ABSTRACT

TEACHING THE HEALTH AT EVERY SIZE® CURRICULUM TO DIETETICS STUDENTS: A LOOK AT ANTI-FAT ATTITUDES

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The purpose of this study was to determine if teaching about the Health At Every Size (HAES) paradigm, using the recently developed HAES curriculum, to dietetics students could decrease anti-fat attitudes, increase knowledge of HAES, improve attitudes and beliefs about HAES and increase self-efficacy for using HAES. Justification for this study includes ample scientific evidence that anti-fat attitudes are pervasive among health care professionals, including Registered Dietitian Nutritionists (RDNs). The aim of this research was to contribute to the literature on possible interventions for preparing dietetics students to work with people of all shapes and sizes without bias.

A pretest/posttest study design was used to compare changes within a non-random experimental group (n = 31) and between groups using a non-random control (n = 33). Surveys were used to measure three constructs related to anti-fat attitudes: dislike, fear of fat, and willpower, as well as four constructs about HAES: knowledge, attitudes, beliefs and self-efficacy. The experimental group received the HAES curriculum as part of their dietetics coursework and the control received their dietetics coursework without the curriculum.
Anti-fat attitudes, within the three constructs, were significantly decreased, in the experimental group, compared to the control ($p = .005$). Positive attitudes about HAES decreased after the intervention, however positive beliefs and self-efficacy improved though not significantly, and scores indicating knowledge about HAES improved significantly ($p < .001$), compared to the control group.

These findings support the use of the HAES curriculum as a way to reduce anti-fat attitudes among dietetics students and increase their knowledge of a weight-neutral approach to health (HAES). The evidence indicates that dietetics students and RDNs are not adequately prepared to treat overweight and obese individuals due to high prevalence of anti-fat bias, which suggests a gap in dietetics education. The findings of this study provide support for using the HAES curriculum as a way to teach dietetics students about equal and effective treatment for people of all shapes and sizes, preparing them for ethical practice.
TEACHING THE HEALTH AT EVERY SIZE® CURRICULUM
TO DIETETICS STUDENTS: A LOOK AT
ANTI-FAT ATTITUDES

BY
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DEDICATION

To my incredibly beautiful and intelligent mother, Mary.

Thank you for everything, always.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF TABLES</th>
<th>vi</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF FIGURES</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF APPENDICES</td>
<td>viii</td>
</tr>
</tbody>
</table>

## Chapter

1. **INTRODUCTION** ................................................................. 1
   - Introduction ........................................................................ 1
   - Statement of Problem ...................................................... 7
   - Statement of Purpose ....................................................... 8
   - Research Questions .......................................................... 9
   - Hypotheses ........................................................................ 10
   - Operational Definitions ................................................... 10

2. **METHODOLOGY** ............................................................... 12
   - Introduction ....................................................................... 12
   - Sample Selection ............................................................. 14
   - Survey Instrument ............................................................ 16
   - Data Collection Procedures .............................................. 19
   - Treatment of the Data ....................................................... 21
3. RESULTS .................................................................................................................. 25
   Introduction ............................................................................................................. 25
   Anti-Fat Attitudes of Dietetics Students ................................................................. 26
   Dietetics Students’ HAES Knowledge, Attitudes, Beliefs and Self-Efficacy ....30
   Students’ HAES knowledge ................................................................................. 31
   Students’ Attitudes about HAES ....................................................................... 33
   Students’ Beliefs about HAES ............................................................................ 35
   Students’ Self-Efficacy for Using HAES ............................................................. 36
   Qualitative HAES Curriculum Feedback ............................................................. 38

4. IMPLICATIONS OF THE RESEARCH ................................................................. 40
   Discussion ............................................................................................................. 40
   Accepted Hypothesis .......................................................................................... 42
   Rejected Hypothesis .......................................................................................... 43
   Trends and Tendencies ....................................................................................... 44
   Limitations ........................................................................................................... 47
   Implications for Future Research .................................................................... 49
   Conclusions ......................................................................................................... 50

REFERENCES .......................................................................................................... 52
APPENDICES ........................................................................................................... 57
<table>
<thead>
<tr>
<th>Table Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Data collection timeline</td>
<td>20</td>
</tr>
<tr>
<td>2. Survey questions by construct</td>
<td>22</td>
</tr>
<tr>
<td>3. Survey questions by construct (continued)</td>
<td>23</td>
</tr>
<tr>
<td>4. Reliability statistics</td>
<td>26</td>
</tr>
<tr>
<td>5. Experimental group’s AFA scores</td>
<td>27</td>
</tr>
<tr>
<td>6. Changes in anti-fat attitudes within groups compared between groups</td>
<td>28</td>
</tr>
<tr>
<td>7. Anti-fat attitudes estimate values by group</td>
<td>29</td>
</tr>
<tr>
<td>8. Experimental group’s HAES PAI scores</td>
<td>31</td>
</tr>
<tr>
<td>9. Changes in HAES PAI scores within and between groups</td>
<td>33</td>
</tr>
<tr>
<td>10. Experimental group’s attitudes about HAES</td>
<td>34</td>
</tr>
<tr>
<td>11. Experimental group’s beliefs about HAES</td>
<td>36</td>
</tr>
<tr>
<td>12. Experimental group’s self-efficacy for using HAES</td>
<td>37</td>
</tr>
<tr>
<td>13. Participant comments about HAES presentations</td>
<td>39</td>
</tr>
<tr>
<td>14. Comparison of the traditional weight loss paradigm with HAES</td>
<td>71</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Research process</td>
<td>14</td>
</tr>
<tr>
<td>2.</td>
<td>Sample selection</td>
<td>16</td>
</tr>
<tr>
<td>3.</td>
<td>Descriptive statistics of participants</td>
<td>17</td>
</tr>
<tr>
<td>3.</td>
<td>Factors that influence HAES</td>
<td>62</td>
</tr>
</tbody>
</table>
### LIST OF APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. REVIEW OF LITERATURE</td>
<td>57</td>
</tr>
<tr>
<td>B. IRB EXEMPTION AND APPLICATION</td>
<td>81</td>
</tr>
<tr>
<td>C. MSU PERMISSION LETTER</td>
<td>100</td>
</tr>
<tr>
<td>D. ANTI-FAT ATTITUDES QUESTIONNAIRE</td>
<td>102</td>
</tr>
<tr>
<td>E. HAES PARADIGM ASSESSMENT INSTRUMENT</td>
<td>104</td>
</tr>
<tr>
<td>F. SURVEY INSTRUMENT</td>
<td>109</td>
</tr>
<tr>
<td>G. HAES CURRICULUM FLYER</td>
<td>115</td>
</tr>
<tr>
<td>H. RECRUITMENT SCRIPT</td>
<td>117</td>
</tr>
<tr>
<td>I. HAES CURRICULUM OUTLINE</td>
<td>120</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION TO THE STUDY

Introduction

Americans are regularly exposed to a variety of media messages that sell a thin body type as the most desirable body type for health, happiness, and beauty. These messages resonate with consumers, as they are consistent with the socially accepted truth that a body with less fat is healthier than a body with more fat. The social desirability associated with being thin is a likely motivator for the fifty million Americans who are currently on weight loss diets (1). Another likely motivator is the public health message that the U.S. is in the midst of an “obesity epidemic,” suggesting that the majority of Americans need to lose weight for health reasons due to exponentially increasing rates of overweight and obesity, which have been associated with certain chronic diseases. According to the National Center for Health Statistics of the Centers for Disease Control and Prevention, over 60% of U.S. adults were overweight or obese in 2010 and over 30% were obese in 2011-2012 (2). With these messages and more as motivators, Americans spend billions of dollars each year in attempts to lose weight (3).

Resources for weight loss abound in the U.S. One of the recommendations for those seeking to manage their weight is to utilize the services of registered dietitian nutritionists (RDNs). The Academy of Nutrition and Dietetics (The Academy), the professional
organization for food and nutrition professionals in the U.S., states that one of the top ten reasons to consult an RDN is if “you need to gain or lose weight” (4). Weight management is one of the practice areas included in the many professional roles of RDNs (pg. S24, 5). Because overweight and obesity are so prevalent and so many Americans want to lose weight, RDNs must be fully prepared to work with overweight and obese individuals, as stated in the Accreditation Council for Education in Nutrition and Dietetics (ACEND) guidelines for dietetic education (6).

However, for many individuals, the societal norm that “thinner is better” influences not only perceptions of self (7) but also perceptions of others (8). American culture has entwined an inescapable pro-thin societal norm with an anti-fat societal norm that is just as pervasive, though not as blatantly advertised. Unfortunately, anti-fat bias, stigmatization, prejudice and discrimination are widespread, and no one group seems to be immune to them. For many years, fat persons have experienced ill-treatment from family members, friends, strangers, teachers, employers and health care providers, including RDNs, because of their size (9-19). As previously stated, RDNs are a resource for individuals who are trying to lose weight; they provide the nation with advice on diet, health, and weight. Therefore, it is important that overweight or obese individuals who seek the services of an RDN don’t experience stigmatization or ill-treatment related to anti-fat biased attitudes the RDN possesses.

As evidence-based practitioners, RDNs are working to develop a cohesive professional philosophy with regard to weight management practices, and they have been doing so for many years (20, 21). The position of The Academy is “that successful weight management to improve overall health for adults requires a lifelong commitment to healthful lifestyle behaviors
emphasizing sustainable and enjoyable eating practices and daily physical activity,” yet strategies for helping clients succeed at weight management vary (21). Therefore, dietetics education should provide future RDNs with a well-informed perspective on the many potential approaches to managing the health of future overweight and obese clients, including evidence-based approaches that fall outside of the realm of the conventional weight loss-based approach such as a non-diet approach (22-28). The responsibilities of RDNs in weight management go beyond calculating calories in versus calories out. The Academy’s 2009 position paper states, “An individual’s body weight is determined by a combination of genetic, metabolic, behavioral, environmental, cultural, and socioeconomic influences. These diverse influences make treating individuals with overweight and obesity complex. Food and nutrition professionals must understand each of these aspects as they develop a shared decision-making relationship with clients.” (pg. 341, 21). Additionally, an individual’s experiences related to weight status are important for RDNs to consider when working with clients who are trying to manage their weight (13).

The evidence that overweight and obese persons experience fat discrimination in a variety of contexts including employment, education, and health care settings is overwhelming (9-19). Social stigmatization, prejudice and discrimination against fat persons have many names, including weight stigma, fat phobia, obesity bias, anti-fat bias, weight bias, fat shaming and others (9-19). Discrimination against people who are overweight has been found to be even more common and severe than racial discrimination (10, 11). However, unlike other forms of discrimination, there are no federal laws that prohibit discrimination against persons based on their weight. Just one state (Michigan) and six U.S. cities have outlawed ill treatment of
persons based on their weight (9, 10). Therefore, persons living with overweight or obesity are legally susceptible to less than equal treatment in the U.S. This vulnerability echoes the general mindset of a culture that believes people are responsible for any treatment they receive as a result of their size because weight is something that is under a person’s control. Obese individuals are generally perceived as responsible for their less-than-desirable excess pounds, and society tends to discriminate against individuals who are seen as responsible for their attributes (10).

When an individual experiences this type of discrimination, there can be very serious consequences for his or her health. Studies have shown that anti-fat bias can lead to obese persons experiencing increased vulnerability for depression, low self-esteem, anxiety and suicide, as well as increased risk for disordered eating, low physical activity, poorer weight loss outcomes, and a lowered likelihood of seeking health-care services (as cited by O’Brien, 2010, pg. 2138, 11). As this evidence suggests, anti-fat bias is a significant public health problem. This must be considered within the context of American culture, which commercially promotes weight loss and considers obesity a disease (29).

Several studies have shown that fat-bias among RDNs and dietetics students is prevalent and difficult to change (15, 17, 18, 35, 36). There is a fine line between advocating for health and maintaining anti-fat biases, which can lead to discrimination. Therefore, preventing or reducing anti-fat bias among RDNs is specifically important because RDNs are positioned, in the healthcare field and in the community, to work with a high percentage of clients who fit into categories of overweight. The RDN’s position as a nutrition counselor and
health advocate may have a particular influence over clients’ attitudes about food, eating, and body image, which must not be clouded with bias in order to produce positive outcomes.

Educating future RDNs on the complex nature of overweight and obesity (i.e. interplay of controllable and uncontrollable causes) may work to reduce their levels of anti-fat bias before they become professionals (12, 30, 31). Additionally, educating about the psychosocial aspects of being overweight, such as experiencing stigmatization and shame related to body size, to increase awareness and encourage size acceptance, may work to reduce anti-fat bias among RDNs (12, 30, 31). In conjunction, future RDNs ought to be educated on strategies for helping individuals improve their health status regardless of their weight; as The Academy’s weight management position paper states, “The goals of weight management go well beyond numbers on a scale, whether or not weight change is one of the management objectives” (21).

One educational tool that may be used to reduce anti-fat bias among future health professionals is the Health At Every Size® (HAES®) curriculum, which was released to the public in August, 2013 by the Association for Size Diversity and Health (ASDAH), the National Association for the Advancement of Fat Acceptance (NAAFA), and the Society for Nutrition Education and Behavior (SNEB) (32). The HAES curriculum is a peer-reviewed program comprised of three lessons (approximately sixty minutes each) that were designed to educate future health professionals about how to approach health from a weight-neutral perspective, using the HAES model. The HAES model allows practitioners to promote health and size acceptance simultaneously based on the following HAES principles:
1. Accepting and respecting the diversity of body shapes and sizes.

2. Recognizing that health and well-being are multi-dimensional and that they include physical, social, spiritual, occupational, emotional, and intellectual aspects.

3. Promoting all aspects of health and well-being for people of all sizes.

4. Promoting eating in a manner which balances individual nutritional needs, hunger, satiety, appetite and pleasure.

5. Promoting individually appropriate, enjoyable, life-enhancing physical activity, rather than exercise that is focused on a goal of weight loss (32).

The HAES curriculum lessons are titled “Health At Every Size Overview,” “Developing a healthy relationship with food and physical activity,” and “Size acceptance.” These three lessons could teach dietetics students about the principles of HAES as part of an evidence-based education to potentially reduce any anti-fat bias they already have (31). The ideas presented in the HAES curriculum introduce a new paradigm that accepts all body sizes and focuses on health, not weight (32). Therefore, teaching the HAES curriculum may change the views of dietetics students from the prevailing weight-based perspective to a weight-neutral perspective because it presents evidence to contradict the former and support the latter (31). According to the theory of cognitive dissonance, the human mind strives to eliminate inconsistencies that are psychologically uncomfortable; therefore the existence of conflicting thoughts or beliefs, known as cognitive dissonance, motivates an individual to shift his or her thinking toward consistency (33). The HAES model is an entirely new way of thinking about health and weight and it directly opposes the prevailing weight-based paradigm that suggests
weight is tightly bound to health and happiness. As a result, teaching the HAES curriculum to dietetics students is likely to create cognitive dissonance, which could lead to a shift in thinking away from anti-fat biased attitudes.

Statement of the Problem

The most recent standards for didactic programs in dietetics (DPDs) include guidelines maintaining that students are to “be prepared to work with overweight and obese persons in professional practice” (6). However, the guidelines do not specify how students are to “be prepared,” thereby leaving any education about prevailing negative attitudes and beliefs surrounding fat persons or how anti-fat bias is likely to affect future clients as optional. Likewise, ACEND approved programs do not require education to reduce anti-fat bias before the dietetics student becomes a practitioner (6, 34). Given the evidence that many dietetics students and RDNs have anti-fat biased attitudes and therefore may not be able to adequately, appropriately, and ethically treat their obese clients, it seems there is a gap in dietetics education (17, 18, 35, 36). In response to this problem, this study proposes to implement the recently developed HAES curriculum in an attempt to reduce dietetics students’ anti-fat attitudes. Including the HAES curriculum in dietetics education to better prepare students to work with overweight and obese individuals could help ensure ethical and effective professional practices by reducing anti-fat attitudes.

This study is important to the field of nutrition and dietetics and other health sciences. It is particularly important with respect to the education of those pursuing careers in health
science fields. Given the prevailing anti-fat biased attitude of society, future health professionals may benefit from being provided with evidence during their formal education that supports equal and ethical treatment for their future overweight and obese clients. Any of the students’ anti-fat attitudes that may exist will be challenged if they are educated about the evidence-based causes of overweight and obesity and the scientifically supported influence of body weight on overall health and wellbeing. If pre-professionals are made aware of the potential to do more harm than good by focusing on weight loss, instead of healthy behavior change, they may have decreased anti-fat attitudes that will positively affect their future treatment of overweight and obese clients.

Currently, these lessons are not required educational pieces for future health professionals, including RDNs. Therefore, this research explores the effects of the HAES curriculum as an educational tool that may be used to provide much needed learning experiences for those entering into the health services. The HAES paradigm is still new to many (37), and the HAES curriculum was very recently developed and has not undergone testing. This study examines the efficacy and influence of the HAES curriculum to contribute to the literature on its uses in educating future health professionals.

Statement of the Purpose

The purpose of this study was to formally investigate whether the HAES curriculum reduced anti-fat biased attitudes in upper level dietetics students, within the following constructs:
• Dislike - prejudice against fat people

• Fear of Fat - self-relevant concerns about fatness

• Willpower - belief in the controllability of weight

A secondary purpose of this study was to informally determine if implementing the HAES curriculum increased upper level dietetics students’ understanding and support of HAES, by measuring the following constructs:

• Perceived knowledge of HAES

• Attitudes toward HAES

• Beliefs about HAES

• Self-efficacy for using HAES

Research Questions

1. For upper level dietetics students who are taught the three lessons of the HAES curriculum as part of their dietetics education, do anti-fat biased attitudes decrease within the constructs of dislike, fear of fat, and willpower, compared to upper level dietetics students who are not taught the HAES curriculum?

2. For upper level dietetics students who are taught the three lessons of the HAES curriculum as part of their dietetics education, do scores on the HAES Paradigm Assessment Instrument (PAI) increase within the constructs of perceived overall knowledge of HAES,
attitudes toward HAES, beliefs about HAES, and self-efficacy for using HAES, compared to upper level dietetics students who are not taught the HAES curriculum?

Hypotheses

1. Upper level dietetics students will have decreased anti-fat attitudes within the constructs of dislike, fear of fat, and willpower after receiving three lessons from the HAES curriculum as part of their dietetics coursework, compared to students who did not receive the lessons from the HAES curriculum.

2. Upper level dietetics students will have increased scores on the HAES PAI within the constructs of perceived knowledge of HAES, attitudes toward HAES, beliefs about HAES, and self-efficacy for using HAES after receiving three lessons from the HAES curriculum as part of their dietetics coursework, compared to students who did not receive the lessons from the HAES curriculum.

Operational Definitions

1. Anti-fat attitude – negative feelings toward fat, someone in reference to their weight status as a fat person, or fat people as a group, in a way that includes blaming the individual or group for their weight status.

2. Anti-fat bias – prejudice against fat, a fat person, or fat people as a group compared with thin people as a group, in a way that is considered to be unfair.
3. Anti-fat biased attitude – negative feelings that include blame and produce prejudice against fat, a fat person, or fat people as a group, in a way that is considered to be unfair.

4. BMI- Body Mass Index; a value determined based on an individual’s height and body weight using the following equation: Weight (kg)/Height (m)^2

5. Dietetics student – undergraduate student enrolled in an ACEND accredited DPD program at a four year institution in the U.S.

6. Fat person – Someone who has more than average adipose tissue on his or her body.

7. Obese – A person with a BMI of 30 or greater, according the National Institutes of Health (38) and Centers for Disease Control (2).

8. Overweight – A person with a BMI of 25 – 29.9, according to the National Institutes of Health (38) and Centers for Disease Control (2).

9. Upper level – qualifying as a junior or senior based on enrollment in a 400-level undergraduate course.
CHAPTER 2

METHODOLOGY

Introduction

Prior to the data collection phase, a small pilot study was conducted with 23 lower-level students in the Principles of Food Preparation course at Northern Illinois University (FCNS 200A). The researcher administered surveys to the class and asked for feedback regarding their ability to understand the consent, the instructions, and the questions that were part of the survey. The pilot revealed that students were able to understand the survey instrument, including the consent portion, instructions, and questions, without difficulty. Of the 23 participants (13 dietetics majors and 10 non-dietetics majors) that participated in the pilot, none had any questions or concerns about the survey, nor did they leave any questions unanswered. Data from the pilot study was not used in any part of the analysis for this study.

The NIU Institutional Review Board (IRB) determined that this study met criteria for exemption, as defined by the U.S. Department of Health and Human Services Regulations for the Protection of Human Subjects (Appendix B). Confirmation from the MSU IRB was obtained through email indicating that their approval was not required for MSU students to participate as the control group for this study. Additionally, the professor of the MSU course, Computerized Foodservice Management, supplied a letter of approval to the researcher specifying the dates and locations that she had agreed to for her students to participate in the study (Appendix C).
The primary dependent variable was anti-fat attitudes, which was divided into three constructs: dislike, fear of fat, and willpower. Secondary dependent variables included self-efficacy for using HAES, beliefs about HAES, knowledge of HAES, and attitudes toward HAES. The independent variable was the HAES curriculum and demographics were controlled for as covariates.

This quasi-experimental study used a pretest/posttest design with an experimental group and a control group as seen in Figure 1. A criterion-based sample of upper level dietetics students was used for this study and convenience sampling was used to recruit participants. Randomization was not feasible for implementation of the educational intervention therefore a non-randomized sample was used and students who wished to participate were automatically placed in experimental or control groups, based on which university they were attending. Both groups were enrolled in upper level dietetics coursework as part of an ACEND accredited didactic program in dietetics (DPD). The experimental group received an educational intervention, the HAES curriculum, in addition to the usual DPD coursework. The control group received the typical DPD coursework without the addition of the HAES curriculum.
Sample Selection

Due to the nature of the research questions, a criterion-based sample was used: upper level dietetics students currently working to complete their dietetics education as part of a DPD program. Dietetics students were recruited at two universities with ACEND accredited DPDs: Northern Illinois University (NIU) and Michigan State University (MSU). This study used a convenience sample. Implementation of the intervention required students to be assigned to
groups; therefore non-random assignment was used for this study. At NIU, students in an upper level dietetics class with a lab component, Community Nutrition (FCNS 410), were recruited to participate as part of the experimental group. At MSU, students in an upper level dietetics class with a lab component, Computer Foodservice Management (HNF 444), were recruited to participate as part of the control group.

An A Priori power analysis showed that, given an effect size of 0.50 and a confidence interval of .95, the total sample size needed was 35 subjects for an actual power of .95. Based on enrollment in the two courses, there were a total of 91 possible participants. There were 39 students enrolled in the NIU course (experimental group) and 52 students enrolled in the MSU course (control group). Of those, 31 participants completed both the pretest and posttest surveys as part of the experimental group (75% participation) and 33 participants completed both the pretest and posttest surveys as part of the control group (63% participation). Any student who completed only the pretest or the posttest but not both was excluded from the total sample as shown in Figure 2. Of the possible participants (N = 91) there were a total of 64 (70% participation) completed surveys used for this study. This participation rate is fairly comparable to other studies with similar populations, for example in a 2009 study of obesity bias among RD[N]s, Edelstein and colleagues reported a 73% participation rate (39).
The sample used for this study was comprised of undergraduate students enrolled in
ACEND accredited DPD programs at four-year state universities in the Midwestern United
States. The majority of the 64 participants in the sample reported that they were white (85.7%)
females (93.8%) and age 22 or younger (62.5%) (Figure 3).
Two questionnaires were combined to create a 33-question survey for measuring the dependent variables, and informed consent was included on the front page of the survey (Appendix C). To measure the primary dependent variable, the Anti-fat Attitudes (AFA) Questionnaire was used as part of the survey instrument. The AFA questionnaire is divided into three subscales: Dislike, Fear of Fat, and Willpower (52) (Appendix D). In a 1999 study, Quinn and Crocker reported adding three items to the Dislike subscale to increase internal consistency ($\alpha = .89$) and five items to the Willpower subscale to increase internal consistency ($\alpha = 0.84$) (52, 53). The extended subscales that were developed by Quinn and Crocker were used for this study,

**Figure 3**

Descriptive statistics of participants
with permission given by the author through email. The original AFA Fear of Fat subscale was used \( (\alpha = .79) \) (52).

In a previous study of a preliminary version of the HAES curriculum, an informal assessment tool was used to measure changes in students’ knowledge, attitudes, beliefs and self-efficacy about HAES (Brown 2009) (Appendix E). This tool is still being developed as the HAES PAI. Correspondence with the author revealed that the instrument has shown face validity through testing but has not yet undergone formal testing for validity or reliability. The author gave permission via email for use of the HAES PAI in this study. It measured the secondary dependent variables. A Cronbach’s alpha correlation coefficient of \( \alpha = .568 \) was obtained from this research project for constructs 4-7, which is the HAES PAI portion of the survey, indicating acceptable internal consistency.

These tools, the expanded AFA questionnaire and the HAES PAI, which included demographic questions, were combined into one 33-question survey instrument for this study (Appendix F). The survey was labeled as Nutrition & Dietetics Consent and Survey, which worked as a neutral way to refer to it throughout the study. The posttest survey provided to the experimental group included an open-ended question at the end of the survey for students to provide qualitative feedback about the curriculum if they desired. Some students \( (n= 9) \) answered the open-ended question, and their answers are reported in the results section, though there were too few for a formal qualitative analysis.
Data Collection Procedures

All surveys were administered in person. The graduate assistant for the Community Nutrition course at NIU administered all surveys to the experimental group. The researcher administered all surveys to the control group at MSU in East Lansing, Michigan. At both universities, pretest data was collected during lab periods in the weeks prior to the implementation of the intervention. The graduate assistant for the Community Nutrition course at NIU presented the HAES curriculum in person to the experimental group in a classroom setting at NIU in DeKalb, Illinois. The first HAES lesson was given to the whole experimental group during a Tuesday lecture time. The second presentation was given to half of the experimental group at a time, during lab periods, due to limited lecture time that the instructor could dedicate to the HAES curriculum. Therefore, after the Tuesday lecture period, half of the class received the second HAES presentation during the lab period that afternoon. The other half of the class received the second presentation during the Thursday lab period after lecture as seen in Table 1. The third lesson from the curriculum was presented during the Thursday lecture to the entire class. The researcher observed from the back of the classroom and listened to class discussion as each of the presentations was given to the experimental group. The researcher at MSU and the graduate assistant at NIU administered posttest surveys during lab periods in the weeks after the intervention was implemented. In order to ensure that students in the control group had the opportunity to receive the benefits of the intervention, a flyer with information about the HAES curriculum was offered to everyone in the control group, after the posttests were all submitted (Appendix G).
Incentive for participation included one entry in a drawing for a $25 Amazon gift card for each survey completed. Two drawings were held, one after the pretest phase was completed and another after the posttest phase was completed. When students submitted their completed surveys, they were given an entry ticket for the drawing. Students filled out their own tickets then dropped them into a bag for the drawing. After each drawing, tickets were disposed of immediately.

Per the instructor of the NIU course, students in the intervention group received two points of class credit each time they completed a survey. Surveys were optional and students had the opportunity to choose another two-point assignment; however, none of the students opted for an alternative assignment. The graduate assistant assigned the two points of credit to each student as they submitted the completed survey.
In order to match pre and post surveys, each participant was asked to write a code at the top of his or her completed survey before submitting it to the researcher. The instructions for the code were given orally as part of the recruitment script and were also posted on the board for participants to refer to (Appendix H). Each survey was briefly checked for completion upon submission but the only identifier was the code to link pretests to posttests; therefore answers remained anonymous.

Treatment of the Data

The twenty-two questions from the AFA portion of the survey fit into three constructs as seen in Table 2. Participants answered each AFA question using a 9-point Likert-type scale, ranging from 1 (I completely disagree) to 9 (I completely agree). For all AFA questions, higher scores indicated increased anti-fat attitudes. Scores for these questions were analyzed to measure changes in anti-fat attitudes pre and post, between groups and within groups. Additionally, the scores were analyzed by construct to measure changes in Dislike, Fear of Fat, and Willpower; pre and post; between and within groups.
Table 2
Survey questions by construct

<table>
<thead>
<tr>
<th>AFA scored on 9-point scale</th>
<th>1</th>
<th>Dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. I really don’t like fat people much.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. I don’t have many friends that are fat.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. I tend to think that people who are overweight are a little untrustworthy.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Although some fat people are surely smart, in general, I think they tend not to be quite as bright as normal weight people.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. I have a hard time taking fat people too seriously.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Fat people make me feel somewhat uncomfortable.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. If I were an employer looking to hire, I might avoid hiring a fat person.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. I feel repulsed when I see a fat person.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Fat people disgust me.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. I have an immediate negative reaction when I meet a fat person.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Fear of Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. I feel disgusted with myself when I gain weight.</td>
<td></td>
</tr>
<tr>
<td>12. One of the worst things that could happen to me would be if I gained 25 pounds.</td>
<td></td>
</tr>
<tr>
<td>13. I worry about becoming fat.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>Will-power</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. People who weigh too much could lose at least some part of their weight through a little exercise.</td>
<td></td>
</tr>
<tr>
<td>15. Some people are fat because they have no willpower.</td>
<td></td>
</tr>
<tr>
<td>16. Fat people tend to be fat pretty much through their own fault.</td>
<td></td>
</tr>
<tr>
<td>17. Fat people can lose weight if they really want to.</td>
<td></td>
</tr>
<tr>
<td>18. Weight is something that is under a person’s control.</td>
<td></td>
</tr>
<tr>
<td>19. Through a combination of exercise and dieting, anyone can lose weight and keep it off indefinitely.</td>
<td></td>
</tr>
<tr>
<td>20. The medical problems that overweight people have are their own fault.</td>
<td></td>
</tr>
<tr>
<td>21. Overweight people are responsible for their own problems.</td>
<td></td>
</tr>
</tbody>
</table>

There were eight questions belonging to four constructs in the HAES PAI section of the survey as seen in Table 3. Each of those questions was answered on a Likert 5-point scale, where each scale was designed to fit each question. For example, question 23 asks participants to answer, “I would like to learn more about a HAES approach to health promotion” on a scale from 1 (no interest) to 5 (high interest). For question 28, “I feel that one of my responsibilities as
a health professional is/will be to help end the obesity epidemic by promoting caloric restriction and exercise for overweight and obese people,” participants were asked to answer using a scale of 1 (I strongly disagree) to 5 (I strongly agree). This is the only question on the HAES PAI with a lower score indicating a positive belief about the HAES paradigm and a higher score indicating negative belief about the HAES paradigm. For the other seven HAES questions, higher scores indicate more knowledge, positive attitude and beliefs and higher self-efficacy for using HAES. Therefore the data for question 28 was reverse-scored to maintain consistency in analysis of the data.

Table 3

Survey question by construct (continued)

<table>
<thead>
<tr>
<th>HAES PAI scored on 5-point scale</th>
<th>HAES Knowledge</th>
<th>22. I would rate my overall understanding of a “Health at Every Size” (HAES) approach to health promotion as.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 HAES Knowledge</td>
<td>5 HAES Attitude</td>
<td>23. I would like to learn more about a HAES approach to health promotion. 24. I would rate my current attitude towards a HAES approach to health promotion as.</td>
</tr>
<tr>
<td>6 HAES Beliefs</td>
<td>7 HAES Self-efficacy</td>
<td>25. I would rate my ability to use a HAES approach to health promotion in individual counseling as. 27. I would rate my ability to design programs incorporating a HAES approach to health promotion as.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26. I believe the HAES approach to health promotion is “evidenced based”, i.e. is based on scientific research. 28. I feel that one of my responsibilities, as a health professional is/will be to help end the obesity epidemic by promoting caloric restriction and exercise for overweight and obese people. 29. I feel that one of my responsibilities, as a health professional is/will be to help reduce risk of chronic disease by promoting healthy eating and physical activity for individuals and families.</td>
</tr>
</tbody>
</table>
Question 30 asked participants to identify themselves as an undergraduate student with a nutrition/dietetics major, a non-nutrition/dietetics major, or other. This question was somewhat redundant, since the courses were only open to undergraduate students with a declared major in nutrition/dietetics. However, several students (n=4) marked the other category for this question. Those that did so indicated completion of a previous baccalaureate program and enrollment in the qualifying course as part of a second baccalaureate program. Questions 31 – 33 asked participants to provide information about their age, gender identity and racial/ethnic identity. To control for education background, age, gender and race/ethnicity, questions 30 – 33 were controlled for as covariates in the analysis to prevent biased results.

Participation in this study was completely optional, as indicated in the consent paragraph on the front page of the survey. There may have been potential discomfort or emotional distress experienced if a participant was sensitive to the topics of the survey or the intervention. For this reason, participants were provided with contact information of the researcher, the thesis advisor and the Research Compliance Office at NIU if they had any questions or concerns. Participants were free to leave any questions unanswered or choose the neutral response as an answer if they did not feel comfortable answering any of the survey questions. It was unlikely that answering short questions about individual attitudes and beliefs using a Likert-type scale would have presented any long-term emotional distress, so the study proceeded, and indeed no problems arose during the course of this study.
CHAPTER 3

RESULTS

Introduction

This research was conducted using a non-probabilistic convenience criterion-based sample of upper level dietetics students enrolled in courses as part of ACEND accredited DPD programs. Universities with qualifying courses were chosen based on convenience, and control and experimental groups were assigned based on university, due to the nature of the intervention. Recruitment from two courses with a total of 91 students enrolled yielded a total sample of 64 students, a total participation rate of 70%. Out of 39 students in the experimental group, 31 participants completed the pretest and posttest, a participation rate of 79%. Out of 52 students in the control group, 33 participants completed the pretest and posttest, a participation rate of 63%. This study examined the difference between the experimental group’s scores before and after the intervention and compared that difference to the change in the control group’s scores. Changes in anti-fat attitudes were examined using the AFA questionnaire scores. The HAES PAI scores were compared to measure changes in knowledge of HAES, attitudes toward HAES, beliefs about HAES, and self-efficacy for using HAES. Also, the scores for the seven constructs were measured individually to further understand overall scores. An alpha level of .05 was used for all statistical tests of significance. A measure of internal consistency showed that the reliability
of the twenty-nine-question survey (AFA and HAES PAI combined) was acceptable ($\alpha = .881$) as shown in Table 4.

**Table 4**

**Reliability Statistics**

<table>
<thead>
<tr>
<th>Survey</th>
<th>Constructs</th>
<th>Questions</th>
<th>Cronbach’s $\alpha$</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFA</td>
<td>1 – 3</td>
<td>1 – 21</td>
<td>.684</td>
</tr>
<tr>
<td>HAES PAI</td>
<td>4 – 7</td>
<td>22 – 29</td>
<td>.568</td>
</tr>
<tr>
<td>Combined</td>
<td>1 – 7</td>
<td>1 – 29</td>
<td>.881</td>
</tr>
</tbody>
</table>

Anti-fat Attitudes of Dietetics Students

Table 5 presents changes in the experimental group’s (n=31) AFA scores that were measured before and after exposure to the HAES curriculum. A Cronbach’s alpha test for internal consistency was conducted for the AFA portion of the survey showing a score of $\alpha = .684$ for questions 1 – 21 (Table 4). The AFA questionnaire used a Likert-type scale to measure anti-fat attitudes. The scale ranged from 1 (I completely disagree) to 9 (I completely agree) and the average score for the AFA portion of the survey before the HAES intervention was 4.66±1.83, indicating that some anti-fat attitudes were present, but anti-fat attitudes were not necessarily strong. After the three lessons of the HAES curriculum were presented to the experimental group, the average score for the AFA portion of the survey was 4.09±1.90,
indicating a significant decrease in anti-fat attitudes overall after the HAES intervention \((p < .001)\).

**Table 5**

**Experimental group AFA scores**

| Questions                  | Mean (SD) Pretest | Mean (SD) Posttest | Contrast Estimate | Std. Error | \(p\) - value \\
|----------------------------|------------------|-------------------|------------------|------------|--------------
| C1: Dislike Q1 – Q10       | 2.60 (1.57)      | 2.48 (1.58)       | .105             | .138       | .451         \\
| C2: Fear of Fat Q11 – Q13  | 6.00 (2.05)      | 5.13 (2.32)       | .893             | .274       | .002**       \\
| C3: Willpower Q14 – Q21    | 5.38 (1.88)      | 4.68 (1.79)       | .674             | .195       | .001**       \\
| AFA questionnaire          | 4.66 (1.83)      | 4.09 (1.90)       | 1.67             | .453       | .000***      \\

* \(p\)-value < .05; ** \(p\)-value < .01; *** \(p\)-value < .001

The scores from the AFA questionnaire were divided into three constructs of Dislike, Fear of Fat and Willpower. Before exposure to the HAES curriculum, the average score for construct number one was lowest at 2.60±1.57, indicating that outright dislike of fat people (explicit anti-fat attitudes reflecting prejudice against fat people) was the lowest scoring anti-fat attitude in the group. After the intervention, the score for the Dislike construct reduced to 2.48±1.58, showing some decrease in anti-fat attitudes within the construct of Dislike, or explicitly disliking fat people. However, the decrease was not statistically significant when covariates were considered \((p = .451)\).

The experimental group’s pretest scores for the second construct, Fear of Fat, were the highest average of the three constructs (6.00±2.05), indicating that self-relevant concerns about fatness were the highest anti-fat attitudes measured in this sample of dietetic students. After the
HAES intervention, the experimental group’s Fear of Fat scores decreased to 5.13±2.32. When covariates were controlled for, the change in anti-fat attitudes regarding fear of self-fatness after the intervention was found to be statistically significant ($p = .002$).

The third construct, Willpower, measured anti-fat attitudes regarding the students’ beliefs about the controllability of weight and fat. Before the intervention the average score in the experimental group was 5.38±1.88. After the intervention, the average score in the experimental group was 4.68±1.79, indicating a statistically significant change in anti-fat attitudes within the Willpower construct when covariates were controlled for ($p = .001$).

Overall, there were decreases in anti-fat attitudes scores within the experimental group after they received the HAES curriculum as part of their DPD coursework within all three constructs. Specifically, there were significant decreases within the Fear of Fat and Willpower constructs after the intervention (Table 5). The biggest change in anti-fat attitudes within the experimental group was seen in the Willpower construct, indicating a significant change in attitudes about the controllability of weight and fat.

Table 6 presents the changes in anti-fat attitudes pre/post intervention within the experimental group compared to the changes in anti-fat attitudes within the control group over the same time period. A linear mixed model was used to analyze the data. Pre and post are the repeated measures, anti-fat attitudes are the response variable and the demographic variables are covariates.
Table 6

Changes in anti-fat attitudes within groups compared between groups

<table>
<thead>
<tr>
<th>Questions</th>
<th>Contrast Estimate</th>
<th>Std. Error</th>
<th>p - value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1: Dislike Q1 – Q10</td>
<td>.513</td>
<td>.196</td>
<td>.011*</td>
</tr>
<tr>
<td>C2: Fear of Fat Q11 – Q13</td>
<td>.811</td>
<td>.388</td>
<td>.041*</td>
</tr>
<tr>
<td>C3: Willpower Q14 – Q21</td>
<td>.563</td>
<td>.277</td>
<td>.046*</td>
</tr>
<tr>
<td>AFA questionnaire Q1 – Q21</td>
<td>1.88</td>
<td>.642</td>
<td>.005**</td>
</tr>
</tbody>
</table>

* p-value < .05; ** p-value < .01; ***p-value < .001

Table 7 shows the AFA estimates for each group, pre and post. These values were used to test a null hypothesis that the change within the experimental group was equal to the change in the control group. The difference in AFA estimates from pre to post for the experimental group was measured (.160 – (-1.51) = 1.67) against the difference in AFA estimates for the control group from pre to post (-.208 – 0 = -.208). Because the values are not equal (1.67 ≠ -.208), the null hypothesis was rejected. The difference between pre and post AFA scores were significantly different between the two groups (p=.005). Anti-fat attitudes in the experimental group decreased significantly after receiving the lessons from the HAES curriculum compared to students who did not receive the lessons from the HAES curriculum. Therefore, the first hypothesis for this study “upper level dietetics students will have decreased anti-fat attitudes within the constructs of dislike, fear of fat, and willpower after receiving three lessons from the HAES curriculum as part of their dietetics coursework, compared to students who did not receive the lessons from the HAES curriculum” has been accepted.
Table 7

Anti-fat attitudes estimate values by group

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimate</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest group 1</td>
<td>.160</td>
<td>1.23</td>
</tr>
<tr>
<td>Posttest group 1</td>
<td>-1.51</td>
<td>1.21</td>
</tr>
<tr>
<td>Pretest group 2</td>
<td>-.208</td>
<td>.454</td>
</tr>
<tr>
<td>Posttest group 2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

a. This parameter is set to zero because it is redundant.

Dietetics Students’ HAES Knowledge, Attitudes, Beliefs and Self-Efficacy

Table 8 presents changes in the experimental group’s HAES PAI scores that were measured before and after exposure to the HAES curriculum. A Cronbach’s alpha test for internal consistency was conducted for the HAES PAI portion of the survey with a score of \( \alpha = .568 \) for questions 22 – 29 (Table 4). The HAES PAI used a 5-point Likert scale to measure perceived knowledge of HAES, attitudes toward HAES, beliefs about HAES and self-efficacy for using HAES. The scale ranged from one to five for each question, with 1 as low knowledge/self-efficacy and negative attitudes/beliefs and 5 as high knowledge/self-efficacy and positive attitudes/beliefs. The exception to this scoring system was question 28, which had a range from 1= positive belief about HAES to 5= negative belief about HAES. Therefore, as previously stated, answers to question 28 were reverse-scored. The average score for the HAES PAI portion of the survey before the HAES intervention was 3.31±0.95, indicating the experimental group already had some perceived knowledge about HAES, as well as some positive beliefs and attitudes, and some self-efficacy for using HAES. After the three lessons of the HAES curriculum were presented to the experimental group, the average score for the HAES
PAI portion of the survey was 3.58±0.85, indicating a significant change in HAES knowledge, attitudes, beliefs and self-efficacy overall after the intervention (p = .001).

Table 8
Experimental group’s HAES PAI scores

<table>
<thead>
<tr>
<th>Questions</th>
<th>Mean (SD) Pretest</th>
<th>Mean (SD) Posttest</th>
<th>Contrast Estimate</th>
<th>Std. Error</th>
<th>p - value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C4: HAES knowledge Q22</td>
<td>2.74 (1.26)</td>
<td>4.10 (0.60)</td>
<td>-1.36</td>
<td>.192</td>
<td>.000***</td>
</tr>
<tr>
<td>C5: HAES attitude Q23 – Q24</td>
<td>4.08 (0.88)</td>
<td>3.47 (1.15)</td>
<td>.645</td>
<td>.163</td>
<td>.000***</td>
</tr>
<tr>
<td>C6: HAES beliefs Q26 &amp; Q28 – Q29</td>
<td>3.29 (0.41)</td>
<td>3.47 (0.66)</td>
<td>-.178</td>
<td>.093</td>
<td>.061</td>
</tr>
<tr>
<td>C7: HAES self-efficacy Q25 &amp; Q 27</td>
<td>3.15 (1.23)</td>
<td>3.26 (0.99)</td>
<td>.029</td>
<td>.277</td>
<td>.915</td>
</tr>
<tr>
<td>HAES PAI scores Q22 – Q29</td>
<td>3.31 (0.95)</td>
<td>3.58 (0.85)</td>
<td>-1.68</td>
<td>.485</td>
<td>.001**</td>
</tr>
</tbody>
</table>

* p-value < .05; ** p-value < .01; ***p-value <.001

Students’ HAES Knowledge

Perceived knowledge of HAES, the fourth construct, showed the biggest change from pretest to posttest in the experimental group (Table 8). This construct consisted of only one question: “I would rate my overall understanding of a ‘Health at Every Size’ (HAES) approach to health promotion as.” Participants were asked to answer on a scale of 1 (no understanding) to 5 (excellent understanding). The experimental group’s pretest scores (M = 2.74, SD = 1.26) averaged between 2 (little understanding) and 3 (some understanding). After the intervention, their scores (M = 4.10, SD = 0.60) averaged between 4 (good understanding) and 5 (excellent
understanding), which showed a statistically significant difference in perceived knowledge about HAES ($p < .001$).

Interestingly, question 24 also provides some information regarding students’ knowledge about HAES. The question asks, “I would rate my current attitude towards a HAES approach to health promotion as,” with a scale from 1 (very negative) to 5 (very positive). However, there is an addendum to the question that states “Check here if you have no knowledge of HAES; do not select a response below.” Before the intervention, eighteen participants in the experimental group selected a response to question 24, indicating that 42% of the experimental group ($n = 13$) had no knowledge of HAES at all prior to the intervention. In the control group, twenty-two participants answered question 24 at the pretest, indicating that 33% of the control group had no knowledge of HAES at all at the time of the pretest ($n = 11$). After the intervention, all of the participants in the experimental group answered question 24, indicating that all had some knowledge of HAES after the intervention ($n = 31$). At the time of the posttest, twenty-four participants in the control group answered question 24, indicating that even without the intervention, 2 participants in the control group gained some knowledge of HAES between pretest and posttest. However, 27% of the control group still had no knowledge of HAES at the time of the posttest, while 100% of the experimental group had at least some knowledge after the intervention. This suggests that the lessons from the HAES curriculum resulted in knowledge of the HAES paradigm that may not have been present without the lessons. This information from question 24 reinforces the results from the variable that was tested using question 22, the difference in level of perceived knowledge, which increased significantly within the experimental group after the intervention ($p < .001$) and the increase was significant when
compared to the change in perceived knowledge of HAES in the control group as seen in Table 9 ($p < .001$).

**Table 9**

**Changes in HAES PAI scores within and between groups**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Contrast Estimate</th>
<th>Std. Error</th>
<th>$p$ - value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C4: Perceived Knowledge Q22</td>
<td>-1.54</td>
<td>.272</td>
<td>.000***</td>
</tr>
<tr>
<td>C5: Attitudes Q23 – 24</td>
<td>.369</td>
<td>.231</td>
<td>.114</td>
</tr>
<tr>
<td>C6: Beliefs Q26 &amp; Q28 – Q29</td>
<td>-.167</td>
<td>.131</td>
<td>.209</td>
</tr>
<tr>
<td>C7: Self-Efficacy Q 25 &amp; Q 27</td>
<td>-.271</td>
<td>.361</td>
<td>.457</td>
</tr>
<tr>
<td>HAES PAI Q22 – Q29</td>
<td>-2.64</td>
<td>.686</td>
<td>.000***</td>
</tr>
</tbody>
</table>

* $p$-value < .05; ** $p$-value < .01; ***$p$-value < .001

---

**Students’ Attitudes About HAES**

Attitudes about HAES, the fifth construct, changed significantly from pretest to posttest in the experimental group ($p < .001$) (Table 8). However, the change observed was a decrease in scores after the intervention. At the pretest, the experimental group’s scores ($M = 4.08$, $SD = 0.88$) averaged between somewhat positive and very positive and posttest scores ($M = 3.47$, $SD = 1.15$) averaged between neutral and somewhat positive, indicating a decrease in positive attitudes about HAES after the lessons from the HAES curriculum.

Table 10 shows scores by question in construct five. Question 23 measured attitudes by asking about participants’ interest in learning more about HAES, using a scale from 1 (no interest), which was considered to be a negative attitude about HAE) to 5 (high interest), which
was considered a positive attitude about HAES. Question 24 measured attitudes by asking about
the participants’ current attitudes toward HAES. As previously stated, question 24 had an
addendum that allowed participants to bypass the question if they had no knowledge of HAES,
and several students in the experimental group did bypass question 24 at the time of the pretest,
which meant that fewer responses were averaged into the results for this question (n = 18). After
the intervention, all of the participants in the experimental group answered question 24, as the
intervention provided them with some knowledge of HAES. This suggests that 13 of the
responses at the posttest were attitudes that had been measured for the first time at the posttest
and therefore they had no chance to increase or decrease. This suggestion prompted a closer look
at the scores of the eighteen participants who answered question 24 at both pretest and posttest
and this comparison also shows a decrease in average attitudes scores for question 24. Therefore,
attitudes toward HAES in the experimental group, measured by two questions in construct five,
significantly decreased after the intervention (p < .001). However, as seen in Table 9, changes in
attitudes within the experimental group were not significantly different when compared to
changes in the control group (p = .114).

<table>
<thead>
<tr>
<th>Questions in construct five</th>
<th>n</th>
<th>Pre/Post</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q23: “I would like to learn more about a HAES approach to health promotion.”</td>
<td>31</td>
<td>Pre</td>
<td>4.26 (0.89)</td>
</tr>
<tr>
<td></td>
<td>31</td>
<td>Post</td>
<td>3.45 (1.41)</td>
</tr>
<tr>
<td>Q24: “I would rate my current attitude towards a HAES approach to health promotion as.”</td>
<td>18</td>
<td>Pre</td>
<td>3.61 (0.98)</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>Post</td>
<td>3.39 (1.87)</td>
</tr>
<tr>
<td></td>
<td>31</td>
<td>Post</td>
<td>3.52 (1.12)</td>
</tr>
</tbody>
</table>
The sixth construct measured changes in students’ beliefs about HAES. Results showed that beliefs about HAES before the intervention (M = 3.29, SD = 0.41) became somewhat more positive after the intervention (M = 3.47, SD = 0.66) but they were not significantly different from pretest to posttest in the experimental group (p = .061) (Table 8).

Construct six had three questions in it to measure beliefs about HAES as shown in Table 11. Question 26 asks participants to agree or disagree that HAES is evidence-based, using a scale from 1 = strongly disagree to 5 = strongly agree. Participant responses averaged the same before and after the intervention, although the standard deviation of responses increased, indicating more variability without an overall change in beliefs about HAES being evidence-based. Using the same scale as question 26, questions 28 and 29 ask about beliefs indirectly by asking participants to agree or disagree with statements about feelings of responsibility as a future health professional. Though the scale for responses was the same, answers for question 28 were reverse-scored because the statement contradicts the HAES paradigm. Interestingly, scores for question 28 before the intervention (M = 1.87, SD = 1.06) were between 1 (strongly agree) and 2 (somewhat agree) and after the intervention scores increased to between 2 (somewhat agree) and 3 (not sure) (M = 2.52, SD = 1.29), indicating an increase in beliefs that are more consistent with HAES after the intervention. However, answers to question 29 before the intervention (M = 4.71, SD 0.74) were not persistent after the intervention when scores, on average, dropped somewhat (M = 4.61, SD = 0.67). Due to lack of a change in scores for question 26 and the slight drop in scores for question 29, the change in scores for question 28 was not enough to show significant overall evidence of increased positive beliefs about HAES (p = .061). Additionally, when
compared to the control group, the change in scores within the experimental group was not statistically significant ($p = 2.09$) (Table 9).

**Table 11**

**Experimental group’s beliefs about HAES**

<table>
<thead>
<tr>
<th>Questions in construct six (n = 31)</th>
<th>Pre/Post</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q26: “I believe the HAES approach to health promotion is ‘evidence-based,’ i.e. is based on scientific research.”</td>
<td>Pre</td>
<td>3.29 (0.74)</td>
</tr>
<tr>
<td>Post</td>
<td>3.29 (1.04)</td>
<td></td>
</tr>
<tr>
<td>Q28: “I feel that one of my responsibilities as a health professional is/will be to help end the obesity epidemic by promoting caloric restriction and exercise for overweight and obese people.”</td>
<td>Pre</td>
<td>1.87 (1.06)</td>
</tr>
<tr>
<td>Post</td>
<td>2.52 (1.29)</td>
<td></td>
</tr>
<tr>
<td>Q29: “I feel that one of my responsibilities as a health professional is/will be to help reduce the risk of chronic disease by promoting healthy eating and physical activity for individuals and families.”</td>
<td>Pre</td>
<td>4.71 (0.74)</td>
</tr>
<tr>
<td>Post</td>
<td>4.61 (0.67)</td>
<td></td>
</tr>
</tbody>
</table>

**Students’ Self-Efficacy for Using HAES**

The seventh and final construct measured changes in students’ self-efficacy for using HAES in individual counseling and designing programs. Results showed that self-efficacy for using HAES before the intervention ($M = 3.15$, $SD = 1.23$) increased somewhat after the intervention ($M = 3.26$, $SD = 0.99$) but scores were not significantly different from pretest to posttest in the experimental group ($p = .915$) (Table 8). Construct 7 consisted of two questions and both had an option to opt out of answering if the participant did not plan to do individual counseling or design programs. As a result, fewer than the sample of 31 participants in the experimental group answered these two questions; as shown in Table 12, thirteen students answered both pre and post for question 25 and fourteen students answered both pre and post for
question 27. Students’ intentions for planning to counsel or design programs seemed to change over the time frame of the intervention.

**Table 12**

**Experimental group’s self-efficacy for using HAES**

<table>
<thead>
<tr>
<th>Questions in construct seven</th>
<th>n</th>
<th>Pre/Post</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q25: “I would rate my ability to use a HAES approach to health promotion in individual counseling as.”</td>
<td>13</td>
<td>Pre</td>
<td>3.00 (1.32)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post</td>
<td>3.14 (1.07)</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>Pre</td>
<td>3.18 (0.98)</td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>Post</td>
<td>3.30 (1.02)</td>
</tr>
<tr>
<td>Q27: “I would rate my ability to design programs incorporating a HAES approach to health promotion as.”</td>
<td>15</td>
<td>Pre</td>
<td>3.07 (1.16)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post</td>
<td>3.33 (1.11)</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>Pre</td>
<td>3.12 (1.11)</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>Post</td>
<td>3.21 (1.02)</td>
</tr>
</tbody>
</table>

Differences in scores for those that completed pre and post test questions for each showed an increase in self-efficacy for using HAES during individual counseling but especially for incorporating HAES when designing programs as average scores for those fourteen jumped from 3±1.09 to 4±0.93 (Table 8). However, when considered with demographic variables and all the participant responses, these changes were not statistically significant ($p = .915$). Also, when compared to the control group, the change in scores was not significant ($p = .457$) as seen in Table 9.

**Qualitative HAES Curriculum Feedback**

Table 13 shows the responses that participants in the experimental group gave when they were given one open-ended opportunity to provide feedback after the intervention. At the end of
The posttest survey the students were asked to “Please include any comments you would like to make about the presentations that you have seen on HAES:” Nine students (29%) wrote comments about their thoughts regarding the HAES presentations and many of their comments expressed similar views. Some comments seemed to communicate both something positive and something negative about the HAES curriculum, though some were only positive or negative. Overall, an equal amount of positive and negative responses were communicated through the comments (Table 13). Due to the limited number of responses given, no formal qualitative analysis of these comments was conducted; however, these comments have some similar themes that are discussed in relation to the quantitative results in the implications section.
## Table 13

### Participant comments about HAES presentations

<table>
<thead>
<tr>
<th>Comments taken from surveys</th>
<th>Expressed positivity or negativity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loved it! Makes way more sense than what we are taught traditionally in school.</td>
<td>+</td>
</tr>
<tr>
<td>I’m glad I know about another theory out there but I don’t feel wrong saying I disagree with that idea. It kind of goes against everything I’ve learned as a nutrition student while in this program.</td>
<td>+ -</td>
</tr>
<tr>
<td>Great to learn about HAES and I do agree with some of the ideas just not all. It is important to be exposed to all information whether I agree or disagree.</td>
<td>+ -</td>
</tr>
<tr>
<td>It was very informative and I am grateful this was included in our curriculum.</td>
<td>+</td>
</tr>
<tr>
<td>Enjoyed the presentations. HAES is growing on me.</td>
<td>+</td>
</tr>
<tr>
<td>Info was a bit condescending at times – good overall message.</td>
<td>+ -</td>
</tr>
<tr>
<td>The presentation made it seem as if wanting to lose weight is a negative thing. It also didn’t mention that extra weight can really limit physical activities for an individual.</td>
<td>-</td>
</tr>
<tr>
<td>I think the idea behind HAES needs improvement. There are many controversial points made and the way they are presented doesn’t help.</td>
<td>-</td>
</tr>
<tr>
<td>I think the presentation started off a little rocky. I think the survey was a poor way to introduce nutrition majors to the HAES program and that it hindered our ability to learn about the program objectively and without bias. I think that also made it harder for the presenter to connect with the audience.</td>
<td>-</td>
</tr>
</tbody>
</table>
CHAPTER 4

IMPLICATIONS OF THE RESEARCH

Discussion

The purpose of this study was to determine if anti-fat attitudes in three constructs (dislike, fear of fat, and willpower) could be decreased in dietetics students if they received the lessons of the HAES curriculum compared to dietetics students who did not receive the HAES curriculum. Research has demonstrated that an anti-fat bias exists among RDNs and dietetics students (15, 17, 18, 35, 36, 39). HAES is a paradigm that promotes size acceptance and a shift away from an anti-fat mentality. This study tested the possibility of teaching the HAES paradigm as a way to create cognitive dissonance in a population that might otherwise have intentionally or unintentionally accepted a pro-thin/anti-fat societal norm and later perpetuated it in professional practice. By creating an internal motivational state, known as cognitive dissonance (33), which pressures an individual to alter one of two conflicting cognitions, this study aimed to challenge anti-fat attitudes and beliefs in a way that resulted in a shift in cognition away from a weight-based worldview. Negative thoughts and feelings about fat people that could have potentially resulted in unethical and ineffective treatment were opposed by the positive messages taught in the HAES curriculum; it focused on accepting people of all sizes instead of shaming and blaming individuals for the size of their bodies; it promoted working to help clients achieve metabolic health and fitness rather than urging weight manipulation through diets and exercise; and it
encouraged the inclusion of psychosocial aspects of health into treatment instead of ignoring and discrediting the effects of feelings and experiences on a person’s health. This study aimed to use these positive messages: acceptance, feasible achievement, and inclusion of multi-factorial health considerations, to reach a population that may have previously been taught to approach health from a perspective based on limited outcome measures (weight) and inclusivity, one that trusts that only those who fit within a certain BMI, weight range, or jeans size can be healthy and happy, and it was meant to challenge that trust and change that perspective. The initial analysis of the data showed that learning about the HAES paradigm through the curriculum worked to decrease the anti-fat attitudes of dietetics students within the three constructs as compared to a control group.

This study also investigated if learning about HAES through the curriculum increased students’ knowledge and self-efficacy and improved their attitudes and beliefs about HAES. The HAES curriculum is new (2013); therefore one of the objectives of this study was to measure its effectiveness as an educational tool that encourages adopting the HAES model. According to the website, where the curriculum is available to the public, “The purpose of this curriculum is to educate students in higher education about the Health At Every Size principles. [It] was developed to educate others on adopting a weight neutral approach towards health, thereby filling a void in health curriculum at colleges, universities, and professional training programs” (32). Therefore, scores on the HAES PAI measured students’ levels of perceived knowledge of HAES, attitudes and beliefs about HAES, and levels of self-efficacy for using HAES to determine if the curriculum is effective. A previous study that measured the efficacy of an earlier version of the curriculum used the HAES PAI and found significant results (31). For this study, the initial analyses indicated that, compared to the control group, overall HAES PAI scores were
significantly improved. However, further analyses revealed that the change was inconsistent across constructs and significance was limited to an increase in perceived knowledge of the HAES curriculum compared to the control group.

Accepted Hypothesis

After students received the three lessons of the HAES curriculum, scores on the AFA questionnaire decreased significantly, revealing that anti-fat attitudes within the experimental group were lessened after learning about HAES. Within the experimental group, scores decreased in all three AFA constructs and two of the three constructs showed statistically significant decreases: Fear of Fat and Willpower. Additionally, the changes in AFA scores compared between groups showed that changes in the experimental group’s anti-fat attitudes were significant overall, compared to changes in the control group. The change between groups was statistically significant in each of the three constructs: Therefore, the first hypothesis for this study “upper level dietetics students will have decreased anti-fat attitudes within the constructs of dislike, fear of fat, and willpower after receiving three lessons from the HAES curriculum as part of their dietetics coursework, compared to students who did not receive the lessons from the HAES curriculum” has been accepted. Dislike, Fear of Fat, and Willpower. Overall anti-fat attitudes within the three constructs were significantly decreased within and between groups as a potential result of the addition of the HAES curriculum to the typical DPD coursework.

Though there is a paucity of evidence to support preventing or reducing anti-fat bias among dietetics students (48), some studies have shown significant changes in anti-fat bias in health pre-professionals using educational interventions (30, 42, 44, 49) and some have
effectively used HAES to change anti-fat attitudes (41, 42). One such study used a preliminary version of the HAES curriculum to influence students’ perceptions and saw positive results (41). However, this is the first study to measure the effects of the HAES curriculum on anti-fat attitudes and the only study to test teaching HAES to dietetics students as part of their DPD curriculum. Consequently, this study provides a unique contribution to the upcoming literature supporting the HAES curriculum.

Rejected Hypothesis

Though the initial analysis showed a statistically significant improvement in overall HAES PAI scores between groups, the changes were inconsistent across constructs. Further analysis of the questions by construct revealed that although perceived knowledge of HAES significantly improved, positive attitudes about HAES decreased, and although positive beliefs about HAES and self-efficacy for using HAES improved, the change was not statistically significant compared to changes in the control group. Therefore, the second hypothesis for this study, “upper level dietetics students will have increased scores on the HAES PAI within the constructs of perceived knowledge of HAES, attitudes toward HAES, beliefs about HAES, and self-efficacy for using HAES after receiving three lessons from the HAES curriculum as part of their dietetics coursework, compared to students who did not receive the lessons from the HAES curriculum,” was rejected. Overall, HAES PAI scores within the four constructs were inconsistently changed within and between groups as a consequence of the addition of the HAES curriculum to the typical DPD coursework. While the HAES curriculum worked to significantly increase the experimental group’s perceived knowledge of HAES, it decreased their positive attitudes about HAES and their beliefs and self-efficacy were improved, but not significantly.
These findings conflict with findings from the preliminary study using the HAES PAI to measure the effects of an earlier version of the HAES curriculum (41). In that study, the survey was not divided into four constructs. Instead, each question on the HAES PAI was measured for significance pre and post. Results indicated a significant increased understanding of HAES, improved attitude toward HAES, increased recognition of HAES as evidence-based, and decreased belief in calorie restriction and exercise as ways to combat the obesity epidemic (41). Differences could be attributed to the method of analysis, the new version of the HAES curriculum, the delivery of the curriculum or many other factors. Consequently, something to take away from this study is that the HAES curriculum could be used as a tool to educate about the HAES paradigm, as intended, but it may not be enough to get students to adopt a weight neutral approach right away. Some of the qualitative feedback supported these results, as several students made comments that they were glad to have the knowledge, but they disagree with the HAES model. This result was not wholly unexpected, as HAES has proven to be a controversial model (50, 51).

**Trends and Tendencies**

The results of the survey showed a somewhat moderate level of anti-fat attitudes to begin with (M = 4.66, SD = 1.83) and only 13 (42%) students answered question 24, indicating that the other 18 (58%) of students had no knowledge of HAES, which is reflected by the responses to question 22 (M = 2.74, SD = 1.26) (Table 8). The messages presented in the HAES curriculum are based on HAES principles, which contradict an anti-fat mentality by promoting size acceptance, intuitive eating and physical activity, and a weight-neutral approach to health management (32, 40). After receiving the lessons, at the posttest, participants had a good to
excellent understanding of HAES (M = 2.74, SD = 1.26) (Table 8) and a significantly lower level of anti-fat attitudes (p = .005) (Table 6). Though the research on teaching HAES is not robust, previous studies have shown similar results (41, 42). A shift in attitudes may result from conflicting cognitions that cause cognitive dissonance when the ideas of HAES are presented. The HAES paradigm can be controversial for those who have previously embraced an anti-fat mentality, knowingly or unknowingly. It may be that cognitive dissonance occurs when an individual is presented with a new belief system (HAES) that conflicts with their current belief system (anti-fat mentality). According to the theory of cognitive dissonance, when two contradicting cognitions are present, shifts in thinking occur as a way to reach cognitive consistency (43).

Prior to the curriculum, students’ AFA scores indicated that on average they had anti-fat attitudes that are consistent with the prevailing belief system that supports notions such as, for an overweight person, the benefits of weight loss resulting from a calorie restricted diet would outweigh any potential harm. The HAES curriculum directly contested the prevailing belief system that health is dependent on weight; therefore it pushed for a shift in cognition away from anti-fat attitudes. The curriculum presents ideas that support equal treatment of clients, health promotion through healthy eating and physical activity, and social equality, which at their core are consistent with typical dietetics coursework (6). However, they presented these ideas within the context of a paradigm (HAES) which opposes the weight-based approach to health, which is inconsistent with typical dietetics coursework (6, 36). Therefore, participants were left with a choice once they had learned a new perspective on these issues that were already part of their belief system as part of a different, weight-neutral paradigm. Answers to questions 28 and 29 on the pretest reflect this, as seen in Table 11; students agreed with the statement, “I feel that one of
my responsibilities, as a health professional is/will be to help end the obesity epidemic by promoting caloric restriction and exercise for overweight and obese people” (M = 1.87, SD = 1.06) and also agreed with the statement “I feel that one of my responsibilities as a health professional is/will be to help reduce risk of chronic disease by promoting healthy eating and physical activity for individuals and families” (M = 4.71, SD = 0.74). After the intervention, scores moved for the question that supports a weight-based paradigm (question 28) from somewhat agree/strongly agree to not sure/somewhat agree (M = 2.52, SD = 1.29) but scores for the question that fits into both paradigms (question 29) remained at somewhat agree/strongly agree (M = 4.61, SD = 0.67).

Although the cognitive dissonance created by the educational intervention in this study is different from dissonance strategies that are used in other studies (44 – 47), the results of this study suggest that creating dissonance through education about HAES was an effective way to reduce anti-fat attitudes among dietetics students who might not otherwise be exposed to a weight-neutral perspective. One of the participants said it well in a written comment about the curriculum on the posttest: “It kind of goes against everything I’ve learned as a nutrition student in this program” (Table 13). By creating cognitive dissonance, the HAES curriculum really challenged the students to think about some of the things they had previously accepted as true, such as “The medical problems that overweight people have are are their own fault” (question 20). Also, it compelled them to ask if they really believed things they had accepted regarding subjects that directly relate to their future career such as, “Through a combination of exercise and dieting, anyone can lose weight and keep it off indefinitely” (question 19). Additionally, the Size Acceptance presentation seemed to drive participants to seek cognitive consistency by
postulating that a weight-based paradigm is unethical because it leads to size discrimination, and providing the alternative of a weight-neutral approach that does not discriminate.

The prevailing paradigm suggests that ethical practice includes promoting weight loss in individuals who are considered to be overweight while the HAES paradigm suggests that promoting weight loss in overweight and obese individuals does more harm than good and is therefore unethical. The fact that the prevailing paradigm and the HAES paradigm oppose on an ethical level led many participants in this study to verbalize during class discussion (which was not limited to slides that were labelled “Pause for Discussion”) that they disagree with the HAES paradigm, which was reflected by scores showing decreased positive attitudes about HAES (Table 10). According to the theory of cognitive dissonance, because of the opposing nature of the HAES paradigm to the prevailing weight-based paradigm, it was extremely unlikely that participants would be able maintain that both were true (33). The dissonance that was created may have actually shifted some participants’ thinking away from embracing a HAES approach. However, even without HAES buy-in, the HAES curriculum significantly shifted thinking away from anti-fat attitudes and significantly increased perceived knowledge of the HAES paradigm. The findings from this study suggest that if dietetics students know about HAES they will be more likely to ethically treat their future overweight and obese clients by approaching them with less biased attitudes than if they had not known about HAES.

Limitations

Although the results showed a significant decrease in scores across constructs when compared against the control group, the dislike construct did not show a significant change within the experimental group after the intervention. This could possibly be attributed to the type
of anti-fat attitudes that are measured using the AFA questionnaire: explicit attitudes, those that the participant is aware of. Examining another type of anti-fat attitudes may have produced better results; a measurement of implicit attitudes would have included biases the subject may not even be aware he or she possesses; therefore testing for implicit anti-fat attitudes can reveal more than what the participant would usually share on a survey as demonstrated by previous studies (14, 15). Since the AFA questionnaire only measures explicit anti-fat attitudes, it may be that true levels of dislike for fat persons were not measured because participants were unable to recognize their own biases. Additionally, the questions from construct one are direct questions about disliking a group of people based on one characteristic (fatness). Participants may have felt some social responsibility to answer a certain way regardless of their instinct to answer another way. Therefore the use of the AFA questionnaire could be considered a limitation of this study.

This research used a quasi-experimental design, so it lacked randomization and used a convenience sample. The results may be biased based on the fact that samples were recruited in two specific classes at two specific Midwestern universities. Results may also have been biased based on automatic grouping of participants in the experimental or control group. These factors limit generalizability for the findings of this study, which cannot be generalized to the entire population of dietetics students due to sampling bias.

The small sample size and limited time frame for this research were also limitations that may have affected the results. Because the intervention is three lessons long, it is possible that not every participant in the experimental group attended class on the days that all three presentations were given. Because the sample size was already small and there was limited time for teaching the curriculum as outlined in the syllabus, results were used in the analysis from all participants who received at least some of the curriculum, which was everyone in the
experimental group. Additionally, the HAES curriculum was created with the intention that the presentations should be given in a certain order; “HAES overview”, followed by “Developing a Health Relationship with Food and Exercise”, followed by “Size Acceptance.” Due to time limitations, some of the participants did not receive the lessons in this order (Table 1).

Another limitation that should be mentioned here is the size of the researcher (BMI = 40). Since the researcher was visible to all participants and had different levels of interaction with the experimental group, where she observed, versus the control group, where she administered surveys, the researcher’s size could have been linked to the content of the presentation and influenced the results.

Lastly, this research used the HAES PAI, which is a survey that has not been formally validated or tested for reliability. Some issues arose with the data collected from this survey as it provided opportunities for participants to opt out of answering three of the questions. Additionally, the constructs within the survey have not been tested and may need to be altered to include more questions, such as construct four which only contains one question and therefore may have produced biased results.

Implications for Future Research

This study could be improved upon in further studies on the effectiveness of the HAES curriculum by measuring implicit anti-fat bias of participants, which could potentially find a higher level of existing bias at baseline and may be more difficult to change (14, 15). Also, as the curriculum was designed to educate health pre-professionals, testing its effectiveness in other
classes with students from other majors (such as a nutrition 101 class) would allow for broader application of the curriculum as a way to reduce anti-fat bias in any future health professional.

The HAES PAI is still being developed and the findings from this study imply that, as a tool to measure outcomes of the efficacy of the HAES curriculum, it ought to continue to be adjusted and tested before it is used as a sole measure of the curriculum’s success. To continue to support the use of the HAES curriculum in dietetics coursework to reduce anti-fat bias, future research should take random samples from other regions of the U.S. and possibly internationally.

Lastly, future studies could conduct follow-up testing to determine the long-term effects of the HAES curriculum, which could potentially demonstrate that, over time, HAES is more accepted; because of its controversial nature it could take time to embrace HAES. This was reflected by one of the participants’ written comments after the curriculum: “HAES is growing on me” (Table 13, pg 38).

Conclusions

Anti-fat attitudes within the experimental group were decreased after they received the HAES curriculum as part of their DPD coursework. Specifically, after the intervention there were significant decreases in three anti-fat attitude constructs: Dislike, Fear of Fat, and Willpower, in the experimental group compared to the control group. The biggest change in anti-fat attitudes within the experimental group was seen in the Willpower construct, indicating an important shift in attitudes about the controllability of weight and fat. HAES PAI scores showed a significant increase in perceived knowledge of HAES compared to the control group. However, scores showed that positive attitudes about HAES decreased after the intervention and beliefs
about HAES and self-efficacy for using HAES did not change significantly compared to the control group. These findings suggest that the HAES curriculum works to educate dietetics students about the HAES paradigm and that increased knowledge of HAES is enough to reduce anti-fat biases that could have affected their future clients, even if they do not fully embrace HAES or a weight-neutral approach to health as a result of the curriculum. Based on the literature, a method for reducing anti-fat bias among dietetic professionals is needed, and the results of this study show that incorporating the HAES curriculum into the DPD coursework could work to meet that need.
REFERENCES


APPENDIX A

REVIEW OF LITERATURE
Introduction

Each year in the United States, the weight loss industry pulls in billions of dollars. Fifty million Americans are currently on weight loss diets, a fact that is indicative of the widespread desire to be thin that is part of American culture (1). However, though the desire to be thin is popular and promoted by the media, over 60% of U.S. adults were overweight or obese in 2010 and over 30% were obese in 2011-2012, according to National Center for Health Statistics of the Centers for Disease Control and Prevention (2). Support for combating overweight and obesity comes in a wide variety of weight loss programs, diet books, professional training sessions, smart phone apps and many other resources that individuals turn to in attempts to lose weight and keep it off. Among these resources are registered dietitian nutritionists (RDNs).

The Academy of Nutrition and Dietetics (The Academy), the professional organization for food and nutrition professionals in the US, states that one of the top ten reasons to consult an RDN is if “you need to gain or lose weight” (3). RDNs take on weight management as one of the practice areas included in their many professional roles: “RD[N]s address prevention and treatment of overweight and obesity throughout the lifespan” (pg. S24, 4). Because overweight and obesity are so prevalent and so many Americans want to lose weight, RDNs must be fully prepared to work with overweight and obese individuals, as stated in the Accreditation Council for Education in Nutrition and Dietetics (ACEND) guidelines for dietetic education (5).

As evidence-based practitioners, RDNs are working to develop a cohesive professional philosophy with regard to weight management practices (6). The position of The Academy is “that successful weight management to improve overall health for adults requires a lifelong commitment to healthful lifestyle behaviors emphasizing sustainable and enjoyable eating
practices and daily physical activity,” but strategies for helping clients to succeed at weight management vary (7). The Academy’s position is that “The goals of weight management go well beyond numbers on a scale, whether or not weight change is one of the management objectives” (7). Therefore, dietetics education should provide future RDNs with a well-informed perspective on the many potential approaches to managing the health of future overweight and obese clients, which may fall outside of the realm of conventional methods. An important aspect of weight management for RDNs to consider is the existence and prevalence of fat prejudice. Parallel to the pro-thin societal norm discussed above is an anti-fat societal norm that is just as pervasive. For many years, overweight and obese persons have experienced fat discrimination in a variety of contexts, including employment, education, and health care (8).

Discrimination against people who are overweight has been found to be even more common and severe than racial discrimination (9, 10) and studies have shown that anti-fat bias can lead to obese persons experiencing increased vulnerability to depression, low self-esteem, anxiety and suicide, as well as increased risk for disordered eating, low physical activity, poorer weight loss outcomes, and a lowered likelihood of seeking health-care services (as cited by O’Brien, 2010, pg. 2138, 11).

One educational tool that may be used to reduce anti-fat bias among future health professionals is the Health At Every Size® (HAES®) curriculum, which was released to the public in August, 2013 by the Association for Size Diversity and Health (ASDAH), the National Association for the Advancement of Fat Acceptance (NAAFA) and the Society for Nutrition Education and Behavior (SNEB) (12).
If dietetics students are taught about the principles of HAES as part of an evidence-based education, any anti-fat bias they already have might be reduced. According to the theory of cognitive dissonance, the human mind strives to eliminate inconsistencies that are psychologically uncomfortable; therefore the existence of conflicting thoughts or beliefs, known as cognitive dissonance, motivates an individual to shift his or her thinking toward consistency (13). The HAES model is an entirely new way of thinking about health and weight, and, because it directly contradicts the prevailing paradigm, it is bound to create cognitive dissonance, which should lead to a shift in thinking away from anti-fat bias.

ACEND approved programs for dietetics education do not require any intervention for reducing anti-fat bias before a dietetics student becomes a practitioner (5, 14). Given the evidence that many dietetics students and RDNs are anti-fat biased and therefore may not be able to adequately, appropriately, and ethically treat their obese clients, it seems there is a gap in dietetics education (15-18).

The following review of literature will provide justification for teaching the Health At Every Size® curriculum with the aim of reducing anti-fat bias among dietetics students and increasing their understanding of Health At Every Size (HAES) principles. HAES is a new paradigm that encourages healthy behaviors without using body weight as a health indicator. Instead, HAES embraces size diversity and promotes body acceptance. Anti-fat bias is said to be the last acceptable form of prejudice (8), and embracing the HAES paradigm may work to reduce the prevailing anti-fat mentality. In particular, due to the need for ethical practices in the health care setting (19), reduction of anti-fat bias among nutrition professionals is needed. This review will examine the prevalence of anti-fat bias, the efficacy of HAES, the importance of reducing
anti-fat bias, and the rationale for using Cognitive Dissonance Theory to do so. Teaching the Health At Every Size® curriculum during formal education has the potential to increase understanding of HAES principles and reduce anti-fat bias of future nutrition professionals.

HAES is a new paradigm that encourages healthy behaviors without using body weight as a health indicator. Instead, HAES embraces size diversity and promotes body acceptance. Anti-fat bias is said to be the last acceptable form of prejudice, and embracing the HAES paradigm may work to reduce the prevailing anti-fat mentality (8). In particular, due to the need for ethical practices in the health care setting, reduction of anti-fat bias among health professionals is needed (19). In particular, nutrition professionals, who are responsible for working with individuals to maintain a healthy weight, should not uphold anti-fat attitudes that lead to prejudice against individuals that desire nutrition expertise. This review will examine the prevalence of anti-fat bias, the efficacy of HAES, the importance of reducing anti-fat bias, and the rationale for using Cognitive Dissonance Theory to do so. Teaching the Health At Every Size® curriculum during formal education has the potential to increase understanding of HAES principles and reduce anti-fat bias of future nutrition professionals.

Overview of Health At Every Size

HAES is a non-diet approach to health that encourages individuals of all shapes and sizes to eat based on internal hunger cues and to engage in enjoyable activity (20, 21). Traditionally, body weight and Body Mass Index (BMI) are used as health indicators, but the HAES model emphasizes the lack of evidence supporting these as significant measures of morbidity or mortality (21, 22). In contrast to the widespread belief that losing weight will make an
“overweight” person healthier, the evidence suggests that focusing on weight is likely to do more harm than good (20-23). Therefore, the HAES movement aims to dispel myths about the dangers of “overweight and obesity” and oust the social illusion that thinner is better. It promotes healthy behaviors using a non-diet approach and allows for a broad spectrum of healthy weights. To move the focus from weight to health, HAES uses the following key principles: internally directed eating, body size acceptance, pleasurable physical activity, embracing size diversity in others and recognizing that health is affected by social, emotional, environmental, spiritual and other factors in addition to biological factors that are only partly influenced by diet and exercise (Figure 3) (12, 21, 22, 24).

![Figure 3](image)

**Factors that influence HAES**

The overarching theme of HAES is the importance of recognizing that health and wellbeing are multidimensional and that they include aspects from many areas of life for people of all sizes (24). The HAES philosophy inherently works against anti-fat bias by recognition that
body shape and size are not evidence of any particular way of eating, level of physical activity, personality trait, psychopathology or morality (20). Those who embrace the HAES model attribute worth to people of all shapes and sizes and approach clients with the understanding that weight and health are not inherently linked, as many believe.

In a society that has long embraced the thin ideal and weight loss as a treatment for obesity, the concepts of the HAES paradigm are controversial (25, 26). The words “Health At Every Size” alone have invoked backlash against this movement because of misconceptions about the meaning behind them. Importantly, HAES does not allow for denial that certain chronic diseases have been associated with body weight, it does not advocate for “giving up,” nor does it suggest that one should ignore or neglect one’s body. Instead, it promotes size acceptance and body appreciation based on the evidence that body dissatisfaction does not produce positive health outcomes, fear is not a motivator, and weight loss diets have a dismal success rate (26-29). HAES is a progressive alternative to the predominant health paradigm that encourages the “one-size-fits-all” mentality that has led to widespread anti-fat bias and discrimination (30). HAES is a non-diet approach that rejects unrealistic expectations about weight loss and does not blame individuals for their size.

Evidence Supporting the HAES Model

Due to HAES’s incompatibility with the current paradigm and the fact that it has only recently begun blooming, studies demonstrating the efficacy of this approach are limited, but so far the evidence is promising. Several studies have demonstrated that interventions using the HAES approach produce behavior and attitude changes for positive health outcomes, regardless
of weight status (23, 31-33). Included in this review is a discussion of some noteworthy examples of studies that have compared a non-diet HAES approach to traditional diet approaches and some that have compared HAES to other non-diet approaches.

A six-month randomized clinical trial showed the effects of a HAES intervention compared to a dieting intervention (31). Two groups, (each N=39), of white, obese, female chronic dieters participated in the study. The diet group focused on traditional weight loss methods such as moderate restriction, keeping food diaries, monitoring weight and exercising at a recommended intensity. The HAES group worked to separate feelings of self-worth from their weight, to let go of restrictive eating habits and replace them with intuitive eating, and to identify and transform barriers to being active and supporting each other through their common experiences as large women in a culture that devalues them. Almost half of the diet group dropped out (42%) before the end, while almost all (92%) of the HAES group finished their program. Restricted eating significantly increased in the diet group and significantly decreased in the HAES group at post-treatment and at 2-year follow-up. Activity levels increased in both groups initially, but only the HAES group continued to increase their activity levels at follow-up. The diet group lost weight significantly at first and maintained their weight loss at 52 weeks but regained some of the weight between baseline and follow-up so that weight loss was no longer significant. The HAES group maintained their weights and BMIs throughout the study. Total cholesterol decreased at follow-up in the HAES group but not in the diet group. The HAES group maintained a significant lowering of systolic blood pressure, where the diet group did not. Additionally, while significant improvement in depression, self-esteem and body image avoidance behavior were seen in the HAES group, the diet group only experienced short-term improvement in depression. Potentially the most important measure of these programs was the
participant evaluation, which reflected a significant between-group difference. Where the HAES
group responded that the program helped them, that they did not feel like a failure, that they were
hopeful about the long-term impact of the program and that they implement what they learned,
the diet group significantly responded the opposite (31).

These findings are consistent with those of an earlier (2002) six-month randomized
clinical trial conducted by the some of the same researchers (34). High attrition was seen in the
diet group, improvements in metabolic fitness, psychology and eating behavior were seen in the
non-diet group and some were also seen in the diet group. Weight loss was seen in the diet
group, while there was no change in the non-diet group. These results indicate that a non-diet
HAES approach to making healthy changes may result in desirable long-term behavior changes,
where a diet approach may not (31, 34).

Another group of researchers compared the HAES approach to the social support group
approach (33, 35, 36). In a 2007 randomized controlled trial, three groups (each N = 48) of
premenopausal women were assigned to a four-week HAES intervention group, a social support
intervention group, or a control group to examine and compare short-term changes in eating
behaviors and appetite (36). The results demonstrated that the HAES group experienced larger
decreases in susceptibility to hunger than both of the other groups and a larger decrease in
susceptibility to hunger triggered by external cues than the control group. Measures of appetite
also showed a significant decrease in the HAES group compared with the other groups.
Additionally, some weight loss was seen in the HAES group, but not in the other two groups
(36). A 1-year follow-up was conducted with these participants and results were reported
separately (33). They found that around two-thirds of the HAES participants maintained a
slightly lower body weight than their baseline weight, even if no energy restriction was suggested. This follow-up also revealed that the HAES group was again significantly less susceptible to hunger than the control group but was no longer significantly different than the social support group. The HAES group showed significantly lower situational susceptibility to disinhibition than the control group. These findings demonstrate the importance of social support in the HAES approach, since there were not long-term distinctive differences in the effects of HAES versus social support groups (33). These studies demonstrate that a non-diet approach is likely to have desirable effects on hunger and appetite and may lead to maintenance of slightly lower body weight (33, 36). The evidence supporting non-diet approaches to health is beginning to build a solid foundation for a paradigm shift (28). HAES is being researched in various areas of the world and has shown great potential for being a feasible model that works, though more research still needs to be done (35, 37, 38).

Anti-fat Bias as a Barrier

Prevailing anti-fat attitudes continue to plant the seed from which anti-fat discrimination grows. Some researchers suggest that ill treatment of fat persons is the last form of socially acceptable discrimination (8-10). Attribution theory has been the most widely accepted approach for understanding this weight bias (30). It suggests that stigmas against fat persons are representative of society’s overall negative perception of fat persons. In Western society, negative attributions are used to explain negative life outcomes; therefore a person’s weight is blamed on internal, controllable causes such as laziness and lack of self-control, which are generally believed to be attributes of fat persons (30).
Many health practitioners also maintain common biases against fat persons believing them to be lazy, unhealthy, dishonest, unclean, unattractive and selfish (8, 30). Past and present research indicates that health practitioners have negative attitudes and beliefs about overweight and obese persons that may affect their practice (As cited in Brownell, 2005, pgs. 29-41, 9). Though health care professionals may not be overtly disrespectful to their over-weight clients, Wadden (2000) reported over 60% of participants feel misunderstood by their doctors, who tell them they need to lose weight and often do not prescribe weight control methods (as cited in Brownell, 2005, pgs. 35-36, 9). More recent reports of experienced anti-fat bias provide further support that health care professionals are a source of bias (39). Even if anti-fat bias is not explicit, implicit anti-fat beliefs and attitudes among health care providers may still negatively affect practices (40).

**Importance of Anti-Fat Bias Reduction in Dietetics**

Research indicates that dietitians are among those health care providers who maintain a negative bias against fat persons (15, 40, 41). A study from 2009 reported that dietitians have an even higher implicit anti-fat bias than the general population (42). In contrast, however, a 1997 study reported ambivalent attitudes of dietitians toward overweight clients (16). The results of a study from 2006 may partially explain for this difference in results. Andreyeva and colleagues reported that perceived weight discrimination in the general population went from 7% in 1995-1996 to 12% in 2004-2006, demonstrating an increasing trend in societal anti-fat mentality (43). This suggests the possibility that although anti-fat bias has been measurable to some extent for many years, it is a growing phenomenon that is more likely to be reported in recent research. Additionally, this contrast in results reflects the increase in culturally inescapable obesity
discourse through newer public policies, educational practices and sociocultural dynamics, which continue to accumulate into a powerful “anti-obesity” environment (44). Also, more recently, dietitians have been recruited as an important part of various multi-disciplinary taskforces working against the “obesity epidemic” in worksite, community and school wellness interventions and are therefore likely to experience an extra layer of obesity discourse as part of an occupational hazard. Regrettably, as Farrell (2011) writes, “The war against fat can become, too easily and too rapidly, a war against fat people” (pg. 11, 45).

According to the International Confederation of Dietetic Associations, dietitians have a professional ethical responsibility to strive for positive nutrition outcomes for all of their clients and treat all clients with equal respect (46). The Academy of Nutrition and Dietetics and the Commission on Dietetic Registration follow a similar code of ethics, which was published in 2009 in the Journal of the American Dietetic Association and went into effect as of January 1, 2010 (19). It designates that the dietetics practitioner is not to discriminate but is to provide professional services with respect for the unique needs and values of individuals and is to treat clients with consideration (Pgs. 1461-1462, 19). These ethical guidelines are in place to ensure that all clients receive equal treatment and care without the influence of bias from the dietetics practitioner. Unfortunately, even with these codes of conduct clearly outlining an anti-discriminatory approach to professional practice, anti-fat bias often leads to discrimination against overweight individuals in health care settings just as it does in educational, employment, social and familial settings (8, 9).
Anti-Fat Bias in Dietetic Students

The evidence that anti-fat bias exists among most registered dietitians signifies a barrier in their ability to adhere to these ethical guidelines. Several studies have demonstrated that dietetics students have anti-fat attitudes and beliefs comparable to those of registered dietitians and non-nutrition majors (15, 17, 18, 47). It is not likely that the dietetics curriculum is a causal factor for bias, since other students in health-related education programs and people in the general population have comparable levels of bias. However, the presence of anti-fat bias both during and after dietetics education reflects the lack of a component to reduce anti-fat bias in ACEND accredited didactic programs in nutrition in dietetics, which dictates education for ethical practice (14, 17).

Due to the extensive societal anti-fat bias, the message of the HAES model could be critical to the development of equal treatment of overweight and obese individuals, especially in the health care setting. In order for these individuals to be healthy, their dietitians and other health providers must have an unbiased belief that they are capable of health at every size.

Theoretical Framework

Teaching HAES introduces evidence-based ideas that most people have never considered might be true such as, *fat people can be healthy*. Planting this seed of truth in minds that have previously accepted conventional myths, such as *fat people are all unhealthy*, leads to cognitive dissonance. Since *fat people can be healthy* and *fat people are all unhealthy* cannot both be true, cognitive dissonance theory suggests that a person with both statements in mind is motivated to create a consistent belief system and, therefore, reject one of the conflicting statements (48). In
this instance, the anti-fat biased perspective that *fat people are all unhealthy* may be rejected when the HAES message creates cognitive dissonance by planting the evidence-based seed that *fat people can be healthy*.

Some of the prevailing ideas that are contradicted by the HAES curriculum are as follows: anti-fat attitudes related to blaming fat people for their weight, perceiving all fat people as less attractive and less healthy than their thinner counterparts, and believing all fat people to have certain negative behaviors and attributes. Therefore, using the HAES curriculum to demonstrate with sound evidence that these things are not true could reduce anti-fat bias through creating cognitive dissonance that results in a shift away from a weight-centered view of health and attractiveness toward cognitive consistency that embraces the HAES health-centered belief system, rejecting an anti-fat mentality.

Anti-fat belief systems are typically so ingrained in Americans that bias against fat persons is rarely challenged or questioned. Importantly, HAES both challenges and questions anti-fat beliefs, and the HAES curriculum provides empirical evidence to support a HAES belief system. It is possible that hearing the HAES message could shift thinking from weight-centered to health-centered and increase size acceptance. The desire for cognitive consistency is a basic and fundamental motivator for changes in attitudes that lead to behaviors (48).

Presenting the HAES message and contrasting it to the traditional weight-loss paradigm, as presented on pg. 186 in a published explanation of HAES in 2007, will lead to cognitive inconsistencies (Table 1) (23). The discomfort associated with two conflicting belief systems will lead to a shift in thinking that will establish cognitive consistency. This approach might work to reduce students’ anti-fat bias (49).
Table 14

**Comparison of the Traditional Weight-Loss Paradigm with Health at Every Size (23)**

<table>
<thead>
<tr>
<th>Traditional Weight-Loss Paradigm</th>
<th>Health At Every Size Paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyone needs to be thin for good health and happiness</td>
<td>Thin is not intrinsically healthy and beautiful, nor is fat intrinsically unhealthy and unappealing.</td>
</tr>
<tr>
<td>Individuals who are not thin are “overweight” because they have no will power, eat too much, and do not move enough.</td>
<td>Individuals naturally have different body shapes and sizes and different preferences for food and physical activity.</td>
</tr>
<tr>
<td>Everyone can be thin, happy, and healthy by dieting.</td>
<td>Dieting usually leads to weight gain, decreased self-esteem, and increased risk for disordered eating. Health and happiness involve a dynamic interaction among mental, social, spiritual, and physical considerations.</td>
</tr>
</tbody>
</table>

Additionally, cognitive dissonance theory has laid the foundation for several interventions designed to reduce internalization of the thin ideal for eating disorder prevention (50-52). Thin-ideal internalization and anti-fat bias are closely related constructs such that a stronger anti-fat bias is likely to mean a stronger pro-thin bias (53). Higher anti-fat bias has also been associated with perceived weight controllability (53, 54). HAES paints a starkly contrasting picture that shows fat bodies are not less healthy, beautiful or capable than thin bodies and teaches that biology, environment and genetics control weight more powerfully than willpower or discipline ever could. According to the theory of cognitive dissonance, presenting these
contrasting ideas so that they are convincing and believable will lead to embracing the new HAES belief system to replace the anti-fat belief system.

Reducing Anti-Fat Bias Through Education

Since anti-fat bias is evident in equal measure before and after dietetic registration, reduction of anti-fat bias may be warranted before registration, during formal education, to work with overweight and obese clients so as to diminish the possibility of any biased professional practice. There is a paucity of evidence supporting programs to effectively reduce anti-fat bias among dietetics students during their formal education (55). However, the scarce evidence that exists does support the notion that education can be effective in reducing anti-fat bias among students using various methods. For example, the following studies showed significant effects through classroom-based education programs.

Cotugna and Mallick (2010) conducted a quasi-experimental study that demonstrated a reduction in anti-fat attitudes among nutrition students who participated in an activity that was designed to fill this gap in their education (56). Fat-phobia was assessed among 40 students using a 14-item Fat Phobia Scale, prior to participation in a weeklong activity. None of the students in the class were overweight, but, as a course requirement, all attempted to follow a weight loss diet that would be recommended to an overweight client: 1,200 kcals for women and 1,500 kcals for men, based on NIH guidelines. Following the calorie-restricted diets gave the students perspective on how difficult it can be for overweight clients to adhere to weight loss recommendations. Many of the students reported a newfound empathy for the struggles of overweight individuals and results showed a significant decrease in fat-phobia scores (56).
A randomized trial showed that anti-fat bias could be either increased or decreased among students, using education about the causes of obesity (11). Implicit and explicit anti-fat prejudices were measured among 159 health students, which were then randomly assigned to three groups. A control group received four tutorial classes about the dangers of alcohol consumption among young people (control). Another group received three tutorials about diet and physical activity as causes of obesity, while yet another group completed three tutorials about uncontrollable causes of obesity, such as genetics and environmental factors. All three groups completed oral and written assignments associated with their respective tutorials. As predicted, those that received the conventional tutorials about the causes of obesity significantly increased their anti-fat biases, while those who learned about uncontrollable factors that cause obesity significantly decreased their anti-fat biases compared to the control group (11).

The results of these studies support the potential for reducing anti-fat bias among dietetics students in the classroom. These and other efforts have attempted to decrease anti-fat bias by increasing knowledge about the realities of obesity and teaching empathy in order to bridge the gap in understanding between those who are fat and those who are of normal weight (11, 55, 56). However, Puhl and her colleague Huer discuss in a 2009 review of the literature surrounding the stigma of obesity that the findings in existing research are limited, and effective intervention strategies to reduce anti-fat bias have not been established (55).

**HAES in Pedagogical Settings**

The following studies have examined the effects of teaching HAES to students. In 2005, researchers at Northern Illinois University (NIU) published findings of a study that examined
how beliefs changed before and after a guest presentation about HAES strategies as they apply to improving the health of youth. Students seeking health teacher certification were asked what issues they believed would be of greatest concern to them when they became teachers. They chose obesity, including weight concerns, nutrition and physical activity as their greatest concerns. Based on their responses, Dr. Jon Robison of Michigan State University (MSU) was invited to present 2 colloquiums to the students that were open to the public: “Weight, Health, and Culture: Exploding the Myths, Exploring the Realities” and “A Matter of Trust: Helping Our Children to Be Healthy Eaters.” Of 300 participants, 158 filled out a questionnaire about their beliefs regarding strategies for improving the health of youth before the colloquiums and afterward. Results indicated a significant shift toward HAES principles after Dr. Robison presented to the group. Authors concluded that if an audience is receptive and a speaker is both knowledgeable and convincing, students would be willing to consider moving toward a HAES approach (57).

In the second study, Members of the Weight Realities Division of the Society for Nutrition Education and Behavior developed a HAES presentation, which was used by Brown in 2009 to educate health students (58). At that time, it was a 69-slide PowerPoint presentation that summarized relevant studies and quotes from those who had experienced HAES. A pretest and assigned reading were administered prior to the presentation. Students viewed the PowerPoint and then a posttest was administered; 129 students completed the program. Results indicated a significant increased understanding of HAES, improved attitude toward HAES, increased recognition of HAES as evidence-based, and decreased belief in calorie restriction and exercise as ways to combat the obesity epidemic. Additionally, many students experienced a paradigm shift that will influence their future practice as well as how they approach their own health (58).
Using the HAES Curriculum to Reduce Anti-Fat Bias

The HAES curriculum used in the aforementioned study has since been redesigned into three slide presentations that are part of a cohesive curriculum, which was recently made available for use by the public (12). Each of the presentations contains about 40-50 slides, and notes accompany each, along with quizzes and tests that can be used by anyone who wishes to teach HAES concepts. The first presentation outlines HAES, the second focuses on size acceptance, and the third is entitled “Developing a Healthy Relationship with Food and Exercise.” This curriculum has yet to be tested in a dietetics education setting. Additionally, administering this curriculum may have implications for reducing anti-fat biases that have yet to be researched. Because the evidence that anti-fat bias can be reduced using education, combined with the evidence that HAES in a pedagogical setting can shift students’ thinking, utilization of the new HAES curriculum in the classroom of dietetics students during their training to become ethical practitioners is likely to work in a much needed effort to reduce anti-fat bias in that population.

Conclusion

HAES is a new paradigm that emphasizes body size acceptance, eating based on internal hunger and satiety cues, pleasurable physical activity, and embracing body diversity. Teaching HAES to dietetics students using the newly developed HAES curriculum could shift students’ thinking away from the traditional weight-centered paradigm toward the HAES health-centered paradigm. Additionally, the HAES paradigm naturally works against anti-fat bias by attributing
worth to all individuals and encouraging health at any body size. Research has demonstrated that anti-fat bias is present among dietetics students and RDNs (15, 17, 40).
References


APPENDIX B

IRB EXEMPTION AND APPLICATION
Dear Amber Rosalez,

Your application for institutional review of research involving human subjects was reviewed by Institutional Review Board #2 on 01-Mar-2014 and it was determined that it meets the criteria for exemption, as defined by the U. S. Department of Health and Human Services Regulations for the Protection of Human Subjects, 45 CFR 46.101(b), 2

Although this research is exempt, you have responsibilities for the ethical conduct of the research and must comply with the following:

Amendments: You are responsible for reporting any amendments or changes to your research protocol that may affect the determination of exemption and/or the specific category. This may result in your research no longer being eligible for the exemption that has been granted.

Record Keeping: You are responsible for maintaining a copy of all research related records in a secure location, in the event future verification is necessary. At a minimum these documents include: the research protocol, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to participants, all correspondence to or from the IRB, and any other pertinent documents.

Please include the protocol number (HS14-0068) on any documents or correspondence sent to the IRB about this study.
Application for Institutional Review of Research

IN Volving HUMAN SUBJECTS

Note: Please complete this form thoroughly keeping in mind that the primary concern is the potential risk (economic, ethical, legal, physical, political, psychological/emotional, social, breach of confidentiality, or other) to the participants. Provide copies of all materials to be used in the investigation. The Institutional Review Board (IRB) must have enough information about the transactions with the participants to evaluate the risks of participation.

Name(s) and employee ID for faculty, Z-ID for students:
Amber Rosalez  Z1686187

Status:  ☑ Faculty  ☑ Graduate Student  ☐ Undergraduate Student

Department:
Family, Consumer and Nutrition Sciences

Mailing Address (if not department):
1234 D Rushmore Dr., DeKalb, Illinois 60115

Phone:  989-506-3606  E-mail  amber_rosalez@gmail.com

Project Title:
Teaching the Health At Every Size curriculum to dietetics students: A look at anti-fat attitudes

Proposed Data Collection Start Date:  March 4, 2014

Note: Unless the authorized departmental reviewer (e.g., chair or designee) has deemed on the screening form that IRB review is not needed, all projects must receive formal written clearance from the IRB Chair (or an IRB member designated by the Chair) prior to the start of data collection.

Type of Project (Check one)
☐ Departmental Research (faculty/student projects not externally funded and not indicated below)

☑ Graduate Thesis/Dissertation (IRB application should be submitted AFTER proposal defense)
Advisor/Committee Chair (& e-mail): Dr. Amy Ozser  aozier@mu.edu

☐ Undergraduate Project (Senior thesis/capstone, research rookies, independent study)
Advisor/Committee Chair (& e-mail):

☐ Externally Sponsored Research
A complete copy of the grant proposal or contract must accompany this application form for IRB review to take place.

• Source of Funding:

• Title of grant proposal (if different from IRB protocol):

• Name of principal investigator on grant proposal:

• Office of Sponsored Projects file number (Note: this is not the grant number):

☐ Other
Specify:
Part I. Purpose and Procedures:

1) Describe the purpose of your study and the reason(s) this study is needed. Include any necessary background information and a description of your hypothesis or your research question.

The purpose of this study is to investigate whether the Health At Every Size (HAES) curriculum will reduce anti-fat biased attitudes in junior and senior level undergraduate dietetics students. Also, it aims to investigate whether implementing the HAES curriculum to those students will increase their knowledge of HAES and create positive attitudes and beliefs about HAES. The HAES curriculum is a new peer-reviewed curriculum that was developed by the Association for Size Diversity And Health, the National Association for the Advancement of Fat Acceptance, and the Society of Nutrition Education and Behavior as a way to present a weight neutral, health-centered approach to health professionals whose education and experience might otherwise exclusively offer a weight-centered perspective. It was designed to teach the HAES principles as follows:

1. Accepting and respecting the diversity of body shapes and sizes
2. Recognizing that health and well-being are multi-dimensional and that they include physical, social, spiritual, occupational, emotional, and intellectual aspects
3. Promoting all aspects of health and well-being for people of all sizes
4. Promoting eating in a manner which balances individual nutritional needs, hunger, satiety, appetite and pleasure
5. Promoting individually appropriate, enjoyable, life-enhancing physical activity, rather than exercise that is focused on a goal of weight loss.

This study is needed because the most recent standards for didactic programs in nutrition and dietetics indicate guidelines maintaining that students are to “be prepared to work with over-weight persons in professional practice.” However, the guidelines do not specify how students are to “be prepared” thereby leaving any education about prevailing negative attitudes and beliefs surrounding fat persons or how anti-fat bias is likely to affect future clients as optional. Likewise, Accreditation Committee for Education in Nutrition and Dietetics approved programs do not require methods for reducing anti-fat bias before the dietetics student becomes a practitioner. Given the evidence that many dietetics students and registered dietitians are anti-fat biased and therefore may not be able to adequately, appropriately, and ethically treat their obese clients, it seems there is a gap in dietetics education. In response to this problem, this study proposes to implement the recently developed HAES curriculum in an attempt to reduce dietetics students’ anti-fat attitudes. Additionally, this study aims to improve knowledge, attitudes, beliefs and self-efficacy (KABS) surrounding HAES. Including this curriculum in dietetics education to better prepare students to work with overweight and obese individuals could help ensure ethical and effective professional practices by reducing anti-fat attitudes and improving HAES KABS.

Research questions:
1. For dietetics students who are taught the three lessons of the HAES curriculum, how will anti-fat biased attitudes change, compared to those who are not taught the HAES lessons?
2. For dietetics students who are taught the three lessons of the HAES curriculum, how will HAES KABS scores change compared to those who are not taught the HAES lessons?

Hypotheses:
1. For dietetics students who are taught the three lessons of the HAES curriculum there will be a significant negative change in anti-fat attitude scores, compared to those who are not taught the HAES lessons.
2. For dietetics students who are taught the three lessons of the HAES curriculum there will be a significant positive change in HAES KABS scores, compared to those who are not taught the HAES curriculum.

2) The following items will help the IRB reviewers understand the step-by-step procedures of your study:

2A) Explain the participant eligibility and exclusion criteria that will be used.

At least eighty subjects will be recruited to participate in this study. Criteria for participation will include the following: participants must be undergraduate students who have declared a dietetics major and are enrolled in an ACEND accredited didactic program in dietetics (DPD). Participants must be enrolled in at least one 400-level undergraduate nutrition course at Northern Illinois University (NIU) or Michigan State University (MSU). Participants will be recruited in the following courses: Northern Illinois University’s Community Nutrition (FCNS 410) and Michigan State University’s Computerized Foodservice Management (HNF 444).
2B) Explain the recruitment procedures (how will participants learn about the study?). If using the snowballing technique, please explain who contacts potential participants (other participants or the researchers).  

*Please attach recruitment scripts, flyers, or postings [Appendix A]*

Students enrolled in Community Nutrition (FCNS 410) at NIU will be given the intervention as part of a class requirement. However, participation in the surveys will be considered optional assignments. The Graduate Assistant to the course will introduce the survey during lab periods and inform students that their answers will be used for research purposes if they choose to complete the surveys. She will inform them of the incentive that if they choose to participate their name will be entered into a drawing for a $25 Amazon gift card. Students will create a unique identifier so that their surveys remain anonymous. The GA will give each student who chooses to participate 2 points of course credit when they complete the survey. Participants will each complete a raffle ticket with their contact information for the drawing and will submit it to the Graduate Assistant separately from the survey. If students do not wish to participate in completing the survey, they will be given the option to complete equivalent assignments provided by the Graduate Assistant. Students enrolled in Computerized Foodservice Management at Michigan State University will be in the control group. The researcher will come to their recitation periods and recruit members of the class to complete the surveys by informing them that their answers will be used in a research project and informing them of the incentive to be entered into a drawing for a $25 Amazon gift card. The researcher will explain participants are to use a unique identifier so that their surveys remain anonymous. Surveys will be collected in a large envelope separate from raffle tickets with participants’ information for the incentive. (see appendix A for recruitment script).

2C) Explain the consent process (verbal and/or written procedures for informing participants of the nature of the study and what they will do).  

*Please attach all documents (assent, consent, parent permission – Appendix B) that are appropriate for each group of subjects participating in the study. Consent forms should be prepared for adult participants (age 18 or over). Assent forms should be prepared for minor subjects appropriate to their ages, and permission form(s) for parents or legally authorized representatives should also be prepared. For children too young to comprehend a simple explanation of participation, parental permission is sufficient only if the research will provide direct benefit to the subject, a member of the subject’s family, or other children with the same condition as the subject.)*

The following implied consent information will be included at the top of each survey:

You are being asked to participate in a research project that is being conducted by Amber M. Rosalez, under Dr. Amy Ozier PhD, RD, LDN at Northern Illinois University. The purpose of the study is to find out about the attitudes, beliefs and knowledge of dietetics students. If you agree to participate in this study, you will be asked to fill out a survey that will take approximately 20 minutes to complete. You must be 18 years or older to participate. Participation in this research is completely voluntary. You have the right to say no. You may change your mind at any time and withdraw at any time. If you have any questions about this study, you may contact Dr. Amy Ozier, PhD, RD, LDN: oozier@niu.edu or Amber M. Rosalez: arosalez@niu.edu. You may choose not to answer specific questions or to stop participating at any time. Whether you choose to participate or not will have no effect on your grade or evaluation. The intended benefits of this study include gaining knowledge about working with future clients and learning about an alternative approach to health and wellbeing. For participating, you will receive 2 points class credit and be entered into a raffle drawing for a $25 Amazon gift card. There are no foreseeable costs or risks to participation in this study. If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Office of Research Compliance at Northern Illinois University at (815) 753-8588, researchcompliance@niu.edu.  

Completion of the survey implies that you have given your consent to take part in this study. Thank you.

2D) Describe the data collection procedures including what data will be collected, how it will be collected (include a description of any interventions to be used), the duration of participation in the study session(s), and how the session(s) will end.
Data collection for the pre-test at NIU will begin on Tuesday March 4th during the first FCNS 410 lab time. Half of the class will be present in this lab (about 20 students). Pre-test data collection at NIU will continue on Thursday March 6th during the second FCNS 410 lab time. The other half of the class will be present in this lab (about 20 students). Pre-test data collection at MSU will start on Wednesday March 12th during the first HNF 444 recitation time. One third of the class will be present in this recitation (about 15 students). Pre-test data collection at MSU will continue on Thursday March 13th at two different recitations (each with one third of the class). Pre-test data collection at both locations will be collected using the survey in Appendix C. It will be collected anonymously using the procedures described. The MSU group will be the control group and therefore will not receive an intervention. The NIU students will receive the HAES presentations as they have been described.

Due to class time limitations, NIU’s students will receive all three presentations in one week’s time. The first presentation will be given by the GA during regular class time on March 18th. Then about half of the class will receive the “Developing a Healthy Relationship with Food and Exercise” presentation on the same day during their lab period, which is scheduled shortly after the class period. Then on March 20th the whole group will receive the “Size Acceptance” presentation during class time. After this presentation, the other lab will meet and those students who were not part of the Tuesday lab will receive the “Developing a Healthy Relationship with Food and Exercise” presentation. Each Power Point presentation includes discussion questions and videos to engage the class.

The post-test survey will be administered in the same way the pre-test was administered, during lab and recitation periods in April at the respective schools. The post-test is the same as the pre-test except that it includes an additional question that is open-ended so that students can provide qualitative feedback about the curriculum. This qualitative feedback will be typed and provided to the HAES curriculum creators. Students in the intervention group will receive two points of class credit for completing the surveys at each completion point (pre and post, for a total of 4 lab credit points). All students who participate will be entered into a drawing to win a $25 Amazon gift card.

At NIU, the surveys will be administered in FCNS 410, in person at the beginning of lab period by the GA, observed by the researcher. The surveys given at MSU will be administered in person at the beginning of the recitation period.

The curriculum consists of three Power Point presentations, which will be downloaded from haescurriculum.com, to be presented as the intervention to the NIU nutrition students. Each Power Point presentation was designed to be presented in fifty minutes, but presentation time may vary. The first presentation is titled “Health At Every Size Overview” and is 54 slides (47 content, 7 references, resources, acknowledgments). Each content slide has a set of notes for the presenter to use. The presentation introduces HAES, outlines the principles, briefly covers the limitations to the traditional paradigm and compares and contrasts the diet and non-diet approaches. The second presentation is titled “Developing a Healthy Relationship with Food and Exercise” and is 51 slides (47 content, 3 references, resources, acknowledgments). Each content slide has a set of notes for the presenter to use. This presentation covers eating based on internal cues of hunger and fullness, and it explains intuitive exercise. The third presentation is titled “Size Acceptance” and it is 45 slides (39 content, 6 resources, references, acknowledgments). Presenter notes will be used as a general guide for the presentation. This set of slides covers anti-fat bias and discrimination and how to overcome them by embracing body size diversity.

Please note: It is the researcher’s responsibility to seek out permission to use copyrighted materials. Please indicate whether you have permission to use any copyrighted materials for your project:

☐ Yes, I have permission to use any copyrighted materials for this project
☐ No, I do not yet have permission to use any copyrighted materials for this project
☒ This is not relevant for the materials being used in this project

2E) If applicable, explain the procedures for providing compensation.

All students who participate will be entered into a drawing for a $25 gift card to Amazon.com each time they complete a survey. They will receive a raffle ticket each time they complete a survey. There will be a raffle drawing at the end of the pre-test data collection and a drawing at the end of the post-test data collection so that each participant that completes both will have a chance to win twice.

2F) If applicable, explain the procedures for debriefing participants. Please attach a debriefing script or sheet [Appendix D]
Reminder: As appendices to this application, attach copies of all: A) Recruitment information [script-flyer/etc.], B) Informed consent documents [assent/parent permission/scripts/etc.], C) Materials [questionnaires/surveys/interview questions/listing of all information/data to be collected/etc.], D) Debriefing information [documents/scripts], E) Referral list [if appropriate]. It is the responsibility of the researcher to obtain any relevant permission for copyrighted materials. If the research involves an oral interview or focus group discussion that could evolve as it progresses, include a list of discussion topics and any “starter” questions for each topic that can reasonably be expected to be covered. If a draft of a written questionnaire or survey is attached, it should be clearly labeled as such and a final version must be submitted before data collection begins. PLEASE NOTE THAT ANY ITEMS CAN BE ATTACHED AS SEPARATE DOCUMENTS IF NEEDED.

Part II: Research Participants
3) Participant demographics:

- Gender: M [ ] F [ ] Both [x]
- Estimated age(s):
  18-40
- Are any subjects under age 18? Yes [ ] No [x]
- Potentially vulnerable populations (please indicate if any of the following groups are the target population of the study)
  - Pregnant women & fetuses
  - Prisoners
  - Decisionally impaired/mentally disabled
  - Specific ethnic group(s) (list in box): 

If any potentially “vulnerable populations” have been indicated above, please explain the necessity for using this particular group, or if specific groups are excluded from the study, please indicate the exclusion criteria used.

- Target number of participants in the entire study (including controls) from start to finish (keep in mind that this is just an estimate of the total):
  80

4) Please explain any outside institutional (i.e., schools, hospitals) approval you will need to obtain and how approval will be sought. Provide scripts, letters, or emails providing any information that will be used to obtain needed approvals/permission. It is the responsibility of the researcher to follow all applicable policies of any outside institution(s).

Approval to collect data in the Computerized Foodservice Management class at Michigan State University has been obtained (see permission letter attached).

Part III: Risk/Benefit assessment
5) What knowledge/benefit(s) to the field will be gained from the study?

This study is important to the field of nutrition and dietetics and other health sciences. It is particularly important with respect to the education of those pursuing careers in these fields. Future health professionals, during their formal education, must be provided with evidence that supports equal and ethical treatment for their future overweight and obese clients. They must be educated about the evidence-based causes of overweight and obesity and the scientifically supported influence of body weight on overall health and wellbeing. They must be made aware of the potential to do more harm than good by focusing on weight loss, instead of healthy behavior change, with their future clients. This research will explore the effects an educational tool that may be used to provide these much needed learning experiences for those entering into the health services. The HAES paradigm is still new to many, and the HAES curriculum was very recently developed and has not undergone testing. This study will examine the efficacy and influence of the HAES curriculum to contribute to the literature on its uses in educating future health professionals.

6) What direct benefit(s) are there to the participant(s) (if any) from the proposed research? [For example, learning a new skill, psychological insight, teaching experience] [Please note that compensation is NOT considered a direct benefit.]
Participants will gain knowledge and have the opportunity to change their perceptions as a result of participation. Specifically, they will be able to do the following as a result of learning the HAES curriculum:

- Participants will be able to describe the drawbacks of a weight-centered approach to health.
- Participants will be able to recognize the multi-dimensionality of health and the limited role of diet and exercise on health outcomes.
- Participants will be able to define the Health At Every Size paradigm.
- Participants will be able to explain the differences between a diet and a non-diet approach to wellness.
- Participants will be able to examine the scientific research that supports non-diet approaches.
- Participants will be able to describe the differences between internal and external cues to eating.
- Participants will be able to utilize the hunger and fullness scale to guide eating timing and amounts.
- Participants will be able to describe the benefits of mindful eating.
- Participants will be able to apply strategies to eat more mindfully.
- Participants will be able to explain the differences between extrinsic and intrinsic motivators for physical activity.
- Participants will be able to define body image.
- Participants will be able to describe characteristics of negative and positive body image.
- Participants will be able to identify the influences of body image.
- Participants will be able to provide examples of size discrimination.
- Participants will be able to list strategies to fight against size discrimination and advocate for size acceptance.

7) Describe any potential risks (breach of confidentiality, economic, ethical, legal, physical, political, psychological/emotional, social, or other) to the subjects posed by the proposed research. (Note: Some studies may have “no reasonably foreseeable risks.”) Investigators are required to report all unexpected and/or adverse events to the IRB. Therefore, it is important that you list all reasonably anticipated risks because unanticipated adverse events may need to be reported by NIU to OHRP.

no reasonably foreseeable risks

8) Federal regulations require that researchers use procedures that minimize any risks to participants. What procedures will be used to minimize each risk and/or deal with the challenge(s) stated in “7” above?

n/a

9) If support services are required to minimize risk of harm to participants, explain what will be provided (list of services available – Appendix E). [A resource list for the DeKalb area is available on the ORC website – if using this, please provide a copy with your application.]

n/a

10) How do the potential benefits of the study justify the potential risks to the participants?

n/a

Part IV: Consent Document Variations

11) Will audio, video, or film recording be used?  Yes ☐ No ☑

If yes, specify the recording format to be used.

Please keep in mind that specific consent must be sought in the informed consent document(s) by including a separate signature/date line giving consent for recording. This is in addition to the signature/date line giving consent to participate in the research project.

12) Will this project require the use of consent/assent documents written in a language other than English?  Yes ☐ No ☑
Reminder: If non-English documents will be used, please have the document translator provide documentation (email or written) that the translation is equivalent to the English version. [This can be done after the protocol is approved in order to minimize the number of changes needed.]

13) Are you requesting a waiver of a signed informed consent document? Yes ☒ No ☐
   Please indicate the justification for requesting this waiver:
   ☒ The only record linking the subject to the research would be the signed consent document and the principal risk of the research would be breach of confidentiality.
   ☒ The research involves minimal risk to the subjects and involves no procedures for which written consent is normally required outside of the research context (e.g., online surveys).

14) Are you requesting a waiver/alteration of some other aspect of the informed consent document? [This section is relevant for studies involving deception.]
   Yes ☐ No ☒

   14a) Please explain which aspects of informed consent will be missing or altered along with a justification for the change.

   Informed consent will be explained as implied at the top of the survey so that participants do not need to sign a consent form that could link them to the study. Instead participants are consenting simply by completing the survey, as indicated on the survey itself.

   14b) Please explain how the project meets all of the following criteria:

   1) The research presents no more than minimal risk of harm to the participants.
   Data collection will be survey completion. The intervention will be Power Point presentations. Neither of these presents risk of harm.

   2) The waiver/alteration will not adversely affect the rights or welfare of the participants.
   The implied consent will inform the participants of their rights in the same way that a signed consent form would.

   3) The research could not practicably be carried out without the waiver or alteration.
   Since class time is very limited, adding the step of a signed consent form would not be practical.

   4) Whenever appropriate, the participants will be provided with additional pertinent information after participation.
   After the study, all participants from NIU and MSU will be provided with resources on how to learn more about HAES and will be given an opportunity to ask the researchers questions about the study. The instructors for both classes will have the contact information for the researcher and will be encouraged to provide it to students who may ask for it in the future, after the study is complete.

15) Will any HIPAA protected health information be collected as part of the data? Yes ☐ No ☒
   If yes, describe the procedures for protecting the information.

   [Please provide a copy of your HIPAA disclosure form to be given to participants.]

16) Will any protected school records be collected as part of the data? Yes ☐ No ☒
   If yes, describe the procedures for protecting the information.

Part V: Confidentiality and Anonymity
17) Will identifying information be connected to the data (even through an identification key linking identities to a pseudonym or code that is kept separate from the data)? Yes ☐ (confidential data) No ☒ (anonymous data)

18) If you answered yes to the above question, describe precautions to insure the privacy of the subjects, and the confidentiality of the data, both in your possession and in reports and publications.
Each participant will create his or her own unique identifier by creating a code that includes the first two letters of his or her middle name, the last two digits of the year he or she graduated from high school, the number of siblings he or she has, and the first two letters of the city in which he or she was born. The participant will be able to recreate the identifier for the post-test, but it will be anonymous to the researcher.

19) How will the records (data, recordings, and consent forms) be stored? Also indicate how long records will be kept and how and when they will be disposed of.
[Note: Signed informed consent documents must be maintained for 3 years following completion of the study.] Completed surveys will be stored in the researcher’s private home office. They will be kept for a minimum of 3 years following completion of the study. When disposed of, they will be shredded.

Part VI: Does this project involve deception
[Complete this section only if your study includes deception]

20) Describe the deception being used. Be sure to clarify whether this is deception by omission (an important aspect of the study is withheld from the participants) or commission (the participant is misled about some aspect of the study) or both. [Complete item 14 if aspects of consent are missing.]

21) Why is deception a necessary and unavoidable component of the experimental design?

22) Debriefing of participants will be:

- Immediate (directly following the research session)
- Delayed
- Full (all aspects of deception will be revealed)
- Partial (some aspects of deception will remain unexplained)

  a) If debriefing is delayed, why is the delay necessary, and when will it occur?

  b) If debriefing is partial, why is the partial debriefing necessary? Would the participant be harmed in any way by full debriefing?

  c) If debriefing is partial, will full debriefing occur later?

  d) Does the presence of deception increase risk of harm to the participants?

  e) Is the respondent free to withdraw his/her data after being fully debriefed?

23) Who will provide the debriefing?

Reminder: Please include a copy of your debriefing script/sheet with this application [Appendix D].

Part VII: Credit and Compensation
24) If participants will receive course credit for participation, please describe it below.
NIU participants will receive 2 points of lab credit each time a survey is completed (pre and post), assigned by the GA. If students do not wish to participate, they will be offered an equal assignment opportunity, created by the GA. MSU participants will not receive course credit for participation.

25) If participants will receive some other form of compensation for participation, please describe it below.
NIU and MSU students will receive a raffle ticket each time they complete a survey. There will be two drawings, a pre and a post, each for a $25 gift card to Amazon.com.

26) Describe any alternative tasks that will be available for participants to earn the credit or compensation.

An alternative assignment will be created by the GA of FCNS 410 for those students who do not wish to complete the survey.

Part VIII: Conflict of interest
27) Do any of the researchers conducting this study have any potential conflicts of interest?

[Conflicts of interest may include financial or personal interest, or any condition in which the investigator's judgment regarding a primary interest may be biased by a secondary interest.] Yes ☐ No ☑

28) If yes to the above question, please describe the nature of the conflict of interest.

Please use the following link to access the NIU research conflict of interest policy:

Part IX: Researcher Qualifications
29) In addition to listing the investigators’ names, indicate their qualifications to conduct procedures to be used in this study (specifically describe past experience conducting research with humans or how training will occur).

The student researcher, Amber Rosalez, has past experience conducting research with humans at Michigan State University as a project supervisor of the "Eat Healthy, Your Kids Are Watching" study for preschool moms. Additional experience includes working with NIU faculty as a research assistant on the "TAKE Action for Healthy Preschoolers" study. Dr. Amy Ozier, PhD, RD, LDN completed National Institutes of Health research training in 2004 and IRB training by Sandy Artez through NIU’s Office of Research Compliance in 2009.

30) State the date of completion of CITI Human Subjects Protection training program(s) for the individuals listed in the above question. [Note: NIU Policy requires that research investigators must complete appropriate training before conducting human subjects research.] If you have comparable training, please attach certification indicating this.
CITI (Collaborative Institutional Training Initiative) training is thorough and well recognized: https://www.citiprogram.org/Default.aspx?

9/23/12
To be completed by investigator and confirmed by advisor (if student project) and departmental reviewer. Initials indicate all required parties; ratify that application is complete.

Checklist of items required to accompany completed application form:
1. ___ Complete grant proposal/contract (for externally funded projects)
2. ___ All surveys, questionnaires, interview questions, or other instruments to be used
3. ___ Subject recruitment/introductory materials
4. ___ Informed consent documents (must select at least one):
   ___ Consent form for adults (if participants are age 18 or over)
   ___ Assent form for minors (if participants are under age 18)
   ___ Parental permission form (if participants are under age 18)

Initial indicating all listed materials are attached and application is complete; INCOMPLETE APPLICATIONS WILL NOT BE PROCESSED. The investigator will be notified of deficiencies in the application via e-mail from the Office of Research Compliance (ORC); if no response is received by the ORC within five (5) working days the application will be considered void.

Investigator _____   Advisor (if student project) _____   Department Chair/Designee _____

REQUIRED SIGNATURES: ALL PROJECTS

CERTIFICATION
I certify that I have read and understand the policies and procedures for research projects that involve human subjects and that I intend to comply with Northern Illinois University Policy. Any changes in the approved protocol will be submitted to the IRB for written approval prior to those changes being put into practice unless it involves an immediate safety issue for the subject during a procedure. (In such instances, the researcher is required to promptly notify the IRB after the fact.) I also understand that all non-exempt projects require review at least annually.

Investigator(s) Signature(s) __________________________ Date __________

Signature of Faculty Advisor (Student Project Only) __________________________ Date __________

Authorized Departmental Review:

☐ Project qualifies for Administrative Review.
   Cite the appropriate exempt category: __________________________

☐ Project qualifies for Subcommittee Review.
   Cite the appropriate expedited category: __________________________

☐ Project is referred for review by the convened IRB.

Signature of Authorized Departmental Reviewer __________________________ Printed name __________________________ Date __________

Return this form, together with necessary documentation, to the Office of Research Compliance, Lowden Hall, 301. For information or additional assistance with the approval process, please call the office at (815) 753-8588 or access the ORC web page at www.orc.niu.edu.
APPENDIX C

MSU PERMISSION LETTER
February 21, 2014

To the Northern Illinois University Office of Research Compliance:

I, Diane R. Fischer, give my permission to Amber M Rosalez to administer surveys to my students at Michigan State University. I understand that she will be using their answers, anonymously, as data for her thesis project. I have invited her to administer surveys to my Computerized Foodservice Management (HNF 444) class during their recitation periods. The details are as follows:

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<thead>
<tr>
<th>Date</th>
<th>Time</th>
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<tbody>
<tr>
<td>March 12, 2014</td>
<td>3:00pm</td>
<td>106 Farrell Hall</td>
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<td>March 13, 2014</td>
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<td>April 16, 2014</td>
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<td>3:00pm</td>
<td>1210 Anthony Hall</td>
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Signed:

Diane R., Fischer, MS, RDN

Phone: (517) 355-8474, x131
Fax: (517) 353-8963
Email: drfrd@msu.edu
APPENDIX D

ANTI-FAT ATTITUDES QUESTIONNAIRE
Antifat Attitudes Questionnaire (AFA)

The AFA is scored using a Likert-type response format (0 = very strongly disagree; 9 = very strongly agree). Higher scores indicate stronger anti-fat attitudes.

Dislike
1. I really don’t like fat people much.
2. I don’t have many friends that are fat.
3. I tend to think that people who are overweight are a little untrustworthy.
4. Although some fat people are surely smart, in general, I think they tend not to be quite as bright as normal weight people.
5. I have a hard time taking fat people too seriously.
6. Fat people make me somewhat uncomfortable.
7. If I were an employer looking to hire, I might avoid hiring a fat person.

Fear of Fat
8. I feel disgusted with myself when I gain weight.
9. One of the worst things that could happen to me would be if I gained 25 pounds.
10. I worry about becoming fat.

Willpower
11. People who weigh too much could lose at least some part of their weight through a little exercise.
12. Some people are fat because they have no willpower.
13. Fat people tend to be fat pretty much through their own fault.

APPENDIX E

HAES PARADIGM ASSESSMENT INSTRUMENT
Pre Test  
For your ID number, list your two initials and your birth month and day.
Example:  Sally Smith born on May 17 – ID# SS517: Jim Calhoun born on October 6 = JC106;
Rita Marone born January 5 – RM15.
ID number ____________________________

Please check the correct answer
1) I am a/an (check all that apply)
   ____ undergraduate student, nutrition/dietetics major
   ____ undergraduate student, not nutrition/dietetics major
   ____ graduate student, nutrition/dietetics
   ____ graduate student, not nutrition/dietetics
   ____ Registered Dietitian
   ____ Registered Nurse
   ____ MD
   ____ Community/Extension educator
   ____ Other, please describe ____________________________

2) I am
   ____ 22 years old or younger
   ____ 23 to 35 years of age
   ____ 36 to 50 years of age
   ____ 51 to 65 years of age
   ____ Over 65 years

3) I am  MALE         FEMALE

4) My ethnic/racial identity is
   ____ Asian American
   ____ Mexican American or other Latino
   ____ Native American
   ____ Pacific Islander
   ____ White, non-Latino
   ____ African-American

Please circle your responses to the following questions:
5 ) I would rate my overall understanding of a “Health at Every Size” (HAES) approach to
   health promotion as

   1  2  3  4  5
   No Little Some Good Excellent
   understanding understanding
6) I would like to learn more about a HAES approach to health promotion.

   | No Interest | Little Interest | Some Interest | Good Interest | High Interest |
   | 1            | 2               | 3             | 4             | 5             |

7) I would rate my current attitude towards a HAES approach to health promotion as ______ Check here if you have no knowledge of HAES; do not select a response below.

   | Very Negative | Somewhat Negative | Neutral | Somewhat Positive | Very Positive |
   | 1             | 2                   | 3      | 4                  | 5             |

8) I would rate my ability to use a HAES approach to health promotion in individual counseling as ______ Check here if you don’t do individual counseling; do not select a response

   | No Ability | Little Ability | Some Ability | Good Ability | Excellent Ability |
   | 1          | 2               | 3            | 4            | 5               |

9) I believe the HAES approach to health promotion is “evidence based”, i.e. is based on scientific research.

   | Strongly Disagree | Somewhat Disagree | Not sure | Somewhat Agree | Strongly Agree |
   | 1                   | 2                      | 3        | 4                | 5               |

10) I would rate my ability to design programs incorporating a HAES approach to Health promotion as ______ Check here if you don’t design programs; do not select a response

   | No Ability | Little Ability | Some Ability | Good Ability | Excellent Ability |
   | 1          | 2               | 3            | 4            | 5               |

11) I feel that one of my responsibilities as a health professional is/will be to help end the obesity epidemic by promoting caloric restriction and exercise for overweight and obese people.

   | Strongly Disagree | Somewhat Disagree | Not sure | Somewhat Agree | Strongly Agree |
   | 1                   | 2                      | 3        | 4                | 5               |
12) I feel that one of my responsibilities as a health professional is/will be to help reduce risk of chronic disease by promoting healthy eating and physical activity for individuals and families.

- Strongly Disagree
- Somewhat Disagree
- Not sure
- Somewhat Agree
- Strongly Agree

Post Test

For your ID number, list your two initials and your birth month and day. Example: Sally Smith born on May 17 – ID# SS517; Jim Calhoun born on October 6 = JC106; Rita Marone born January 5 = RM15.

ID number ___________________________

Please circle your responses to the following questions:

1) I would rate my overall understanding of a “Health at Every Size” (HAES) approach to health promotion as

- No understanding
- Little
- Some
- Good
- Excellent understanding

2) I would like to learn more about a HAES approach to health promotion.

- No Interest
- Little
- Some
- Good
- High Interest

3) I would rate my current attitude towards a HAES approach to health promotion as

- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive

4) I would rate my ability to use a HAES approach to health promotion in individual counseling as

_____ Check here if you don’t do individual counseling; do not select a response

- No Ability
- Little
- Some
- Good
- Excellent Ability
5) I believe the HAES approach to health promotion is “evidence based”, i.e. is based on scientific research.

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6) I would rate my ability to design programs incorporating a HAES approach to Health promotion as

_____ Check here if you don’t design programs; do not select a response

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8) I feel that one of my responsibilities as a health professional is/will be to help reduce risk of chronic disease by promoting healthy eating and physical activity for individuals and families.

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<tr>
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<td>Strongly Disagree</td>
<td>Somewhat Disagree</td>
<td>Not sure</td>
<td>Somewhat Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

9) Comments you would like to make about the presentation that you have seen on HAES

THANK YOU!
APPENDIX F

SURVEY INSTRUMENT
Nutrition & Dietetics Consent and Survey

You are being asked to participate in a research project that is being conducted by Amber M. Rosalez, under Dr. Amy Ozier PhD, RD, LDN at Northern Illinois University. The purpose of the study is to find out about the attitudes, beliefs and knowledge of dietetics students. If you agree to participate in this study, you will be asked to fill out a survey that will take approximately 20 minutes to complete. You must be 18 years or older to participate. Participation in this research is completely voluntary. You have the right to say no. You may change your mind at any time and withdraw at any time. If you have any questions about this study, you may contact Dr. Amy Ozier, PhD, RD, LDN: aozier@niu.edu or Amber M. Rosalez: arosalez@niu.edu. You may choose not to answer specific questions or to stop participating at any time. Whether you choose to participate or not will have no effect on your grade or evaluation. The intended benefits of this study include gaining knowledge about working with future clients and learning about an alternative approach to health and wellbeing. For participating, you will receive 2 points class credit and be entered into a raffle drawing for a $25 Amazon gift card. There are no foreseeable costs or risks to participation in this study.

IIf you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Office of Research Compliance at Northern Illinois University at (815) 753-8588, researchcompliance@niu.edu.

Completion of the survey implies that you have given your consent to take part in this study. Thank you.

START OF SURVEY

Please read statements 1-21 carefully and circle a number directly to the right of the statement that best describes how much you agree or disagree with the statement. Use the scale at the top of each page to decide which number best matches how much you agree or disagree with the statement. An example is done for you.

Example:

1. I really don’t like blueberries much.  1  2  3  4  5  6  7  8  9

In this example, the participant loves to eat blueberries, therefore she completely disagrees with the statement “I really don’t like blueberries much.” She has circled the “1” to indicate that she loves blueberries.
1. I really don’t like fat people much.  
2. I don’t have many friends that are fat.  
3. I tend to think that people who are overweight are a little untrustworthy.  
4. Although some fat people are surely smart, in general, I think they tend not to be quite as bright as normal weight people.  
5. I have a hard time taking fat people too seriously.  
6. Fat people make me feel somewhat uncomfortable.  
7. If I were an employer looking to hire, I might avoid hiring a fat person.  
8. I feel repulsed when I see a fat person.  
9. Fat people disgust me.  
10. I have an immediate negative reaction when I meet a fat person.  
11. I feel disgusted with myself when I gain weight.  
12. One of the worst things that could happen to me would be if I gained 25 pounds.  
13. I worry about becoming fat.
14. People who weigh too much could lose at least some part of their weight through a little exercise.

15. Some people are fat because they have no willpower.

16. Fat people tend to be fat pretty much through their own fault.

17. Fat people can lose weight if they really want to.

18. Weight is something that is under a person’s control.

19. Through a combination of exercise and dieting, anyone can lose weight and keep it off indefinitely.

20. The medical problems that overweight people have are their own fault.

21. Overweight people are responsible for their own problems.

Please circle your responses to the following questions:

22. I would rate my overall understanding of a “Health at Every Size” (HAES) approach to health promotion as

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>completely disagree</td>
<td>disagree</td>
<td>somewhat disagree</td>
<td>probably disagree</td>
<td>don’t know</td>
<td>probably agree</td>
<td>somewhat agree</td>
<td>agree</td>
<td>completely agree</td>
</tr>
</tbody>
</table>

1 2 3 4 5 6 7 8 9
23. I would like to learn more about a HAES approach to health promotion.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Interest</td>
<td>Little</td>
<td>Some</td>
<td>Good</td>
<td>High Interest</td>
<td></td>
</tr>
</tbody>
</table>

24. I would rate my current attitude towards a HAES approach to health promotion as

(____ Check here if you have no knowledge of HAES; do not select a response below.)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Negative</td>
<td>Somewhat Negative</td>
<td>Neutral</td>
<td>Somewhat Positive</td>
<td>Very Positive</td>
<td></td>
</tr>
</tbody>
</table>

25. I would rate my ability to use a HAES approach to health promotion in individual counseling as

(____ Check here if you don't plan to do individual counseling; do not select a response)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Ability</td>
<td>Little</td>
<td>Some</td>
<td>Good</td>
<td>Excellent Ability</td>
<td></td>
</tr>
</tbody>
</table>

26. I believe the HAES approach to health promotion is “evidence based”, i.e. is based on scientific research.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Somewhat Disagree</td>
<td>Not sure</td>
<td>Somewhat Agree</td>
<td>Strongly Agree</td>
<td></td>
</tr>
</tbody>
</table>

27. I would rate my ability to design programs incorporating a HAES approach to Health promotion as

(____ Check here if you don't plan to design programs; do not select a response)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Ability</td>
<td>Little</td>
<td>Some</td>
<td>Good</td>
<td>Excellent Ability</td>
<td></td>
</tr>
</tbody>
</table>
28. I feel that one of my responsibilities, as a health professional is/will be to help end the obesity epidemic by promoting caloric restriction and exercise for overweight and obese people.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Somewhat Disagree</td>
<td>Not sure</td>
<td>Somewhat Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

29. I feel that one of my responsibilities, as a health professional is/will be to help reduce risk of chronic disease by promoting healthy eating and physical activity for individuals and families.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Somewhat Disagree</td>
<td>Not sure</td>
<td>Somewhat Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

For statements 22-25 please check all the answers that best describe you

30. I am a/an (check all that apply)
   ____ undergraduate student, nutrition/dietetics major
   ____ undergraduate student, not nutrition/dietetics major
   ____ Other, please describe ____________________________

31. I am ______ years of age

32. I identify as
   ____ Male
   ____ Female
   ____ Other

33. My ethnic/racial identity is (please check all that apply)
   ____ Asian American
   ____ Mexican American or other Latino
   ____ Native American
   ____ Pacific Islander
   ____ White, non-Latino
   ____ African-American
   ____ Multi-racial
   ____ Other

THANK YOU!
APPENDIX G

HAES CURRICULUM FLYER
Go to: haescurriculum.com for these three power point presentations that can be viewed with voiceover, plus resources for learning and teaching about HAES

**HAES Principles:**

1. Accepting and respecting the diversity of body shapes and sizes
2. Recognizing that health and well-being are multi-dimensional and that they include physical, social, spiritual, occupational, emotional, and intellectual aspects
3. Promoting all aspects of health and well-being for people of all sizes
4. Promoting eating in a manner which balances individual nutritional needs, hunger, satiety, appetite and pleasure
5. Promoting individually appropriate, enjoyable, life-enhancing physical activity, rather than exercise that is focused on a goal of weight loss

<table>
<thead>
<tr>
<th>Traditional Weight-Loss Paradigm</th>
<th>Health At Every Size Paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyone needs to be thin for good health and happiness</td>
<td>Thin is not intrinsically healthy and beautiful, nor is fat intrinsically unhealthy and unappealing.</td>
</tr>
<tr>
<td>Individuals who are not thin are “overweight” because they have no will power, eat too much, and do not move enough.</td>
<td>Individuals naturally have different body shapes and sizes and different preferences for food and physical activity.</td>
</tr>
<tr>
<td>Everyone can be thin, happy, and healthy by dieting.</td>
<td>Dieting usually leads to weight gain, decreased self-esteem, and increased risk for disordered eating. Health and happiness involve a dynamic interaction among mental, social, spiritual, and physical considerations.</td>
</tr>
</tbody>
</table>

MSU Summer course: HNF 456 Eating Disorders (3 credits)
- Learn about the treatment and prevention of eating disorders and the importance of eating disorder awareness as a health professional.
APPENDIX H

RECRUITMENT SCRIPT
Hello my name is _______________, and I am here today to ask if you would be willing to participate in a research study. If you choose to participate, you will complete a 33 question survey that will take about 20 minutes to complete. For your participation you will receive a raffle ticket to be entered into a drawing for a $25 gift card to Amazon.com. I will use the information on your raffle ticket to make sure you get your 2 lab points for completing the survey. Participation is optional. There are no foreseeable risks to participation. Your answers will be anonymous. When you receive your survey please write the following code in the top right hand corner of the page: First two letters of your middle name (if you do not have a middle name, please write 00), last two digits of the year you graduated from high school, number of siblings you have (2 is 02), first two letters of the city in which you were born. When you have completed the survey, please bring it to me at the front of the class. I will give you your raffle ticket and check it for completion putting it into a large envelope. Our research team will not be able to trace your survey answers back to you. If you are interested in participating, please raise your hand and I will pass you a survey. Thank you.
First two letters of your middle name (if you do not have a middle name, please write 00), last two digits of the year you graduated from high school, number of siblings you have (2 is 02), first two letters of the city in which you were born.

Code should be 8 digits long

Example: MA0006HO
APPENDIX I

HAES CURRICULUM PRESENTATION OUTLINES
Presentation 1:

Health At Every Size®

Overview

Outline
- Defining Weight and Health
- Changes in Weight Over Time
- Associations Between Weight and Health
- Drawbacks of Dieting
- Definition of Health At Every Size
- Differences Between Dieting and Non-Dieting
- Research in Support of Health At Every Size
- Common Misconceptions of Health at Every Size

Presentation 2:

Health At Every Size®

Developing a Healthy Relationship with Food and Exercise

Outline
- Black and White Thinking
- Internal vs. External Cues
- Tuning into Hunger and Fullness
- Planning for Eating
- Cravings
- Mindful Eating
- Emotional Eating
- Intuitive Exercise

Presentation 3:

Health At Every Size®

Size Acceptance

Outline
- Body Image
- Size Diversity
- Size Discrimination
- HAES Advocacy