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Body Image Differences Between University Students’ Major of Study

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Body Image Differences Between University Students’ Major of Study

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Honors Research Project

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ABSTRACT

Body image is a psychological feeling, which varies greatly based on factors including age, sex, and exercise participation. Body image is a critical factor to consider; positive body image is important in the prevention of health-related problems. PURPOSE: The purpose of this study was to investigate if body image differences exist among students (Exercise Science and Engineering majors) at The University of Akron. This comparative study examining students, representative of educational background, was to explore if students’ major study of focus affected body image. METHODS: A 14-item survey using the Body Image States Scale (BISS), with questions related to sex, age, height, weight, and exercise participation, was completed for body image analysis, determining significant differences between students. Survey samples were taken through The University of Akron Qualtrics survey system, and statistical measures (including two-sample t-test analyses) were utilized to conclude relevant findings. RESULTS: The results from this study analyzed 31 total responses, 16 Exercise Science students and 15 Engineering students. The BISS results gave correlative effects of physiological and psychological components to body image. Examining the relative educational impact on body image, combined with additional components, overall significances of factors contributing to body image were determined. Independent sample t-tests revealed no significant differences: \( p=0.14 \) between Exercise Science and Engineering participants, \( p=0.09 \) between sexes, \( p=0.19 \) between sexes within the Exercise Science participants, and \( p=0.73 \) between sexes within the Engineering participants. CONCLUSION: Findings related to body image may determine if further psychological need to establish an intervention may be applicable to increase positive body image views in a particular major. Results from this study contribute to understanding determinants affecting body image, creating a comprehensive understanding of body image.
CHAPTER I

INTRODUCTION

Body image is a topic that supersedes the outward appearance of physicality by dealing with the beliefs, senses and feelings of people (NEDA, n.d.). Beliefs about appearance, how the body is sensed during movement, and feelings about height, weight and shape are aspects of how body image is reflected in the mind (NEDA, n.d.). The psychological aspect of body image relative to the physiological aspect of body image is an enigmatic concept of health.

Unfortunately, body image perception that is negative is such a prevalent problem it has been determined normative within Western society (Curtis & Loomans, 2014). Body image dissatisfaction, defined as inconsistency between a person’s ideal body and how they perceive their own body (Curtis & Loomans, 2014), is a common issue due to this normative prevalence of negative body image. Negative body image has been shown to have a direct relationship with eating behavior and self-worth (Jung-Hyun & Kyoung-Eun, 2014), which may lead to conditions that range from disordered eating and eating disturbances, depression, over-exercise, and medicinal abuse to lose or gain weight (Curtis & Loomans, 2014).

Due to the severity and magnitude of consequences body image perception can have, there is a need for extensive research to be done to investigate variables in body image. Further investigation of the components of these body image factors may help broaden the understanding of the concept of body image as a whole. The educational factor/study of health and wellness in association with body image is an important element to explore.

The purpose of this study was to examine the educational impact on body image, while addressing sex, age, height, weight, and exercise participation to determine significant differences between students’ major study of focus. In view of previous research demonstrating
multiple facets factoring into the change of the body image view, it was hypothesized that major study of focus, relative to educational level, would also reveal differences in body image. Because of the caliber of body image expectations Exercise Science students are made aware of in their studies on the human body, it is expected they will have a different body image satisfaction due to the knowledge they are given. This hypothesis is in relation to studies discovering the proposed influence of knowledge on judgments and perceptions (Showers & Larson, 1999). Research determining educational level being influential on body image (Humenikova & Gates, 2008) and studies done by O’Dea (2002) concluding that some body image educational materials actually have a negative effect on body image (especially in consideration for influence on Exercise Science students) were considered for implications in the hypothesis as well. Engineering students are likely not exposed to a curriculum with as extensive of material on the human body as Exercise Science students, so it was hypothesized that the results on body image satisfaction will demonstrate this significant difference (considering what previous research suggests) due to assumed lack of knowledge of complete wellness standards. The following questions were addressed in this study on body image:

1. Are there significant differences between body image scores of Exercise Science and Engineering students at the University of Akron?

2. Are there significant differences between male and female body image scores at the University of Akron?

3. Are there significant differences between male and female body image scores in the Exercise Science department at the University of Akron?

4. Are there significant differences between male and female body image scores in the Engineering department at the University of Akron?
CHAPTER II
REVIEW OF LITERATURE

Since a body image perception that is positive is very important in the prevention of health problems (Coelho, Padez, Moreira, Rosado, & Mourão-Carvalhal, 2013), it is important to understand potential body image differences to see if significant variance exists. Findings related to body image may determine if an intervention may be applicable to help increase body image views in a particular major for the application of the students’ future endeavors and health related aspects. Research on the subject of body image demonstrates the need for additional investigation of this topic. Research on body image has shown significant findings, which proposes consideration of the magnitude of importance of this topic.

Many studies have researched numerous variables contributing to body image dissatisfaction differences among the population. Physiological aspects are key in examining body image differences and determining dissatisfaction among the population. Studies between men and women have showed differences in body image satisfaction, making sex a variable in body image (Zaccagni, Masotti, Donati, Mazzoni, & Gualdi-Russo, 2014). Additional studies have shown body image dissatisfaction differences relative to age (Esnaola, Rodríguez, & Goñi, 2010), making this another contributing factor to body image. Weight status perception has also been shown to be a variable in body image perception (Zaccagni et al., 2014). Other research has investigated exercise in relation to body image differences (Hausenblas & Fallon, 2006), determining aspects of physical activity to be influential on body image.

Social influence is another compelling force affecting body image perception. For one, family has been shown to be an important influence on body image perception (Curtis & Loomans, 2014). Implicit parental modeling, negative communication regarding body image
between family members, and lack of communication between family members have all been shown to lead to poor body image. Positive perception of parental care is correlated to lower body image dissatisfaction (Curtis & Loomans, 2014), meaning family can also be a positive contributing factor to body image. Friends are another contributing variable to body image perception, as individuals are found to often compare themselves to friends and individuals’ friends may purposefully or even inadvertently promote a thin ideal, in which both cases lead to body image dissatisfaction. Financial status has also been found to be an important contributing factor in body image perception, as a higher socioeconomic status is associated with a smaller ideal body image and increased risk of disordered eating (Humenikova & Gates, 2008). Interaction with other individuals and imposed conditions from economic environment are overall influential on body image.

Examining social influence, media has been found to be a powerful force in the influence of body image. Media is such a strong contributing force due to the time the population (especially adolescent population) spends using various aspects of it, including internet, television, magazines, video games, and smart phones (Spurr, Berry, & Walker, 2013). Recent research has concluded that average time spent using media per day is seven hours, which has increased dramatically in the last ten years (Spurr et al., 2013). Spurr et al. (2013) also determined that the Westernized media portrayal of the ideal figure for women is typically 15% below the average weight for women and the ideal figure for men is only portrayed as lean and muscular. O’Dea (2002) discussed media images of the currently glamorized thin ideal being damaging and unhelpful to psychological welfare, especially in women. From many of these factors, it has been suggested that the stereotypical portrayal in the media of the lean, muscular man and thin women has created a negative impact psychologically (Spurr et al., 2013). It can be
concluded that body image perception is greatly influenced by media ideals, making media time a variable in body image.

This research conveys the multiple variables affecting body image, and raises questions on other variables affecting body image. Studies by Humenikova and Gates (2008) have discussed educational level also being associated with a smaller ideal body image and increased risk of disordered eating, thus concluding educational level being a potential influencing factor as well. Studies done by O'Dea (2002) concluded that some body image educational materials actually have a negative effect on body image. Though some of these materials have the intention of preventing disordered eating and improving body image perception, they are often perceived as another ideal, negatively influencing body image (especially when there is a model to portray behavior) (O’Dea, 2002). In terms of the Exercise Science field, body image education is often part of curriculum, which may have implications in the body image perception of these students. Research done by Showers and Larson (1999) discusses the potential that knowledge may influence judgments and self-perceptions. These judgments discussed by Showers and Larson (1999) and the body image variable of educational level (Humenikova & Gates, 2008) may have implications in body image among students with differing studies and emphasized curriculum. These educational and knowledge based components have been considered as influential on perceptions and body image. This study further investigates the ultimate effect of components of education, represented by university major study of focus, to determine significance.

Considering the previously researched components of body image, and the extensive number of variables producing critical consequences, additional body image variables were considered for this study. This study examined the differences between The University of Akron
students, comparing Engineering students (assumed not as knowledgeable on wellness views and standards for the healthy body based on curriculum) and Exercise Science students (assumed informed on the healthy body ideal based on curriculum) to examine variables that may influence body image in these students.
CHAPTER III

METHODS

To examine the variance between Exercise Science and Engineering students’ body image results, a student selection process and data gathering technique were developed. Additional questions based on research need were determined and added to Cash’s Body Image States Scale (Cash, Fleming, Alindogan & Whitehead, 2002), which was adapted into an online survey (see Appendix). Specific subject selection and research protocol is discussed below.

Subjects

The study consisted of a sample size of 16 Exercise Science students and 15 Engineering students collected from The University of Akron. Institutional Review Board (IRB) approval was granted and the survey was distributed. Consent for subject participation was determined through the online survey, where participants indicated voluntary consent for their information to be used in analysis. Written consent was determined non-relevant as identifiable information was in no way linked to participant response and there was no direct contact with participants. Participants in this study received the survey link through The University of Akron Zipmail, where voluntary participation was requested and direction on how to complete the survey and contact the researcher, if desired, was explained.

Participant demographics (see Table 1) for the entire study included participants’ age range from 19 to 35 years old (mean age 22.4 years old) with 48% of the responses being female participants (15 out of the 31 total responses) and 52% being male participants (16 out of 31 total responses). For the Exercise Science student population, the age range was from 19 to 31 years old, with the mean age of 22.6 years old. The results indicated 75% of the participants to be female (12 out of 16 responses) and 25% to be male (4 out of 16 responses). For the Engineering
students, the age range was from 20 to 35 years old, with a mean age of 22.2 years old. The female participants accounted for 20% of the responses (3 out of 15 responses) and male participants made up 80% of recorded responses (12 out of 15 responses).

Table 1

**Participant Sex and Study of Focus Demographics**

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<th>Males</th>
<th>Females</th>
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<tr>
<td>Exercise Science</td>
<td>4</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Engineering</td>
<td>12</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>15</td>
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Characteristics necessary for inclusion in this study required being a student enrolled at The University of Akron in a major study of focus being researched (Exercise Science or Engineering) and having computer access to take this online survey. Sex, age, race, ethnicity, and/or prior exercise participation were not limiting factors, as all willing student participants within these areas of study were welcome to participate. Students at The University of Akron who are not majoring in Exercise Science or Engineering were excluded from this study. To limit variables for comparative analysis, only two student departments were analyzed.

**Procedures**

Students were recruited through The University of Akron Zipmail survey distribution in March 2015. In the email, a direct link to the survey was attached along with information explaining this research on body image, privacy of participant responses, and referral to a local counseling center for negative body image feelings. Through the Qualtrics system (an online survey generator and data collector) data was gathered through the collective survey of the Body Image States Scale (BISS) (Cash et al., 2002) questions and research questions identifying major
study of focus, sex, age, height, weight and exercise participation (see Appendix A for survey). Once responses were completed by student participants, answers derived from the survey were entered into Excel spreadsheets (one for total responses, one for Exercise Science student responses, and one for Engineering student responses) and body mass index (BMI) and BISS scores were calculated. Independent sample t-tests were performed to examine differences between each variable between and within each group. Significance was set at $p<0.05$. 
CHAPTER IV
RESULTS

BISS Results of Exercise Science and Engineering Students at the University of Akron

An independent sample $t$-test revealed no significant differences in BISS results between Exercise Science and Engineering students, $p=0.14$.

Figure 1. Means of BISS scores by major area of study. Error bars are 95% CI.

BISS Results of Male Versus Female students

An independent sample $t$-test revealed no significant differences in BISS results between males and females, $p=0.09$. 
BISS Results of Male Versus Female students in the Exercise Science Department

No significant differences were observed between men and women within the Exercise Science participants, p=0.19.

Figure 2. Means of BISS scores by sex. Error bars are 95% CI.

BISS Results Between Sexes

Figure 3. Means of BISS scores by sex within Exercise Science students. Error bars are 95% CI.
BISS Results of Male and Female students in the Engineering Department

No significant differences were observed between men and women within the Engineering participants \( p=0.73 \).

![BISS Results Between Sexes Within Engineering Participants](image)

Figure 4. Means of BISS scores by sex within Engineering students. Error bars are 95% CI.
The primary purpose of this study was to determine whether there were significant differences between The University of Akron’s Engineering and Exercise Science students’ body images. This study also examined the potential body image differences between The University of Akron’s male and female population, both between and within the Exercise Science and Engineering departments. The proposed hypothesis that there would be significant differences between The University of Akron students’ major of study was not supported. The current investigation also did not support sex difference findings by Zaccagni and colleagues (2014), as the male and female body image scores were not significantly different.

Limitations to this study include, but are not limited to: time, small sample size, data collection through an online survey, use of only one body image survey instrument, and assumptions on major study of focus being representative of knowledge. Time and sample size were correlative within the means of gathering data for this study, as the research had to be concluded for submission to the University by a specified date. The samples gathered during the semester of research were limited, and with more time more responses may have been gathered. Time was a controlled variable as the end of the semester forced conclusion of the research. Data collected by an online survey limits participation to those willing to take an online survey and those who have access to a computer and were familiar with it. As discussed by Nulty (2008) in research, a sample size too small is not representative of the whole group of students (which is why a small sample size is ineffective in relating results for a large body of students) and an online survey will most likely only be taken by those familiar with that medium and yields lower response rates compared to traditional mediums. By the use of only one body image survey instrument for analysis, results were not as conclusive as they could have been with additional
survey instruments beyond the BISS (Cash et al., 2002). Assumptions on knowledge represented by focus of study would have been a limitation to correlational evidence.

Findings of this study may be useful in contributing to body image research and continuing the investigation on factors relating to body image. Determining body image variables and investigating the topic as whole is important in determining secondary aspects to body image, especially negative body image (including but not limited to anorexia nervosa, bulimia nervosa and body image dysphoria), and applying intervention practices.

This study examines previously researched factors for body image differences between students and goes further to determine significant differences between university students in different areas of study (correlative to educational levels) to close the gap in research done on body image and create a comprehensive understanding of body image.
CHAPTER VI
CONCLUSION

Though significant differences between The University of Akron students in the Exercise Science and Engineering departments were not determined, further studies may investigate larger sample sizes and additional variables between university students. Research here demonstrates the process of data collection and variable analysis for using the BISS results (Cash et al., 2002) and will be advantageous for further studies in this topic. To further analyze this research, determining significance between body mass index (BMI) and exercise participation (for cardiovascular and resistance exercise) data in comparison to sex or major study of focus could be done to investigate other possible determinants in body image results. Body image is a diverse subject that can be analyzed from multiple facets, and this research offers one route of body image comparison. From the information gathered, it can be determined that additional studies will be beneficial in gaining body image knowledge.

Compared to previous research, in the current study demographics were restricted to college-aged participants. Previous research has particularly targeted the adolescent population, but studies have analyzed populations of all ages. Since this researched population is somewhat older than the critical adolescent population for body image studies, this has implication in research findings.

Overall, from the information gathered in this study, methods and findings can be applied to additional populations, and health care professionals may use this research to consider body image among patients. The knowledge gained from this study may institute recognition of body image variables, promote awareness, initiate patient study, and advance intervention practices.
This research has helped develop skills in the study of body image analysis through the use of one body image survey instrument. The application of the BISS analysis and scoring system was beneficial in the comprehension of body image analysis and variables. For future study, the following ideas may be addressed:

1. Future research should assess significance of body mass index on BISS scores.
2. Future research should assess cardiovascular and resistance exercise participation on BISS scores.
3. Future research should examine other areas of study with The University of Akron to evaluate body image differences.
4. Future research should evaluate areas of study across multiple universities.
5. Future research should examine a larger sample size of students to better represent the population of the studied group.
REFERENCES


APPENDIX A

BODY IMAGE DIFFERENCES SURVEY

The following survey was distributed to students at the University of Akron through the Qualtrics system. Questions 9-14 were derived from Cash’s Body Image States Scale (2002).

1. Responses to the following questions will in no way be linked with identifiable participant information or demographics. Do you give consent for survey responses to be used in research analysis and presentation, understanding this confidentiality?
   
   I give consent for my responses to be used for analysis of body image differences.

   I do not give consent for my responses to be used for analysis of body image differences.

2. What is your current major at the University of Akron?
   
   Exercise Science
   Engineering

3. What is your gender?
   
   Male
   Female
   Trans-gender
   Other (please fill-in) _____________

4. What is your current age (in years)?

   ________________________________

5. What is your current height (in inches)?

   ________________________________

6. What is your current weight (in pounds)?

   ________________________________

7. How often do you engage in regular physical exercise (walking, running, aerobics, swimming, etc)?

   Often (4 times per week)
   Sometimes (2 times per week)
   Rarely (Sporadically)
8. **How often do you engage in strength building exercise (resistance, weight lifting, etc)?**
   - Often (4 times per week)
   - Sometimes (2 times per week)
   - Rarely (Sporadically)
   - Never

9. **Right now I feel…**
   - EXTREMELY DISSATISFIED with my physical appearance
   - MOSTLY DISSATISFIED with my physical appearance
   - MODERATELY DISSATISFIED with my physical appearance
   - SLIGHTLY DISSATISFIED with my physical appearance
   - NEITHER DISSATISFIED NOR SATISFIED with my physical appearance
   - SLIGHTLY SATISFIED with my physical appearance
   - MOSTLY SATISFIED with my physical appearance
   - EXTREMELY SATISFIED with my physical appearance

10. **Right now I feel…**
    - EXTREMELY SATISFIED with my body size and shape
    - MOSTLY SATISFIED with my body size and shape
    - MODERATELY SATISFIED with my body size and shape
    - SLIGHTLY SATISFIED with my body size and shape
    - NEITHER DISSATISFIED NOR SATISFIED with my body size and shape
    - SLIGHTLY DISSATISFIED with my body size and shape
    - MOSTLY DISSATISFIED with my body size and shape
    - EXTREMELY DISSATISFIED with my body size and shape

11. **Right now I feel…**
    - EXTREMELY SATISFIED with my weight
    - MOSTLY SATISFIED with my weight
    - MODERATELY SATISFIED with my weight
    - SLIGHTLY SATISFIED with my weight
    - NEITHER DISSATISFIED NOR SATISFIED with my weight
    - SLIGHTLY DISSATISFIED with my weight
    - MODERATELY DISSATISFIED with my weight
12. Right now I feel…

EXTREMELY physically ATTRACTIVE
VERY physically ATTRACTIVE
MODERATELY physically ATTRACTIVE
SLIGHTLY physically ATTRACTIVE
NEITHER ATTRACTIVE NOR UNATTRACTIVE
SLIGHTLY physically UNATTRACTIVE
MODERATELY physically UNATTRACTIVE
VERY physically UNATTRACTIVE
EXTREMELY physically UNATTRACTIVE

13. Right now I feel…

A GREAT DEAL WORSE about my looks than I usually feel
MUCH WORSE about my looks than I usually feel
SOMERWHAT WORSE about my looks than I usually feel
JUST SLIGHTLY WORSE about my looks than I usually feel
ABOUT THE SAME about my looks as usual
JUST SLIGHTLY BETTER about my looks than I usually feel
SOMERWHAT BETTER about my looks than I usually feel
MUCH BETTER about my looks than I usually feel
A GREAT DEAL BETTER about my looks than I usually feel

14. Right now I feel that I look…

A GREAT DEAL BETTER than the average person looks
MUCH BETTER than the average person looks
SOMERWHAT BETTER than the average person looks
JUST SLIGHTLY BETTER than the average person looks
ABOUT THE SAME as the average person looks
JUST SLIGHTLY WORSE than the average person looks
SOMERWHAT WORSE than the average person looks
MUCH WORSE than the average person looks
A GREAT Deal WORSE than the average person looks