

**KNOWLEDGE AND ATTITUDES TOWARDS OBESITY  
AMONG YOUNG ADULTS**

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## ABSTRACT

**Significance/Background:** Young people 18-24 are at an age when they could be well physically fit however a lot of American youth are having excessive body weight. Current generation of young adults is gaining weight faster than any age group comparably to previous generations.

**Purpose/Aim:** This study examined differences in knowledge and attitudes towards obesity and its comorbidities among young adults who have healthy weight and those who are overweight or obese.

**Methods:** University students were asked to complete the ORK-10 and OBS questionnaires about their knowledge and beliefs towards obesity. IBM SPSS 29 software was used for statistical analysis utilizing descriptive statistics and analyzing differences between variables (ORK-10 and OBS scores and students BMI categories).

**Results:** A total of 100 surveys were provided in pen and paper to undergraduate students, 49% students were of healthy weight (BMI 18.5-24.9), 34% students were identified as overweight (BMI 25-29.9) and 17% met a category of obese (BMI  $\geq 30$ ). Similar to the other studies on the topic, this study's results show that young adults have an insufficient knowledge of obesity risks. They have a strong agreement with the detrimental effects of obesity on health, they moderately agree with negative effect of obesity on social life, and they have neutral attitudes towards cost/barriers of maintaining healthy weight. The results were not statistically significant.

**Implication for Practice:** The results of the study will guide the young adults' obesity related education and obesity management by healthcare providers. Future studies are recommended to replicate this study with the larger sample size and in a few different locations which can yield more significant results.

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## Chapter 1 Background

### Introduction of the Problem

Obesity has reached epidemic proportions worldwide, with at least 2.8 million people dying each year because of complications from the condition (WHO. Obesity, 2022).

Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health (WHO. Obesity, 2022). Obesity-related conditions include heart disease, stroke, type 2 diabetes, and certain types of cancer which are among the leading causes of preventable, premature death (CDC. Adults Obesity Facts, 2022). Globally, in 2016, more than 1.9 billion adults were overweight and 650 million were obese. The prevalence of obesity has increased threefold since 1975 (WHO. Obesity, 2022).

From 2000 through 2020, American obesity prevalence increased from 30.5% to 41.9%, and the prevalence of severe obesity increased from 4.7% to 9.2% (Stierman et al., 2021). Between 2017-2020, almost 74% of Americans over 20 years of age were overweight, with almost 42% identified as obese. Comparably with adults, 22.2% of adolescents aged 12-19 years were obese (CDC. Obesity and Overweight, 2022). The current generation of young adults is gaining weight faster than any age group comparably to previous generations (Cheng et al., 2016). Individuals aged 18-24 years are at the highest risk of weight gain and developing overweight or obesity over the next 10 years compared with all other adults (Katsoulis et al., 2021).

Young people 18-24 are at an age when they could be well physically fit however a lot of American youth are having excessive body weight. Obesity presents many health-related

challenges, it can lead to chronic elements and death for young people. Since obesity is highly correlated with the development of chronic illnesses which could shorten the lifespan of the individual, it is imperative to assess the young adults' knowledge and attitudes towards obesity and its comorbidities to guide the obesity related education and obesity management by health care providers.

### **Brief Literature Review to Establish Facts**

The study by Diao et al. (2022) investigated the knowledge and attitudes towards obesity and bariatric surgery among Chinese university students. A self-designed questionnaire was distributed to university students (N=3154) to fill in online from June to July 2021. The results showed that more than 80% of students had a high knowledge of the common causes and complications of obesity but lacked knowledge of the relationship between obesity and bone and joint, tumor or cancer, and reproductive diseases. 51.55% of them thought they needed to lose weight, especially female students. Only 39% had regular physical exercise habits, and 58.62% of them could reasonably control their diet. The study concluded that Chinese students have insufficient knowledge of obesity and related complications, and lack of scientific management of their own weight (Diao et al., 2022).

Xue et al. (2021) also studied knowledge, attitude, and practice of obesity among university students in China. A questionnaire was filled out by 1,317 (466 male and 851 female) randomly selected students aged from 16 to 24. The results of the survey showed that 64.9% of respondents believed that obesity was a disease, although most of the participants in the study had practices that were detrimental to their health, including irregular dieting (52.9%), surfing the internet, and playing games (58.5%) in their spare time. This study concluded that lacking

knowledge of obesity was common among college students. Thus, education related to obesity should be strengthening among students to translate attitude into practice (Xue et al., 2021).

Sabiha et al. (2022) investigated knowledge, attitude, and practices of undergraduate students regarding obesity in Peshawar, Pakistan. This cross-sectional study involved a total of 1,300 subjects, 65% were female and 35% were male. About 850 respondents (65.38%) thought being overweight was a sickness, 441 (33.9%) respondents admitted to overeating, 468 (36%) students said they had a typical body structure, and 572 (44%) of participants desired weight loss to maintain their fitness. Authors concluded that most respondents were in favor of reducing obesity by emphasizing exercise and diets (Sabiha et al., 2022).

### **The Purpose and the Research Question**

The purpose of this study is to examine differences in knowledge and attitudes towards obesity and its comorbidities among young adults who have healthy weight and those who are overweight or obese. The research question of the study is: are there any differences in knowledge and attitudes towards obesity among college students of different categories of Body Mass Index (BMI)?

### **Concepts and Definitions**

The following concepts (knowledge, attitude, overweight and obesity, body mass index and young adult) will be utilized in the study with the definitions provided in this section.

**Knowledge** - awareness, understanding, or information that has been obtained by experience or study, and that is either in a person's mind or possessed by people generally (Cambridge Dictionary. Knowledge, 2022).

**Attitude** - a feeling or opinion about something or someone, or a way of behaving that is caused by this (Cambridge Dictionary. Attitude, 2022).

**Overweight and Obesity** are defined as abnormal or excessive fat accumulation that presents a risk to health. (WHO. Obesity and Overweight, 2022).

**Body mass index (BMI)** – the weight in kilograms divided by the square of the height in meters ( $\text{kg}/\text{m}^2$ ) – is a commonly used index to classify overweight and obesity in adults. WHO defines overweight as a BMI equal to or more than 25, and obesity as a BMI equal to or more than 30 (WHO. Obesity, 2022).

**Young Adult** - a person who is in his or her late teenage years or early twenties (Cambridge Dictionary. Young Adult, 2022).

### **Significance of the Study to Nursing and Healthcare**

The outcome of the study may reveal a need for additional targeted interventions in young adults' population to address the gaps in knowledge and attitudes they have towards obesity and its comorbidities. Additional patient/family education or referrals may be needed to be implemented for this age group to prevent future excessive weight gain and obesity related health complications (Katsoulis et al., 2021).

### **DNP Essentials Supported by the Study**

This study will support the following Essentials of Doctoral Education for Advanced Nursing Practice. In support of Essential I, Scientific Underpinnings for Practice, and Essential III, Clinical Scholarship and Analytical Methods for Evidence-Based Practice, the study results will provide new evidence on the topic of obesity knowledge and attitudes in the young adult

population. In support of Essential VII, Clinical Prevention and Population Health for Improving the Nation's Health, and Essential VIII, Advanced Nursing Practice, the obtained new evidence will be utilized in nursing practice as well as in clinical prevention and population health activities to improve the health status of the young adults (American Association of Colleges of Nursing, 2006).

### **Summary**

In summary, the investigation of young adults' knowledge and attitudes towards obesity can assist clinicians in combating the epidemic of obesity by addressing the gaps in knowledge which affect the young adults' motivation to engage in healthy lifestyle behaviors and to prevent or to manage excessive weight gain. The young adult patient education on obesity prevention can help change the trajectory of obesity in this age group (Katsoulis et al., 2021).

## **Chapter 2 The Review of the Literature**

### **Review of Literature Introduction**

Since young adults gaining weight faster than the other age groups and obesity is highly associated with development of chronic conditions and shorter lifespan it is important to find out what young adults know and believe about obesity and its complications. This review of literature will examine what is the current evidence on the question of the study: are there any differences in knowledge and attitudes towards obesity among college students? The purpose of this study is to examine differences in knowledge and attitudes towards obesity and its comorbidities among young adults who have healthy weight and those who are overweight or obese.

This chapter will present the theoretical framework, the methodology of searching the literature, examining inclusion and exclusion criteria, and the focused literature review of relevant research articles related to the question of the study.

### **Theoretical Framework**

The theoretical model, identified to support this study's conceptual framework, was the Health Belief Model (HBM) which was first created in the early 1950s (Hochbaum et al., 1952). The HBM was used to examine a large array of health beliefs and behaviors utilizing the following six dimensions for changing health behaviors: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Janz, & Becker, 1984). The study by Ahmed & Naji (2022) found out that the application of educational programs based on the Health Beliefs Model can contribute significantly to a positive change in the weight control beliefs of university employees who suffer from obesity and overweight.

The HBM dimensions could provide a conceptual connection between many aspects of knowledge and attitudes among young adults towards obesity and its complications. Obesity knowledge and attitudes are closely related to the young adults' perceived susceptibility and perceived severity which could lead to cues to action and self-efficacy towards weight management.

### **Methodology of Searching Literature**

A comprehensive review of the literature was conducted utilizing the Google Scholar search engine. Included were articles published since 2018 by using keywords: "knowledge about obesity in young adults" which revealed 21,800 results. The studies that examined pediatric or older adults' obesity, and the ones researching the different types of prevention, treatment, or consequences of obesity were excluded. Accepted were only quantitative, cross-sectional studies that have investigated knowledge and attitudes towards obesity in young adults, and specifically in college students.

Limited and inconsistent evidence has been found looking at the topic, and importantly, the current research was predominantly conducted overseas rather than in the United States. The only US study found on the topic was conducted in California on a cohort of 11-13 years old middle school students in 2007-2012 (Rutkowski & Connelly, 2016).

Ten studies were identified in relation to our question. The following is the summary of the current research in chronological order starting with the most recent studies.

### **Focused Literature Review**

Genc & Yigitbas (2021) aimed to investigate the obesity status and the awareness about obesity in the large sample of undergraduate students (N=1441) in Turkey. This was a cross-sectional descriptive design study using the questionnaire. Results revealed that 82.5% of university students consider obesity to be a disease. 74.7% of them believe that BMI determines obesity. The ratio of those who don't want to receive any information about obesity was 46.8%. In regard to knowledge of university students on the relation between obesity and various health conditions, the participants interpreted obesity as increasing the relationship between hypertension, heart disease, stroke, diabetes, breast, prostate and colon cancers, menstruation disorder, infertility, osteoarthritis, snoring and sleep apnea (Genc & Yigitbas, 2021).

The study by Priya et al. (2021) investigated knowledge awareness and perception on comorbidities of obesity among dental students in India. An online survey was conducted and circulated among dental students (N=105), which included a questionnaire assessing the knowledge awareness levels of the comorbidities related to obesity. The results obtained showed that 75.8% of the people are aware that obesity can lead to sleep apnea, 80.5% of the people are aware that obesity can lead to gastrointestinal disturbances and diabetes, and 78.9% know that it can lead to respiratory disorders and lowered immunity, and 77.3% know that obese people showed a lower recovery rate on contacting the COVID-19 infection. The study concluded that the knowledge awareness levels about the comorbidities of obesity are high among dental students (Priya et al., 2021).

Gamage et al. (2021) assessed self-perception of body weight, knowledge and practices on obesity and weight reduction and their associated factors in a sample of obese young adults (N=261) attending an out-patient nutrition clinic in Sri Lanka. A questionnaire was used to collect demographic data and information on body weight perception and, knowledge and



practices on obesity and weight reduction. Results: The mean BMI of the participants was 29.0 kg m<sup>-2</sup>. Only 16.1% precisely perceived themselves as 'obese' and increased BMI was only a significant predictor of accurate body weight perception. Only 49.0% reported obesity as a disease and 46.0 % and 27.2% that it predisposes to stroke and carcinoma respectively.

Conclusion: The overall knowledge regarding obesity and weight reduction was satisfactory though not optimal (Gamage et al., 2021).

Roble (2020) investigated knowledge regarding obesity among freshly admitted undergraduate students at North South University in Bangladesh. Using a descriptive cross-sectional study design, a structured questionnaire was used to interview the participants (N=384) and to collect data on knowledge on obesity among the students. It was observed that majority of the students showed good awareness state in terms of the factors related with obesity such as pregnancy, family history, hormonal disorders, stress, sleeping behavior, food consumption behavior, sedentary lifestyle and medical drugs, alcohol and smoking consumption, except depression and anxiety which almost 15% of students showed unawareness. Regarding the clinical factors related to obesity, students also showed good awareness in the areas of cardiovascular disease, diabetes, respiratory problems, except cancer and osteoarthritis where the students' unaware state was 15.6% and 23.4% respectively. This study reveals that in general, the knowledge about obesity among the undergraduate students of NSU was adequate (Roble, 2020).

Mehanna et al. (2020) investigated knowledge of female university students about obesity and its adverse effects on reproductive health. This cross-sectional study used systematic random sampling and a self-administered questionnaire, and it was conducted among 400 female university students in Egypt. The results revealed that 24% of responders had poor knowledge

about the effect of obesity on reproductive health, as 85% considered oocyte development and maturation better in obese females and 71% reported that obesity reduced the risk of developing early menopause. A notable percentage of them did not know that obesity increases the risk of stillbirth (28%) and miscarriage (24.2%). The researchers concluded that a considerable proportion of participants lacked knowledge about the effect of overweight and obesity on their reproductive health (Mehanna et al., 2020).

Shahid et al. (2020) assessed the knowledge, attitudes, and practices of medical students regarding obesity. This observational descriptive study was carried out among medical students (N=208) using a pre-validated questionnaire distributed in a public sector medical college of Faisalabad in Pakistan. Results showed that most participants responded well to questions regarding causes and ill effects of obesity and two thirds identified the correct BMI range. Attitude of students was also positive except that 20% believed that obesity is inherited and can't be reduced. Only one third of students preferred going for a walk daily. The researchers concluded that despite sound knowledge regarding obesity, students were not practicing a healthy lifestyle (Shahid et al., 2020).

Skrzypek et al. (2020) studied knowledge concerning obesity complications and opinions about its social consequences among university students in Poland (N=200). The author-constructed questionnaire contained 46 items: 23 items referring to knowledge of the health consequences of obesity, 12 – undertaking the scope of problems concerning the stigmatization of obese persons, and 11 – respondents' particulars pertaining to sociodemographic data. Statistical analysis showed significant relationships between the level of students' knowledge concerning the health effects of obesity and type of university, study specialty and year of study, as well as the place of the respondents' permanent residence. The

correlate of a higher level of knowledge concerning obesity was the presence of an obese person in the respondent's direct social environment (Skrzypek et al., 2020).

Waghmare et al. (2019) also examined knowledge, attitude, and practice (KAP) on obesity among 200 medical and non-medical college students in India. The study found good and fair knowledge among medical students and a high percentage of poor knowledge in non-medical student's population. A poor practice was also observed in the overall student's population (Waghmare et al., 2019).

Jaganathan et al. (2019) studied the Malaysians' preclinical students' knowledge, attitudes, and practices towards obesity and overweight (N=128). The study found that females have more awareness when compared with males towards overweight and obesity, the suburban people have higher scores in practice to overcome overweight and obesity but lower understanding than other regions, and the medium income respondent have a better awareness than high and low income (Jaganathan et al., 2019).

Ghazi et al. (2018) aimed to find out the level of obesity knowledge and its associated factors among the year 1 and year 5 medical students at Private Medical School in Selangor, Malaysia. A cross-sectional study was conducted among 178 medical students during May to June 2018. Obesity knowledge was assessed by a 20-questionnaires items, consisting of three domains: sociodemographic, level of knowledge of obesity and 8 questions about source of information on obesity knowledge. The results showed that 121 people (68% of total respondents) have poor obesity knowledge. Only educational level showed significant association with obesity knowledge while other socio-demographic factors were not significant.

As a conclusion, two-thirds of the medical students had poor knowledge regarding obesity (Ghazi et al., 2018).

### **Summary**

Chapter 2 reviewed the pertinent current literature related to knowledge and attitudes towards obesity among young adults as well as the theoretical framework relevant to this study. Chapter 3 will introduce the proposed methodology for implementing this DNP project.

## Chapter 3 Methods

**The purpose of this study** is to examine differences in knowledge and attitudes towards obesity and its comorbidities among young adults who are categorized by their Body Mass Index (BMI) as being healthy, overweight, or obese.

**The research question of the study:** are there any differences in knowledge and attitudes towards obesity among college students of different categories of BMI?

### Research Design

This study utilized a quantitative, descriptive, non-experimental, cross-sectional design using a self-administered survey.

### Sample and Setting

This study utilized a purposive, convenience sample of the undergraduate students at a public university of New Jersey.

**Inclusion criteria:** Undergraduate university students who are 18 years old or older, currently enrolled in a course of study, fluent in English and voluntarily consent to participate in the research study.

**Exclusion criteria:** Students who are not currently enrolled undergraduate students in the university or students who declined to consent to participate.

### Procedures for Data Collection

The questionnaires were distributed to the participants by the researcher during the prearranged in-person classroom time with the permission from professors to have the survey distributed during their class.

### **Data Collection Instruments**

The participants were asked to complete the following questionnaires about their knowledge and beliefs towards obesity: Obesity Risk Knowledge (ORK-10) scale (Swift et al., 2006) and Obesity Belief Scale (OBS) (Swift et al., 2007) (Appendices A and B). ORK-10 scale is a 10-question scale (true, false, don't know) and OBS is a 15 questions seven-point Likert scale. The survey's design has been evaluated for validity and reliability. Written permission to utilize the questionnaires for this study was obtained from the author Dr. Cris Glazebrook (Glazebrook, 2023; Appendix E). In addition, the participants' self-reported height and weight and the demographic information (age, sex, ethnicity, degree major, athletic status) were collected. (Appendix C)

### **Protection of Human Subjects**

Approval was obtained from the university's Institutional Review Board (Appendix D). The survey was completely anonymous, no identifying information was collected. A passive informed consent statement was presented on the first page informing the subjects that participation was their consent (Appendix F). No financial funding was received, and no conflict of interest was identified for this study.

### **Data Analysis**

IBM Statistical Package for the Social Sciences (SPSS™) 29 software was used for computing descriptive statistics and analyzing differences between variables (ORK-10 and OBS scores) between participants of different BMI categories.

### **Knowledge of Obesity**

Differences in knowledge towards obesity were examined, comparing responses from respondents categorized into different BMI categories (healthy, overweight, and obese). The Obesity Risk Knowledge scale (ORK-10), a 10 questions scale (true, false, don't know) was utilized. The total ORK-10 scores were calculated: correct answers to the questions were scored as a 1. Incorrect and don't know answers were scored as 0. Higher scores on the ORK-10 scale indicate better knowledge of the obesity risk.

A crosstabulation examined the total knowledge scores (from 0-10) between the three BMI categories to show what number and percentage of students in each BMI category had a specific total knowledge score. Chi-square statistics were conducted to examine where there is a significant difference in the total knowledge score between the different BMI categories.

### **Attitudes/Beliefs towards Obesity**

Analysis was conducted to examine differences in attitudes/beliefs towards obesity between individuals that are categorized in different BMI categories (healthy, overweight, and obese). The Obesity Beliefs Scale (OBS) was utilized, which comprises of three subscales: Health Beliefs, Social/Aesthetic Beliefs and Cost Beliefs. All OBS items have a seven-point Likert scale response format.

The Health Belief Subscale (Questions 1-4), and the Social/Aesthetic Beliefs Subscale (Questions 5-9) were all scored on Likert scale from ‘strongly agree = 7’ to ‘strongly disagree = 1’. Higher scores on the Health Beliefs subscale indicate stronger agreement with the detrimental effect of obesity on person’s health. Higher scores on the Social/Aesthetic beliefs subscale indicate stronger agreement with the detrimental effects of obesity on social/aesthetic domain.

The Cost Subscale (questions 10-15) was scored in the reverse direction from strongly ‘agree = 1’ to ‘strongly disagree = 7’. Higher scores on the Cost subscale indicate stronger disagreement with the high cost/barriers of maintaining ideal weight.

Cronbach’s alpha was used as an initial test for internal reliability. The standard values of  $>0.9$  = excellent /  $>0.8$  = good /  $>0.7$  = acceptable / less than 0.7 = questionable was used to determine whether the subset of questions yielded similar responses. If the Cronbach’s alpha was less than 0.7, the questions within a subset were not combined into one. If Cronbach’s alpha was greater than 0.7, the questions within a subset were combined by taking the average score and rounding to the nearest whole number.

The crosstabulation with Chi squared was performed for each subscale to determine if there were any significant differences in the counts between the questions across the three categories of BMI.

## **Summary**

Chapter 3 presented the methods of the study including research design, sample, inclusion and exclusion criteria, data collection procedures, survey instruments, protection of human subjects and data analysis. Chapter 4 will present the results.



## Chapter 4. The Results

### Introduction

Chapter 4 presents the collected data and provides the results of the statistical analysis. The purpose of this study was to examine differences in knowledge and attitudes towards obesity and its comorbidities among young adults within different body mass indices (healthy, overweight, or obese).

### Demographics

Surveys were distributed to 100 undergraduate students at a public university in New Jersey. The students completed the pen and paper surveys at the end of their class, and surveys were collected using a box. The response rate was 100% (n=100).

Age: The mean age was 25.25 years with a mode of 20 years and a Standard Deviation (SD) 5.98 years (Table 1).

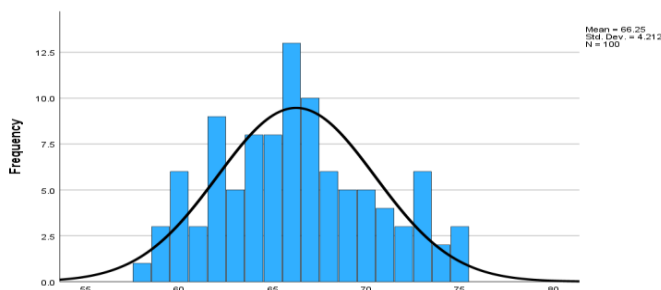
**Table 1.**  
*Descriptive statistics of participants' age in years.*

N	Valid	100
	Missing	0
Mean		25.25
Median		24.00
Mode		20
Std. Deviation		5.980

Height: The height of the respondents had a mean of 66.25 inches with a SD 4.21 inches and fell into a normal curve (Figure 1).

**Figure 1.**

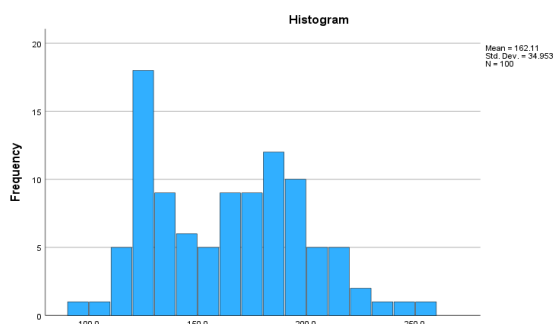
*Descriptive statistics of participants' self-reported height in inches.*



**Weight and BMI:** The mean weight of the respondents was 162.11 lbs. with SD 34.95 lbs. The mean BMI was calculated to be 25.84 with a SD 4.57 (Figures 2 and 3).

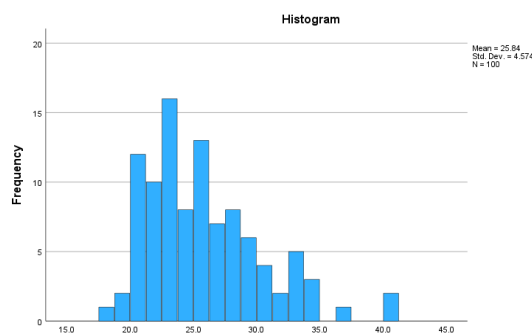
**Figure 2.**

*Self-reported weight in pounds.*



**Figure 3.**

*Body Mass Index.*



No students were identified in the underweight (BMI less than 18.5) category. Forty nine percent (n=49) of students were of healthy weight (BMI 18.5-24.9), 34% (n=34) students were identified as overweight (BMI 25-29.9) and 17% (n=17) met a category of obese (BMI  $\geq 30$ ) (Table 2).

**Table 2.**

*Descriptive statistics of participants' BMI categories.*

	Frequency	Percent
18.5-24.9 Healthy Weight	49	49.0
25-29.9 Overweight	34	34.0

>=30 Obese	17	17.0
Total	100	100.0

### Sex, Ethnicity and School Majors

The majority, 54% (n=54), of respondents were female with 38% (n=38) self-identifying as White, and 30% (n=30) as Hispanic. African American and Asians both reported at 12% (n=12) (Table 3). Thirty six percent (n=36) were majoring in Nursing, with 23% (n=23) in Biology (Table 4).

**Table 3.**  
*Descriptive statistics of participants' ethnicity.*

	Frequency	Percent
African American	12	12.0
Hispanic	30	30.0
Asian	12	12.0
White	38	38.0
Other	8	8.0
Total	100	100.0

**Table 4.**  
*Descriptive statistics of participants' school major.*

	Frequency	Percent
Nursing	36	36.0
Exercise Science	13	13.0
Sports Medicine	4	4.0
Physical Education	11	11.0
Biology (Premed)	23	23.0
Other Sciences	13	13.0
Total	100	100.0

Students were asked “Are you a student-athlete regularly participating in sports activities?” Eighty-two percent (n=82) indicate that they did not regularly participate in athletics.

### Knowledge of Obesity

There was a large variation in the number of participants who answered each individual ORK-10 question correctly. The overall average was a score of 59.6%. Below are the list of questions and the number of participants (out of 100) who correctly answered the question:

1. A person with a ‘beer-belly’ shaped stomach has an increased risk of getting diabetes → 83%
2. Obesity increases the risk of getting bowel cancer → 65%
3. An obese person who gets diabetes needs to lose at least 40% of their body weight for clear health benefits → 27%
4. Obese people can expect to live as long as nonobese people → 90%
5. Obesity increases the risk of getting breast cancer after the menopause → 45%
6. Obesity is more of a risk to health for people from South Asia (e. g. India and Pakistan) than it is for White Europeans → 13%
7. There is no major health benefit if an obese person who gets diabetes, loses weight → 89%
8. Obesity does not increase the risk of developing high blood pressure → 98%
9. It is better for a person’s health to have fat around the hips and thighs than around the stomach and waist → 38%
10. Obesity increases the risk of getting a food allergy → 48%.

The results of a crosstabulation examining the total knowledge scores (from 0-10) between the three BMI categories were as follows. The results showed what number and percentage of students in each BMI category had a specific total knowledge score (Table 5).

**Table 5.**

*Crosstabulation between BMI categories and Total knowledge scores. Percentage (%) of Total Knowledge Scores in each BMI Category with number of participants in parenthesis. Where H = healthy, OW = overweight, O = obese, and T = total.*

	0	2	3	4	5	6	7	8	9	Total
H	0.0 (0)	2.0 (1)	6.1 (3)	12.2 (6)	12.2 (6)	32.7 (16)	18.4 (9)	6.1 (3)	10.2 (5)	100.0 (49)
OW	0.0 (0)	0.0 (0)	0.0 (0)	17.6 (6)	23.5 (8)	17.6 (6)	23.5 (8)	11.8 (4)	5.9 (2)	100.0 (34)
O	5.9 (1)	0.0 (0)	0.0 (0)	11.8 (2)	23.5 (4)	17.6 (3)	35.3 (6)	5.9 (1)	0.0 (0)	100.0 (17)
T	1.0 (1)	1.0 (1)	3.0 (3)	14.0 (14)	18.0 (18)	25.0 (25)	23.0 (23)	8.0 (8)	7.0 (7)	100.0 (100)

Very few participants across all BMI categories (5%, n=5) scored between 0 and 3 out of 10 on the ORK-10 scale. Most (80%, n=80) scored between 4 and 7, and about one-sixth (15%, n=15) scored between 8 and 9. No participant answered all 10 questions correctly.

Almost half of participants (n=49) were of healthy weight. Within a healthy weight BMI category, about 8% of participants scored 0-3, about 75.5% scored 4-7, and over 16% scored 8-9. Within the overweight category (n=34), no one scored 0-3, over 82% scored 4-7, and almost 18% scored 8-9. Within the obese category (n=17), about 6 % scored 0-3, 88.4% scored 4-7, and about 6% scored 8-9.

The results of Chi-square statistics identified if there is a significant difference in the total knowledge score between the different BMI categories (Table 6).

**Table 6.**  
*Chi-Square Test for Total Knowledge scores and BMI categories.*

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	18.017	16	0.323
Likelihood Ratio	19.201	16	0.258
Linear-by-Linear Association	0.286	1	0.593
N of Valid Cases	100		

The Chi-Square test outcome was as follows, Chi-Squared (16) = 18.02, p = 0.32. Therefore, no statistically significant differences between the BMI categories and how they scored on the obesity knowledge test were identified.

### **Attitudes/Beliefs towards Obesity**

The Cronbach's alpha for the four health subset questions was 0.72, for the five social questions was 0.73 and for the cost subset 0.74. Since all Cronbach's alpha values were above 0.70 indicating an acceptable internal reliability, the questions for each subset were combined and the average was calculated for each subset. To limit the categories based on averages, these averages were rounded to the nearest whole number and these values were used for subsequent analysis.

### Health Beliefs

The results of a crosstabulation examining the total Health Beliefs scores (ranging from 1-7) between the three BMI categories were as follows. Most participants scored 'moderately agree' on Likert scale (score 5, 6%, n=6), 'agree' (score 6, 36%, n=36) or 'strongly agree' (score 7, 56%, n=56) indicating their agreement with the detrimental effects of obesity on health of individual. Very few (scores 3 and 4, 2%, n=2) were 'moderately disagree' or 'neither agree nor disagree'. No one chose 'disagree' or 'strongly disagree' (scores 1 and 2). Table 7 illustrates the number and percentage of students in each BMI category had a specific total health beliefs score.

**Table 7.**

*Crosstabulation between BMI categories and Total Health Beliefs scores. Percentage of Total Health Beliefs Scores in each BMI Category (n).*

	3	4	5	6	7	Total
Healthy	2.0% (1)	0.0% (0)	6.1% (3)	36.7% (18)	55.1% (27)	100.0% (49)
Overweight	0.0% (0)	2.9% (1)	2.9% (1)	32.4% (11)	61.8% (21)	100.0% (34)
Obese	0.0% (0)	0.0% (0)	11.8% (2)	41.2% (7)	47.1% (8)	100.0% (17)
Total	1.0% (1)	1.0% (1)	6.0% (6)	36.0% (36)	56.0% (56)	100.0% (100)

Those within the healthy weight BMI category (n=49), over 55% of participants chose 'strongly agree', over 36% chose 'agree', and slightly over 6% were 'moderately agree' with

harmful effect of obesity on the individual's health. Within the overweight category (n=34), almost 62% of participants selected 'strongly agree', over 32% chose 'agree', and about 3% chose 'moderately agree'. Within the obese category (n=17), over 47% of participants chose 'strongly agree', over 41% chose 'agree', and almost 12% chose 'moderately agree' with negative effect of obesity on health.

The results of Chi-square statistics examined if there is a significant difference in the total health beliefs score between the different BMI categories (Table 8).

**Table 8.**

*Chi-Square Test for Total Health Beliefs scores and BMI categories.*

	Value	df	Alpha (2-sided)
Pearson Chi-Square	5.166	8	0.74
Likelihood Ratio	5.69	8	0.682
Linear-by-Linear Association	0.012	1	0.914
N of Valid Cases	100		

The Chi-Square test outcome was as follows, Chi-Squared (8) = 5.17, p = 0.74.

Therefore, there are no significant differences between the BMI categories and how they scored on their obesity health beliefs subscale.

### **Social/Aesthetic Beliefs**

The results of a crosstabulation examining the total Social Beliefs scores (ranging from 1-7) between the three BMI categories were as follows. Most participants selected 'moderately agree' (score 5, 38%, n=38) and 'agree' (score 6, 27%, n=27) indicating their agreement with the detrimental effects of obesity on aesthetic/social life of individual. Nineteen percent (score 4, n=19) chose 'neither agree nor disagree', and twelve percent selected 'moderately disagree' (score 3, n=12) with the negative effect of obesity on social domain. Very few (score 7, 4%, n=4) chose 'strongly agree', and no one selected 'disagree' or 'strongly

disagree' (scores 1 and 2). The results were broken into the number and percentage of students in each BMI category for different total social beliefs scores (Table 9).

**Table 9.**

*Crosstabulation between BMI categories and Total Social Beliefs scores. Percentage of Total Social Beliefs Scores in each BMI Category (n).*

	3	4	5	6	7	Total
Healthy	10.2% (5)	14.3% (7)	46.9% (23)	26.5% (13)	2.0% (1)	100.0% (49)
Overweight	14.7% (5)	23.5% (8)	29.4% (10)	29.4% (10)	2.9% (1)	100.0% (34)
Obese	11.8% (2)	23.5% (4)	29.4% (5)	23.5% (4)	11.8% (2)	100.0% (17)
Total	12.0% (12)	19.0% (19)	38.0% (38)	27.0% (27)	4.0% (4)	100.0% (100)

Within a healthy weight BMI category (n=49), almost 47% (n=23) of participants chose 'moderately agree', about 27% (n=13) selected 'agree', and about 14% (n=7) were 'neither agree nor disagree' with harmful effect of obesity on social life. In both overweight and obese categories, about 29% selected 'moderately agree' and about 24% chose 'neither agree nor disagree'; although in overweight category 29% selected 'agree' and about 3% chose 'strongly agree', and in obese category approximately 24% chose 'agree' and about 12% selected 'strongly agree' with the detrimental effect of obesity on social life.

The results of Chi-square statistics examined if there is a significant difference in the total social beliefs score between the different BMI categories (Table 10).

**Table 10.**

*Chi-Square Tests for Total Social Beliefs scores and BMI categories.*

	Value	df	Alpha (2-sided)
Pearson Chi-Square	6.765	8	0.562
Likelihood Ratio	6.013	8	0.646
Linear-by-Linear Association	0.005	1	0.943
N of Valid Cases	100		



The Chi-Square test outcome was as follows, Chi-Squared (8) = 6.77,  $p = 0.56$ .

Therefore, there are no significant differences between the BMI categories and how they scored on their obesity social beliefs subscale.

### Cost Beliefs

The results of a crosstabulation examining the total Cost Beliefs scores (from 1-7) between the three BMI categories were as follows. Most participants responded ‘neither agree nor disagree’ (score 4, 36%,  $n=36$ ), ‘moderately disagree’ (score 5, 35%,  $n=35$ ) or ‘disagree’ (score 6, 15%,  $n=15$ ) indicating their neutrality or disagreement with the high cost/barriers of maintaining healthy weight. Six percent ( $n=6$ ) chose ‘moderately agree’ and 4% selected ‘agree’ with the high cost; also, four percent ( $n=4$ ) selected ‘strongly disagree’ and no one chose ‘strongly agree’ (score 1) with the high cost/barriers of maintaining healthy weight. The results were categorized by the number and percentage of students in each BMI category that had a specific total cost beliefs score (Table 11).

**Table 11.**

*Crosstabulation between BMI categories and Total Cost Beliefs scores. Percentage of Total Cost Beliefs Scores in each BMI Category (n).*

	2	3	4	5	6	7	Total
Healthy	2.0% (1)	4.1% (2)	30.6% (15)	40.8% (20)	16.3% (8)	6.1% (3)	100.0% (49)
Overweight	2.9% (1)	8.8% (3)	35.3% (12)	38.2% (13)	11.8% (4)	2.9% (1)	100.0% (34)
Obese	11.8% (2)	5.9% (1)	52.9% (9)	11.8% (2)	17.6% (3)	0.0% (0)	100.0% (17)
Total	4.0% (4)	6.0% (6)	36.0% (36)	35.0% (35)	15.0% (15)	4.0% (4)	100.0% (100)

Within the healthy weight BMI category ( $n=49$ ), almost 41% ( $n=20$ ) of participants chose ‘moderately disagree’, about 31% ( $n=15$ ) selected ‘neither agree nor disagree’, and over 16% ( $n=8$ ) chose ‘disagree’ with high cost of maintaining healthy weight. Within the overweight category ( $n=34$ ), almost 38% ( $n=13$ ) of participants chose ‘moderately disagree’, about 35%

(n=12) selected ‘neither agree nor disagree’, and about 12% (n=4) chose ‘disagree’ with high cost of maintaining healthy weight. Within the obese category (n=17), most participants (52%, n=9) chose ‘neither agree nor disagree’, about 18% (n=3) chose ‘disagree’ and about 12% (n=2) selected ‘moderately disagree’ with high cost/barriers of maintaining healthy weight.

The results of Chi-square statistics examined where there is a significant difference in the total cost beliefs score between the different BMI categories (Table 12).

**Table 12.**

*Chi-Square Tests for Total Cost Beliefs scores and BMI categories.*

	Value	df	Alpha (2-sided)
Pearson Chi-Square	10.534	10	0.395
Likelihood Ratio	11.104	10	0.349
Linear-by-Linear Association	4.987	1	0.026
N of Valid Cases	100		

The Chi-Square test outcome was as follows, Chi-Squared (10) = 10.53,  $p = 0.40$ .

Therefore, there are no significant differences between the BMI categories and how they scored on their obesity cost beliefs subscale.

## Summary

Chapter 4 presented the results of the study including collected demographic data and results of statistical analysis examining differences in knowledge and attitudes/beliefs towards obesity between individuals that are categorized as obese, overweight, and healthy weight relative to BMI scores. Chapter 5 will discuss the collected data and the results of statistical analysis.

## **Chapter 5. Discussion**

### **Introduction**

Chapter 5 discusses the collected data and the results of statistical analysis. The purpose of this study is to examine differences in knowledge and attitudes towards obesity and its comorbidities among young adults within different body mass indices (healthy, overweight, or obese). The discussion of the results will provide information to answer the DNP project question: are there any differences in knowledge and attitudes/beliefs towards obesity among college students of different body mass index (BMI) categories?

### **Discussion of the Results**

No significant differences between BMI categories in knowledge or obesity attitudes scores were found for this sample group.

### **Knowledge of Obesity**

Similar to the recent studies that were conducted abroad (none were found in US on this topic) this study showed a lack of knowledge of obesity risks in young adult age group and an overall agreement with the negative effect of obesity on health/social life of the individual (Diao et al., 2022) (Xue et al., 2021) (Sabiha et al., 2022).

The results of the knowledge test (average score was 59.6%) showed insufficient knowledge of obesity in young adults. There were no notable differences in knowledge between the BMI categories although healthy weight and overweight scored slightly higher (in scores 8-9) than obese participants.

For questions #1, #4, #7, and #8 - majority had a correct answer showing a sufficient knowledge. Question #9 “It is better for a person’s health to have fat around the hips and thighs than around the stomach and waist” only 38% answered correctly showing a lack of knowledge in this area. Question # 6 (13% correct answers) “Obesity is more of a risk to health for people from South Asia (e. g. India and Pakistan) than it is for White Europeans” and the question #3 (27% correct answers) “An obese person who gets diabetes needs to lose at least 40% of their body weight for clear health benefits” are both show the gap in knowledge as well. Question #5 “Obesity increases the risk of getting breast cancer after the menopause” (45% correct answers) might not be applicable for this age group. Although this sample group consisted predominantly of college-aged individuals majoring in health-care field, few answered certain questions correctly despite other questions were answered well showing the gap in knowledge that needs to be addressed by healthcare providers and educators.

Within a healthy weight BMI category, about 8% of participants scored 0-3, about 75.5% scored 4-7, and over 16% scored 8-9. Within the overweight category (n=34), no one scored 0-3, over 82% scored 4-7, and almost 18% scored 8-9. Within the obese category (n=17), about 6 % scored 0-3, 88.4% scored 4-7, and about 6% scored 8-9.

### **Attitudes towards Obesity’s Effects on Health**

Regarding participants’ attitudes toward obesity’s effect on health, the findings were non-significant and showed that majority of individuals chose ‘agree’ or ‘strongly agree’ with the detrimental effect of obesity on health. Question #2 “People should maintain an ideal body weight for optimal health” had a response of 97% from ‘moderately agree’ to ‘strongly agree’.

The same attitudes were found in similar studies conducted recently abroad (Diao et al., 2022) (Xue et al., 2021) (Sabiha et al., 2022).

Based on BMI category, the healthy weight and overweight groups were slightly more towards 'strongly agree' with the negative effect of obesity on health compared to obese group. This shows that young adults overall have strong beliefs about negative effect of obesity on health although they might not utilize their beliefs in everyday life especially those in higher BMI category.

### **Attitudes towards Obesity's Effects on Aesthetic/Social Life**

Regarding the social/aesthetic effects of obesity, the results were nonsignificant, and the average response was that the participants chose 'moderately agree' with the detrimental influence of obesity. Question #7 "Obese people would have a better social life if they lost weight" had a response of 66% from 'moderately agree' to 'strongly agree', and 17% from 'moderately disagree' to 'strongly disagree'.

This shows that young adults believe that obesity affects their social life somewhat less than their health (where they were on average strongly agree). Based on the BMI categories, the obese participants chose more towards 'strongly agree' with negative effect of obesity on their aesthetic/social life compared to healthy weight participants who mostly chose 'moderately agree'.

### **Attitudes towards Cost/Barriers**

Regarding the cost/barriers beliefs, the results were also nonsignificant and on average the participants neither agree nor disagree with high cost of maintaining healthy weight with a slight moderate disagreement with high cost. There were variations in responses based on

questions, with the majority of participants choosing 'disagree' that maintaining healthy weight is boring (#12) or makes life less fun (#14), and mainly chose 'moderately disagree' that maintaining healthy weight is expensive (#11) and 'neither agree nor disagree' that it takes a lot of effort (#13).

Based on the BMI categories, more healthy weight and overweight participants were inclined to disagree with the high cost of maintaining ideal weight while more obese participants were neither agree or disagree or were agree with high cost/barriers of maintain healthy weight. This shows that obese population might believe and be more aware of high cost/barriers of maintaining healthy weight comparably to healthy weight individuals.

### **Conclusions**

Overall, like other studies on the topic, this study concluded that young adults have an insufficient knowledge of obesity risks. They have a strong agreement with the detrimental effects of obesity on health, they moderately agree with negative effect of obesity on social life, and they have neutral attitudes towards cost/barriers of maintaining healthy weight.

### **Limitations**

Limitations of the study include the following. The convenience sample was used by collecting data only from one university in the northeast of USA. The sample size (100 participants) was relatively small, all the students were in the science-related majors, therefore the results could not be generalized to the larger population. Some questions (such as related to menopause) may not be suitable for college age population.

### **Implication for Practice**

The results of the study may have the following implication to the practice. The young adults are gaining weight faster than any other age groups (Cheng et al., 2016). Therefore, the healthcare providers should be aware and to be able to address the gaps in obesity risks knowledge in this age group as well as to be aware of the young adult's attitudes towards obesity.

The gaps in knowledge were identified on the following ORK-10 survey questions: "It is better for a person's health to have fat around the hips and thighs than around the stomach and waist"; "Obesity is more of a risk to health for people from South Asia (e. g. India and Pakistan) than it is for White Europeans" and "An obese person who gets diabetes needs to lose at least 40% of their body weight for clear health benefits". These are the topics that need to be taken into consideration when obesity is discussed with young adult patients, especially when the question relates to the patient (i.e., if they have more fat around their stomach and waist or are from South Asian descent).

About the obesity's effects on health attitudes, healthcare providers should be aware that majority of young adults strongly agree with the negative effects of obesity on health although obese population may agree less than the other BMI categories (healthy and overweight).

Regarding their social life, providers should be aware that young adults only moderately agree with detrimental effect of obesity on their social life although the obese population is agreeing more than the others BMI categories that obesity negatively affects the social/aesthetic domain.

Finally with regards to the cost attitudes, providers should be aware that although generally young adults are neutral about the cost/barriers of maintaining healthy weight, the obese population would believe they have higher cost and more obstacles in maintaining healthy weight.

Overall, the results of the study will guide the young adults' obesity related education and obesity management by healthcare providers.

### **Recommendations**

Future studies are recommended to replicate this study with the larger sample size, with the students of different majors and in the schools and the community settings located in the different geographic areas of the United States which can yield more generalized results.

### **Summary**

Chapter 5 discussed the collected data and the results of statistical analysis examining differences in knowledge and attitudes/beliefs towards obesity between individuals that are categorized as obese, overweight, and healthy weight relative to BMI scores.



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## Appendices

### Appendix A

#### Obesity Risk Knowledge Scale (ORK-10)

(Swift, Glazebrook & Macdonald, 2006)

Please circle one answer: True, False or Don't Know

1. **A person with a 'beer-belly' shaped stomach has an increased risk of getting diabetes.**  
True   False   Don't Know
2. **Obesity increases the risk of getting bowel cancer.**  
True   False   Don't Know
3. **An obese person who gets diabetes needs to lose at least 40% of their body weight for clear health benefits.**  
True   False   Don't Know
4. **Obese people can expect to live as long as nonobese people.**  
True   False   Don't Know
5. **Obesity increases the risk of getting breast cancer after the menopause.**  
True   False   Don't Know
6. **Obesity is more of a risk to health for people from South Asia (e. g. India and Pakistan) than it is for White Europeans.**  
True   False   Don't Know
7. **There is no major health benefit if an obese person who gets diabetes, loses weight.**  
True   False   Don't Know
8. **Obesity does not increase the risk of developing high blood pressure.**  
True   False   Don't Know
9. **It is better for a person's health to have fat around the hips and thighs than around the stomach and waist.**  
True   False   Don't Know
10. **Obesity increases the risk of getting a food allergy.**  
True   False   Don't Know

## Appendix B

### Obesity Belief Scale (OBS)

(Swift, Glazebrook, Novak & Anness, 2007)

Please read each statement and circle one answer:

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

#### *Health beliefs subscale*

##### **1. An obese person needs more medical care.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

##### **2. People should maintain an ideal bodyweight for optimal health.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

##### **3. Losing weight would greatly improve obese people's health.**

Strongly Agree  
Agree  
Moderately Agree

Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

**4. A person with an ideal bodyweight can lead a more active life.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

*Social and aesthetic beliefs subscale*

**5. Obese people would be treated better if they lost weight.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

**6. People with an ideal bodyweight are taken more seriously.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

**7. Obese people would have a better social life if they lost weight.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree



Disagree  
Strongly Disagree

**8. Very overweight people are considered less attractive.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

**9. Obese people are embarrassed by the way they look.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

*Costs subscale*

**10. People have to deny themselves a great deal to avoid obesity.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

**11. Maintaining an ideal bodyweight is expensive.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

**12. Maintaining an ideal bodyweight is boring.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

**13. Maintaining an ideal bodyweight takes a lot of effort.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

**14. Maintaining an ideal bodyweight makes life less fun.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

**15. A person who avoids obesity has a restricted lifestyle.**

Strongly Agree  
Agree  
Moderately Agree  
Neither Agree nor Disagree  
Moderately Disagree  
Disagree  
Strongly Disagree

## Appendix C

### Demographic Questions:

1. **What is your age in years?** \_\_\_\_\_ years old  
(Provide a number, for example 23)
2. **What is your physiological sex?**    **Male**    **Female**  
(Circle either male or female)
3. **What is your ethnicity?**    **African American**    **Hispanic**    **Asian**    **White**    **Other**  
(Circle one)
4. **What is your school major?** \_\_\_\_\_  
(For example, Nursing)
5. **Are you a student-athlete regularly participating the sports activities?**    **Yes**  
**No**  
(Circle either yes or no)
6. **What is your self-reported height in feet and inches?** \_\_\_\_\_ **Feet**  
\_\_\_\_\_ **Inches**  
(For example, 5 feet 6 inches)
7. **What is your self-reported weight in pounds?** \_\_\_\_\_ **Lbs**  
(For example, 150 lbs)

## Appendix D

### William Paterson University IRB Approval

THE WILLIAM PATERSON UNIVERSITY OF NEW JERSEY <b>INSTITUTIONAL REVIEW BOARD FOR HUMAN SUBJECT RESEARCH</b>	
c/o Office of Sponsored Programs 1800 Valley Road, Room 222 973-720-2852 (Phone) 973-720-3573 (Fax) <a href="http://www.wpunj.edu/osp/">http://www.wpunj.edu/osp/</a>	Chair: Professor Elizabeth Victor (VictorE@wpunj.edu) College of Arts, Humanities, and Social Sciences Contact: Kate Boschert (irbadministrator@wpunj.edu) Office of Sponsored Programs

To: Iryna Surmachevska  
 Doctoral Candidate of Nursing

From: Elizabeth Victor

Subject: IRB Approval (Exempted Review)

Study: Protocol # 2023-339: Knowledge and Attitudes Towards Obesity Among Young Adults. Date: May 12, 2023

The IRB has APPROVED the above study involving humans as research subjects. This study was approved as: Category: Exempted 45 CFR 46.104(b)(2)(i) and (b)(2)(ii); special class of subjects: None.

IRB Number: 2023-339      This number is WPU's IRB identification that should be used on all consent forms and correspondence.

Approval Date: 05/12/2023  
**Expiration Date: 05/11/2024**

**This approval is for one year. It is your responsibility to insure that an application for continuing review approval (WPU IRB Form Appendix D) has been submitted before the expiration date noted above.** If you do not receive approval before the expiration date, all study activities must stop until you receive a new approval letter. There will be no exceptions. In addition, you are required to submit an Appendix D form at the conclusion of the project. The Appendix D can be accessed at: <http://www.wpunj.edu/osp/irb/index.html>.

**Consent Form:** All research subjects must use the approved Informed Consent Form. You are responsible for maintaining signed consent forms (if approved for Active Consent format) for each research subject for a period of at least three years after study completion.

**Mandatory Reporting to the IRB:** The principal investigator must report immediately any serious problem, adverse effect, or outcome that is encountered while using human subjects or any complaints from your subjects. In addition, the principal investigator must report any event or series of events that prompt the temporary or permanent suspension of a research project involving human subjects or any deviations from the approved protocol using Appendix D.

**Amendments/Modifications:** You are required to carry out this research as described in the protocol. All amendments/modifications of protocols involving human subjects must have prior IRB approval, except those involving the prevention of immediate harm to a subject. Amendments/Modifications for the prevention of immediate harm to a subject must be reported within 24 hours to the IRB using Appendix D.

For exempted and expedited review protocols: the protocol will be reviewed by the entire IRB committee at its next meeting. Should questions arise that cannot be answered by the materials already provided, additional information may be requested from you. This most likely will not affect the approval status of your project—you are approved to initiate the project as of the date above, and you will not receive notice of the committee's final review. Only in the rare situation when serious questions arise will the IRB instruct that the project be discontinued until those questions are answered.

**Records/Documentation:** You are required to keep detailed records concerning this research project and appropriate documentation concerning Informed Consent in a readily accessible location for a period of not less than three (3) years. The IRB reserves the right to inspect all records, research tools and databases that are associated with this research.

If you have any questions, please do not hesitate to contact Kate Boschert at 973-720-2852 or [irbadministrator@wpunj.edu](mailto:irbadministrator@wpunj.edu), or the IRB Committee Chairperson, Dr. Elizabeth Victor, at [victore@wpunj.edu](mailto:victore@wpunj.edu).

Good Luck on your project.

## Appendix E

### Author's (Dr. Glazebrook) Permission to Use the Scales.

#### Re: Requesting permission to utilize ORK-10 and OBS scales for the DNP research project

Surmachevska, Iryna <surmachevskai@wpunj.edu>

Sat 3/4/2023 8:48 AM

To: Cris Glazebrook <cris.glazebrook@nottingham.ac.uk>

Cc: Menonna Quinn, Denise <menonnaquinnd@wpunj.edu>

Dear Dr. Glazebrook,

Thank you so much for your permission to use the ORK-10 and OBS scales for my doctorate research project.

I appreciate very much your assistance and wishing you all the best as well.

If anything else is needed please let me know.

Gratefully,

Iryna Surmachevska MSN RN AGNP-BC DNP Candidate

Email: surmachevskai@wpunj.edu

---

**From:** Cris Glazebrook <Cris.Glazebrook@nottingham.ac.uk>

**Sent:** Friday, March 3, 2023 6:50 PM

**To:** Surmachevska, Iryna <surmachevskai@wpunj.edu>

**Cc:** Menonna Quinn, Denise <menonnaquinnd@wpunj.edu>

**Subject:** RE: Requesting permission to utilize ORK-10 and OBS scales for the DNP research project

Dear Iryna

I am happy for you to use the ORK-10 and OBS scales for your thesis.

Scoring can be found Judy Swift's PhD thesis (2006) which is available online at the University of Nottingham. <https://eprints.nottingham.ac.uk/11834/1/431884.pdf>

Good luck with your studies

Best wishes

Cris

Cristine Glazebrook  
Professor of Health Psychology  
Room B12, B Floor  
Institute of Mental Health  
Jubilee Campus  
Triumph Road  
Nottingham  
NG7 2TU

[cris.glazebrook@nottingham.ac.uk](mailto:cris.glazebrook@nottingham.ac.uk)

TEL +44 (0) 115 82 30420

I am part-time and often choose to work flexibly outside normal working hours. I do not expect a response or action outside of your own working hours.

Preferred personal pronouns: She, Her

**From:** Surmachevska, Iryna <[surmachevskai@wpunj.edu](mailto:surmachevskai@wpunj.edu)>  
**Sent:** Friday, March 3, 2023 5:21 PM  
**To:** Cris Glazebrook (staff) <[mzczpg@exmail.nottingham.ac.uk](mailto:mzczpg@exmail.nottingham.ac.uk)>  
**Cc:** Menonna Quinn, Denise <[menonnaquinnd@wpunj.edu](mailto:menonnaquinnd@wpunj.edu)>  
**Subject:** Re: Requesting permission to utilize ORK-10 and OBS scales for the DNP research project

Dear Dr. Glazebrook,

I am reaching out to you again to get your permission to use ORK-10 and OBS scales in my doctorate nursing research project (please see email below).

My DNP advisor Dr. Quinn emailed you today and I left you a voice mail in the hope to connect with you as well.

Could you advise if I could use these scales for my research, please?

Thank you in advance for your assistance. Hope to hear from you soon.

Best regards,  
Iryna Surmachevska MSN RN AGNP-BC DNP Candidate  
Email: [surmachevskai@wpunj.edu](mailto:surmachevskai@wpunj.edu)

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**From:** Surmachevska, Iryna  
**Sent:** Friday, February 17, 2023 2:19 PM

**To:** [cris.glazebrook@nottingham.ac.uk](mailto:cris.glazebrook@nottingham.ac.uk) <[cris.glazebrook@nottingham.ac.uk](mailto:cris.glazebrook@nottingham.ac.uk)>

**Cc:** Menonna Quinn, Denise <[menonnaquinnd@wpunj.edu](mailto:menonnaquinnd@wpunj.edu)>

**Subject:** Requesting permission to utilize ORK-10 and OBS scales for the DNP research project

Dear Dr. Glazebrook

Please allow me to introduce myself. My name is Iryna Surmachevska, and I am a Doctor of Nursing Practice (DNP) student at William Paterson University of New Jersey, United States. I am excited to share my DNP project which is to examine Knowledge and Attitudes Towards Obesity Among Young Adults. After researching the topic and performing the literature review your articles and surveys clearly identified you as a leader on the topic.

Therefore, I am reaching out to you to respectfully request permission to utilize the Obesity Risk Knowledge Scale 10 (ORK-10) (Swift, Glazebrook & Macdonald, 2006) and the Obesity Beliefs Scale (OBS) (Swift, Glazebrook, Novak & Anness, 2007) in the DNP project. I tried to reach Dr. Swift at [judy.swift@nottingham.ac.uk](mailto:judy.swift@nottingham.ac.uk) but her email address was undeliverable.

If permission is granted, can you please advise what are the requirements as well as can you provide the scoring and reliability and validity information. Thank you in advance for your time and attention. Look forward to hearing from you soon.

Below is my contact information.

Iryna Surmachevska MSN RN AGNP-BC DNP Candidate

Email: [surmachevskai@wpunj.edu](mailto:surmachevskai@wpunj.edu)

This message and any attachment are intended solely for the addressee and may contain confidential information. If you have received this message in error, please contact the sender and delete the email and attachment.

Any views or opinions expressed by the author of this email do not necessarily reflect the views of the University of Nottingham. Email communications with the University of Nottingham may be monitored where permitted by law.



## Appendix F

### Informed Consent Form

#### William Paterson University

Project Title: **Knowledge and Attitudes Towards Obesity Among Young Adults**

Principal Investigator: Iryna Surmachevska \_\_\_\_\_

Principal Investigator Email: surmachevskai@wpunj.edu \_\_\_\_\_

Faculty Advisor: Dr. Denise Menonna Quinn \_\_\_\_\_

Faculty Advisor Phone Email: menonnaquinnd@wpunj.edu \_\_\_\_\_

Department: Department of Nursing \_\_\_\_\_

Course Name and Number: Doctor of Nursing Practice Project \_\_\_\_\_

Protocol Approval Date: 5/12/2023 \_\_\_\_\_

IRB Contact Phone Number: 973-720-2852

#### **Passive Consent Statements:**

This research questionnaire investigates knowledge and attitudes towards obesity among young adults. It is being conducted to fulfill the requirements of the Doctor of Nursing Practice Project.

I understand that my participation is voluntary, and I may stop completing the questionnaire at any time.

The risks associated with my completing this questionnaire are that I may feel uncomfortable with the survey questions, and I accept them. Benefits of my participation in this study are to assist clinicians in fighting the epidemic of obesity and I accept them.

I understand that any data collected as part of this study will be stored in a safe and secure location, and that this data will be destroyed when this research is completed or when the data is no longer needed by the investigator.

I understand that I will be an anonymous participant in this study, that no one, including the investigators will be able to connect my responses to me.

To protect my identity, I will not write my name on this document.

By providing consent for this study, I am also confirming that I am at least 18 years old.

**Consent:**

If I do not want to participate in the questionnaire, I may return it uncompleted.

If I do choose to participate, I will complete and return the questionnaire into the box provided by the researcher.