THE ASSOCIATION BETWEEN BODY IMAGE AND INTUITIVE EATING PRACTICES

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INTRODUCTION

Background: Intuitive Eating (IE) is a lifestyle approach consisting of ten key principles aimed to nourish one's body with an emphasis on hunger and satiety cues without engaging in restrictive dieting practices (1). In relation to IE, body image is a topic of increased interest as honoring one's body is a key principle of IE (1). Previous research has indicated that IE is positively associated with a more positive body image (2,3). Along with being associated with a healthy, positive body image, IE has also been shown to be positively correlated with a lower body mass index (BMI) in college women (4).

Objective: The purpose of this research is to determine how Vanderbilt students' body image and body size relate to their participation in Intuitive Eating principles as measured by the Intuitive Eating Scale-2 (5).

Hypothesis 1: Students with a higher body image score, indicating greater body satisfaction, will be more likely to participate in Intuitive Eating and therefore score higher on the Intuitive Eating Scale-2.

Hypothesis 2: Students with a lower BMI will have higher Intuitive Eating Scale-2 scores.
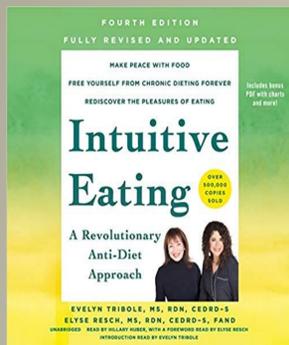
IE Score	Average BMI	Count of Survey #
1.5-2	24.56016642	1
2-2.5	26.1807947	1
2.5-3	24.22781519	3
3-3.5	22.73449018	9
3.5-4	27.55350249	7
4-4.5	23.73929768	6
4.5-5	22.99730756	3
Grand Total	24.41123482	30

Figure 1: Average IES-2 score compared to average BMI (n=30)

METHODS

Design & Distribution: A mixed methods survey was created using REDCap software (6, 7, 8) and distributed via email to Vanderbilt University students. The survey included demographic questions and inquired about students' height and weight (Figure 2), their perceived body image, and their participation in IE principles. A series of five Likert-scale style questions that inquired about students' body satisfaction (Figure 3) were asked and the scores were averaged to create their subjective body image score. Note that in the absence of a response, a "neutral response" of a 3 was selected to complete the participants' subjective body image score. Students' height and weight measurements were used to represent their objective body size via their BMI. The validated 23-item Intuitive Eating Scale-2 (IES-2) was used to measure students' overall adherence to Intuitive Eating practices. An example of a question used in the Intuitive Eating Scale-2 and its associated response distribution is represented in Figure 4. A total of 30 participants completed the survey.

Inclusion Criteria: Participants were included if they were an undergraduate or graduate student at Vanderbilt University.

Analysis: Data was exported into an Excel spreadsheet and responses were scored using the Intuitive Eating Scale-2 Scoring Procedure. Regression analysis was completed to evaluate the association between subjective body image score and IES-2 score to test Hypothesis 1. A regression analysis was also used to examine the effect of BMI on IES-2 scores to address Hypothesis 2.

Figure 2: Demographic questions and values used to determine students' BMI

Figure 3: Likert scale survey questions used to determine body image score

RESULTS

Demographics: Of the participants, 30% identified as male, 70% identified as female, and 6% identified as nonbinary. Race and ethnicity breakdown was as follows; 23% Asian American, 3% Pacific Islander, and 77% white. Of note, some participants identified with more than one race or ethnicity, or more than one gender, accounting for the sum of the percentages for each category. Of the sample, 77% were graduate students and 23% were college sophomores.

Results: Providing support for Hypothesis 1, there was strong evidence (P=0.0002) of a direct relationship between body image and IES-2 score, as shown in Figure 5. Related to Hypothesis 2, an inverse relationship between BMI and IES-2 score was noted (Figure 1), but did not support the hypothesis as this relationship was not found to be statistically significant (P = 0.116). Additionally, there was an inverse relationship between BMI and body image score, however this association was also found to not be statistically significant (P = 0.086). Of note, average IES-2 scores categorized by gender were 3.56 for males, 3.42 for females, and 3.30 for those who identified as nonbinary.

Limitations: The small sample size (n=30) and lack of ethnic diversity are the main limitations to this study as they limit this study's generalizability to the population of college students as a whole. Vanderbilt University's student population is 56% female and 44% male, while the sample had a greater proportion of female participants (70%) (9). Of the possible races and ethnicities comparable to the sample size, Vanderbilt students are 52% white, 10.1% Asian, 0.21% Native Hawaiian or other Pacific Islander, and 4.4% list two or more races (10). This study inaccurately represents the racial and ethnic makeup of Vanderbilt University as a large proportion of the sample was made up of white participants (77%).
Another possible limitation of this study is that the survey was widely distributed among students participating in Reserve Officers' Training Corps (ROTC) at Vanderbilt. Because of this, it is possible that the average BMI of our sample is lower than that of the greater population of students since ROTC members must meet specific fitness standards.

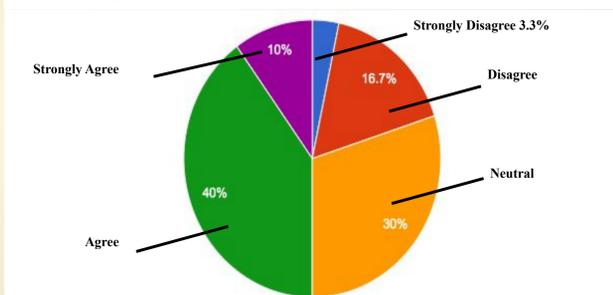### I allow myself to eat what food I desire at the moment

Strongly Disagree 3.3%
Disagree 16.7%
Neutral 30%
Agree 40%
Strongly Agree 10%

Figure 4: Example of survey responses to one of the Intuitive Eating Scale-2 questions

Intuitive Eating Scale-2 Score vs Subjective Body Image
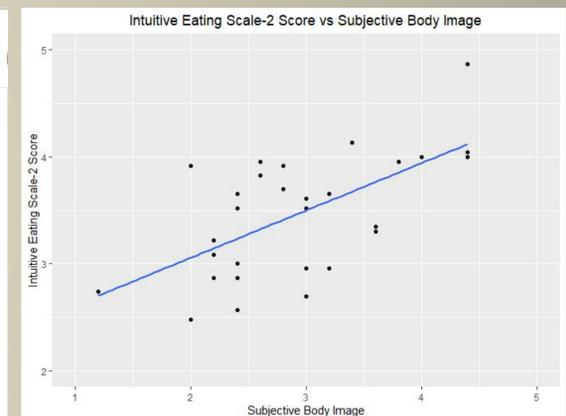
Figure 5: Analysis showed strong evidence of an association between body image and IES-2 score (P value = 0.0002)

CONCLUSIONS

Future Research: A more representative sample is needed for further research on this topic. In the future, stratified sampling could be used to ensure that all ethnic groups are represented. While this research focused primarily on evaluating body image and total Intuitive Eating Scale-2 scores, more extensive research could examine the relationship between body image and the four different subscale scores of the Intuitive Eating Scale-2. As it was noted that males scored higher than females on total IES-2 scores, future studies could focus primarily on males' experience with IE and how it may differ from females' experience with IE.

Conclusions: The purpose of this study was to understand the relationship between body image and adherence to intuitive eating practices in Vanderbilt students. It was hypothesized that higher IE scores would be associated with higher body image scores (Hypothesis 1), and a lower BMI would be associated with higher IE scores (Hypothesis 2). To investigate these hypotheses, 30 participants responded to questions inquiring about body image, objective body data, and completed the Intuitive Eating Scale-2. There was a statistically significant direct relationship between body image score and IE score, suggesting students may be inclined to follow intuitive eating practices as a result of having a positive body image, may have a positive body image as a result of their eating practices, both of these may be relevant conclusions, or there may be confounding variables at work in creating this strong association. Though the associations between BMI and IE score and BMI and body image score were not statistically significant, both associations suggested an inverse relationship exists. Potential barriers to IE adherence that can be considered in counseling this population may include having a higher BMI (>25 kg/m^2), and having a more negative body image.

REFERENCES

1. Tribole E, Resch, E. *Intuitive Eating*. New York, NY: St. Martin's Publishing Group. 2020; 1 - 368.
2. Keirns N, Hawkins MA. The relationship between intuitive eating and body image is moderated by measured body mass index. *Eating Behaviors*. 2019; 33, 91 https://doi.org/10.1016/j.eatbeh.2019.04.004
3. Linardon J, Tylka TL, Fuller-Tyszkiewicz. Intuitive eating and its psychological correlates: A meta-analysis. *Intuitive Eating*. 54(7) 1073 - 1098. doi: https://doi.org/10.1002/eat.23509
4. Hawks S, Madanat H, Hawks J, Harris A. The relationship between intuitive eating and health indicators among college women. *American Journal of Health Education*. 36(6) 331 - 336. doi: https://doi.org/10.1080/19325037.2005.10608206
5. Tylka TL, Kroon Van Diest AM. The Intuitive Eating Scale-2: Item refinement and psychometric evaluation with college women and men. *J Couns Psychology*. 2013;60(1):137-153. doi: 10.1037/a0030893.
6. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)—A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*. 2009; 42(2): 377-381. doi:10.1016/j.jbi.2008.08.010
7. Harris PA, Taylor R, Minor BL, et al. The REDCap consortium: Building an international community of software platform partners. *Journal of Biomedical Informatics*. 2019; 95: 103208. doi:10.1016/j.jbi.2019.103208
8. Obeid JS, McGraw CA, Minor BL, et al. Procurement of shared data instruments for Research Electronic Data Capture (REDCap). *Journal of Biomedical Informatics*. 2013; 46(2) :259-265. doi:10.1016/j.jbi.2012.10.006
9. Vanderbilt Demographics and Diversity Report. https://www.collegefactual.com/colleges/vanderbilt-university/student-life/diversity/) Accessed March 24 2022.
10. Enrollment. https://datausa.io/profile/university/vanderbilt-university#:~:text=The%20enrolled%20student%20population%20at,Hawaiian%20or%20Other%20Pacific%20Islanders. Accessed March 24 2022.