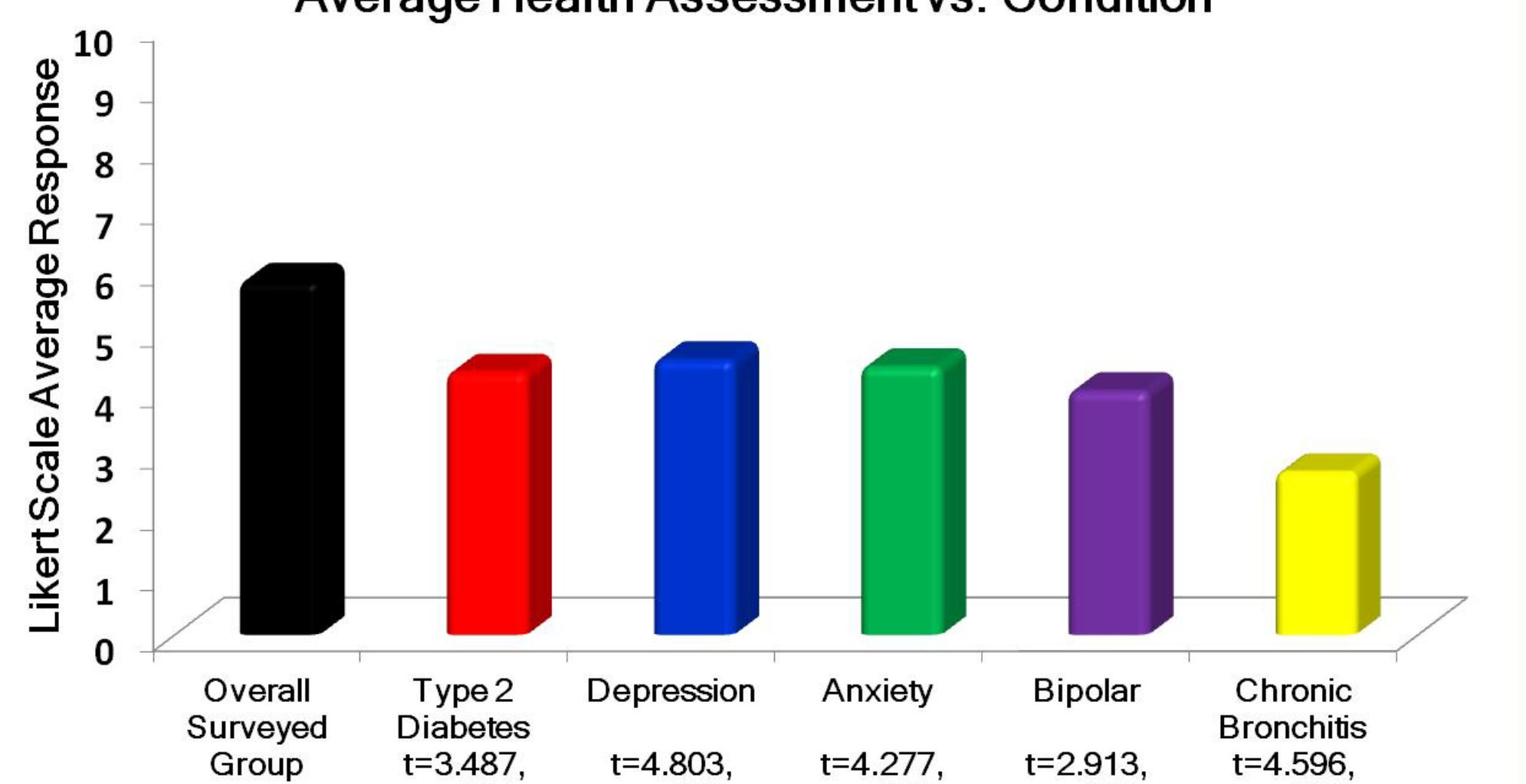
- Of the 203 adults who completed the pre-survey:
- Pulmonary Diseases:
 - 16% had asthma
 - 4.9% had chronic bronchitis
 - Metabolic diseases:
 - 16.2% had type 2 diabetes.
 - Cardiovascular diseases:
 - 30% had high blood pressure
 - 2.5% had previous heart attack
 - Psychiatric Diseases:
 - 23% had depression
 - 16.3% had anxiety
 - 5.4% had bipolar
 - 1.5% had schizophrenia

POST SURVEY RESULTS



- Participants indicated a significant improvement in their quality of life, dietary intake, and overall health. However, participants felt like they were eating more than before.
- The average post survey response regarding the correct number of cups of vegetables was higher than taught.
- Many diseases correlate with BMI, and BMI has an inverse correlation with health assessment ($r=-.225$, $p=.002$).
- There is no correlation between BMI and quality of life ($r=-.114$, $p=.127$).

Average Health Assessment vs. Condition



CONCLUSIONS

- Health care professionals should seek to educate those living with food insecurity about nutrition and chronic illness as these findings indicate even brief nutritional programs can foster changes in lifestyle and eating habits which significantly benefit the clients.
- Most participants who attended the educational program were seriously aware of their health, and wanted to reduce health risks and their current medication. They had a strong desire to prevent chronic illness through healthier lifestyles and were actively trying to exercise, eat healthier, and make positive lifestyle changes in their homes.
- Diet and education are important risk factors and research has highlighted the relevance of diet and knowledge. It is vital to those managing chronic illnesses. There is continued need for nutritional education regarding fast food, especially for those people who live with food insecurity.
- Participants understood that more fruits and vegetables should be eaten; however, the concept of a cup of fruits and vegetables was not remembered.
- Medical professionals need to actively promote healthy lifestyles, nutrition, and preventative medicine to achieve the goal of reducing chronic illnesses.

ACKNOWLEDGEMENTS

Kenneth A. Suarez CCOM Summer Fellowship Research Program (AS); Dr. Ann Impens, Katarina Ivkovic, Office of Research and Sponsored Programs at Midwestern University, Ms. Jane MacDonald, staff and clients at *Loaves and Fishes*.

