

2012

Body Image and Healthy Lifestyle Behavior Among University Students

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BODY IMAGE AND HEALTHY LIFESTYLE BEHAVIOR
AMONG UNIVERSITY STUDENTS

by

Tracy L. Wright

A thesis submitted to the School of Nursing
in partial fulfillment of the requirements for the degree of

Master of Science in Nursing

UNIVERSITY OF NORTH FLORIDA

BROOKS COLLEGE OF HEALTH

April, 2012

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Abstract

Children develop beliefs about ideal body image and carry these perceptions into adulthood. Consequences of poor body image may include decreased self-esteem, depression, unhealthy lifestyle, and eating disorders. Understanding healthy lifestyle behaviors and the relationship between body image and these behaviors can empower individuals to engage in behaviors to improve health. Pender's health promotion model provided the theoretical framework for this study.

The purpose of this study was to identify the relationship between body image and healthy lifestyle behaviors among undergraduate university students. An email was sent to undergraduate students, providing a link to the survey that included: demographic, body dissatisfaction, and screen time questions; Prochaska's physical activity screening measure; and a lifestyle profile by Walker, Sechrist, and Pender.

A total of 1056 usable surveys were returned. The majority (71%) were satisfied with their body image, although many (60.3%) wanted to alter it. Most (65.1%) had a normal BMI. Sedentary activity was more than the recommended amount, with only 23.3% meeting physical activity guidelines. Healthy lifestyle behaviors were engaged in "sometimes" and "often, but not routinely." Body image was correlated with healthy lifestyle behaviors. There was a moderate correlation between activity and body image, and a negative correlation between sedentary activity and healthy lifestyle behaviors.

Chapter One: Introduction

Most people develop the behaviors that they will carry into adulthood while they are children. Children are exposed to many sources of information and opinions that influence what they see as a healthy body image (Pender, Murdaugh, & Parsons, 2011). Both male and female adolescents are under pressure to be thin from their peers, which has a negative effect on their body image (Presnell, Bearman, & Stice, 2004).

Children are very impressionable, which opens doors for them to adopt lifestyle behaviors and a perceived body image that they will carry into adolescence and possibly further into adulthood. Depending on what they are exposed to as children, they may adopt a lifestyle of healthy or unhealthy behaviors based on their exposures. They also may develop a negative perceived body image, which can have an effect on their self-esteem, eating habits, and lifestyle choices (Pender et al., 2011).

A low self-esteem has been linked to increased body dissatisfaction (Paxton, Eisenberg, & Neumark-Sztainer, 2006; van den Berg et al., 2007) and to unhealthy eating behaviors (Martyn-Nemeth, Penckofer, Gulanick, Velsor-Friedrich, & Bryant, 2009). Adolescents who have been teased about their weight generally report higher levels of body dissatisfaction (Paxton et al., 2006). One study found that girls who were at an average weight felt as if they were overweight, or were not satisfied with their bodies (Neumark-Sztainer, Story, Hannan, Perry, & Irving, 2002b). Paxton et al. (2006) found that BMI was associated with body satisfaction at all stages of adolescence.

A five-year longitudinal study found that adolescents with lower levels of body satisfaction had an increased likelihood of engaging in more health-compromising behaviors as well as a decreased likelihood of engaging in health-promoting behaviors (Neumark-Sztainer et al., 2006). Both males and females who had a self-reported negative body image reported lower levels of physical activity. This is concerning due to the increasing number of adolescents who report a negative perceived body image. Having a low body image was not a motivation in developing behaviors that promote long-term weight management (Neumark-Sztainer et al., 2006). Body dissatisfaction in early adolescence is predictive of body dissatisfaction in late adolescence (Paxon et al., 2006).

It is important to understand the relationship between body image and lifestyle habits of late adolescents so that the appropriate interventions can be developed to guide this population toward a more positive body image (Wilkoosz, Chen, Kenndey, & Rankin, 2011). Using methods of motivation for behavior change that decrease adolescents' comfort with their own bodies is counter-productive in that this method can actually lead to lower levels of body satisfaction and therefore, possibly decreasing healthy behaviors over time. It is recommended that interventions and education be targeted at increasing perceived body image, which leads to an increase in body satisfaction. An increased body satisfaction has been associated with a higher likelihood that a person will want to develop and maintain healthy behaviors (Neumark-Sztainer et al., 2006).

Purpose

The purpose of this study was to identify and determine the relationship between body image and healthy lifestyle behaviors among undergraduate university students. It

was hypothesized that a negative self-reported body image would be predictive of a decrease in healthy lifestyle behaviors in this population, whereas a more positive body image would be predictive of an increase in the amount of healthy lifestyle behaviors that a student engages in.

Theoretical Framework

The theoretical model chosen for this study is the health promotion model (HPM) by Pender et al. (2011). The model explains the relationships, individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcome (see Figure 1.1). There are assumptions underlying the use of this model. First, it is assumed that people want to control their own behavior and have a drive to do so. Engaging in a health-promoting behavior is not a passive occurrence. The second assumption is that people are constantly interacting with their environment, which has an influence on their actions and decisions. The third assumption is that healthcare professionals are a part of the interpersonal influences. The last assumption is that people must alter their environments to promote change before action can occur and be sustained (Pender et al., 2011).

Individual Characteristics and Experiences

Prior related behavior. It is known that when predicting behavior, it is usually the case that people will behave in a similar manner as they did in the past (Pender et al., 2011). Prior behaviors of individuals have both direct and indirect effects on health promoting behaviors. A direct effect could be the development of a habit. The more a person does this behavior, the more it is engrained into them and the habitual behavior is

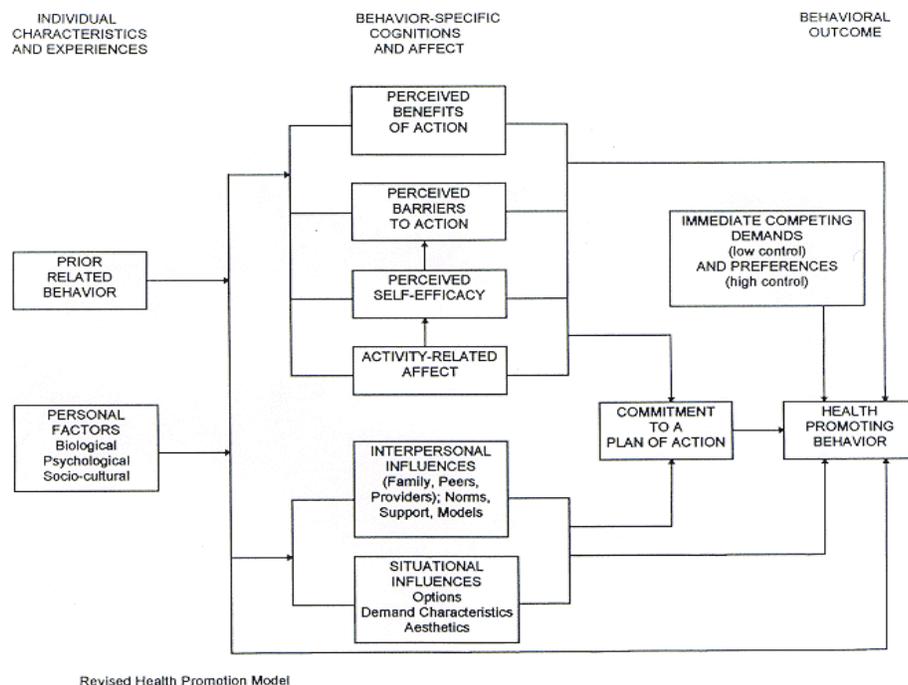


Figure 1.1. Health promotion model. From *Health Promotion in Nursing Practice* by N. Pender, C. Murdaugh, and M.A. Parsons, 2011, p. 45. Copyright 2011 by Pearson Education, Inc.

strengthened. The indirect way in which a behavior can affect health promotion is through the development of self-efficacy. If a person has self-efficacy, then there is a higher chance that the person will engage in self-motivated, promotional-type behaviors (Pender et al., 2011).

Personal factors. These factors are biological, psychological, and sociocultural. Biological factors include concepts such as age, BMI, aerobic capacity, strength, pubertal and menopausal status, balance, and agility. Psychological factors include perceived health status, self-esteem, and self-motivation. Sociocultural factors include race, ethnicity, acculturation, socioeconomic status, and education. The personal factors related to the individual that could possibly explain the behavior are the only ones that are observed (Pender et al., 2011).

Behavior-specific Cognitions and Affect

This is the most vital part of the model. These variables can be modified, unlike the previous variables, and can therefore be quite positively influential for health promotion. The variables under this umbrella are perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity-related affect, interpersonal influences, and situational influences (Pender et al., 2011).

Perceived benefits of action. Before a person decides to participate in any given behavior, the anticipated benefits are weighed against the action of the behavior in a mental cost and benefit type of analysis. Believing in benefits of taking the action is an important component leading to health promoting behavior development, but it is not enough to sustain the behavior alone. These perceived benefits may be intrinsic or extrinsic, but in the case of health-promoting behaviors, the intrinsic benefits may have more influence in sustaining a health-related behavior (Pender et al., 2011).

Perceived barriers to action. Barriers to action are mental notions that a behavior is going to cost too much time or money, be inconvenient or unavailable, or too challenging. When individuals feel this way about a behavior, feelings of avoidance usually set in. These perceived barriers could directly affect health-promoting behaviors by creating a barricade before action takes place. The barriers can also indirectly affect health-promoting behavior by negatively affecting the development of a commitment to an action plan (Pender et al., 2011).

Perceived self-efficacy. Self-efficacy is really a self-judgment of what one is capable of doing. It does not refer to the judgment of what will come out of performing the behavior. It refers to the actual action itself, and the belief that one can perform it. If

one feels skilled and competent in an area, then this area is likely to be developed further than areas in which a person does not have this level of confidence. The perceptions of self-efficacy influence perceived barriers to action because the more self-efficacy beliefs a person has, the lesser the perceived barriers because one will be more confident that the action can take place. Self-efficacy also directly influences health-promoting behaviors by instilling the confidence that one can commit to the health-promoting behavior. It indirectly affects the ultimate goal of developing the behavior by increasing the persistence to accomplishing the goal (Pender et al., 2011).

Activity-related affect. This variable has three parts. The first is the emotional reaction to the action that will be performed. The second is the person performing the action, and the third is the environment that surrounds the action that is taking place. What comes of these parts has an influence on whether or not the action will be repeated in the future. The individual's response to thinking about taking the action can range from mild to strong, and these thoughts are stored in memory so that when the action is thought of, the same emotions will arise that are associated with that action. This will affect whether the person will want to continue taking the action or not. If the behaviors are linked more to a positive affect than a negative affect, then they will likely be repeated. This variable directly influences health behaviors, as well as indirectly influences them through effects on self-efficacy and a commitment to developing an action plan (Pender et al., 2011).

Interpersonal influences. This category is associated with an individual's ideas about the beliefs, behaviors, and attitudes of other people. It is known that family, peers, and healthcare providers have an influence on a person's health-promoting behaviors.

These ideas may or may not be connected to what is real. They may just be perceptions of one's imagination. People are greatly influenced by others' expectations, encouragement from other people, and other people's behaviors that are observed. In the HPM, the interpersonal influences that one faces will directly affect health-promoting behavior, as well as indirectly affect it through social pressure or receiving encouragement to commit to taking action. Not all people value the opinion of others with the same magnitude, but it does affect everyone to some extent (Pender et al., 2011).

Situational influences. What a person thinks about any given situation will influence behavior. People will be drawn to performing behaviors in environments that feel safe and stimulating. If people feel compatible with the situation and can relate to the context of the environment that it is taking place in, then they are more likely to be drawn to it. The HPM suggests that these situational influences can directly affect health-promoting behavior by creating an environment with triggers that bring people to action. The situational influences can also indirectly affect health-promoting behavior through influencing the commitment to action. If a situation is appealing, the commitment will be easier to adhere to (Pender et al., 2011).

Behavioral Outcome

Commitment to a plan of action. This variable is influenced by the variables in the previous umbrella of behavior-specific cognitions and affect. Once a person makes a commitment to action, then the behavior is engaged. People tend to develop behaviors in an organized manner, so this is a decision that has received some thought and mental cost and benefit analysis. The commitment does not take place without an underlying plan of

how to carry out the action, and this is an assumption of this component of the HPM (Pender et al., 2011).

Immediate competing demands and preferences. This variable is not directly influenced by any of the previously discussed variables according to the HPM, but it does directly affect health-promoting behavior. This label refers to the thoughts that arise just as the action is about to take place that can compete with the originally contemplated course of action. These competing demands can be variables that a person cannot control because they are from outside sources, such as the needs of family or work responsibilities. Individuals feel the pressure to meet these demands because there are consequences for not taking care of them, despite the original plan to take a new course of action (Pender et al., 2011).

People have more control over competing preferences, but this depends on their self-regulation ability. If there is something that a person wants because it is easier, for example, that person can turn from that preference if the level of self-regulation is high enough. These are different than the barriers that were discussed because these take place at the last minute, just before the action is to take place and after the commitment has been made. Both of these competing ideas can lead a person astray from the original commitment to action, so this is something to be aware of. These demands and preferences can obviously directly affect the initiation of health-promoting behaviors, but they can also indirectly affect the behaviors by negatively swaying the commitment to action (Pender et al., 2011).

Health-promoting behavior. The last variable in the HPM is health-promoting behavior, which is the outcome of this entire process. When people of any age develop

and integrate health-promoting behaviors into their lifestyle, they have a better quality of life (Pender et al., 2011).

This study will include data collection on many of these concepts, including personal factors, perceived barriers, perceived self-efficacy, competing demands, and health-promoting behaviors. Some of the data collected will influence multiple aspects of the HPM. All of the variables will be assessed for their predictable influence on healthy lifestyle behaviors, which can be compared to the health-promoting behavior concept, as the outcome of the HPM.

Definition of Terms

Body Image

Body image is “a subjective picture of one's own physical appearance established both by self-observation and by noting the reactions of others” (Merriam-Webster’s online dictionary, 2011). Body image was measured using the body dissatisfaction questions developed by Wilkosz et al. (2011).

Healthy Lifestyle Behaviors

Healthy lifestyle behaviors include behaviors such as “health responsibility, physical activity, nutrition, self-actualization, interpersonal relations, and stress management” (Hacıhasanoğlu, Yıldırım, Karakurt, & Sağlam, 2011). Certain aspects of healthy lifestyle behavior were measured. Sedentary activity was measured using the screen time questions developed by Wilkosz et al. (2011). Exercise behavior was measured using the 60 minute moderate to vigorous physical activity (MVPA) screening measure developed by Prochaska, Sallis, and Long (2001). Lifestyle behaviors were

measured using the Health Promotion Life-Style Profile II (HPLP) by Walker, Sechrist, and Pender (1987).

Chapter Two: Review of Literature

Adolescents are constantly undergoing changes that are both physical and psychosocial. These changes are influenced by many factors, such as peers, family, their degree of self-efficacy, and their genetic composition. These factors can influence body image and the healthy habits of this population. Body image is important to understand because poor body image can become a barrier to healthy behaviors (Wilkosz et al., 2011). Healthy behaviors adopted in childhood and adolescence can have an effect on the modifiable risks of disease that can occur later in life, so it is important for young people to develop healthy lifestyle behaviors to reduce these risks (Hacıhasanoğlu et al., 2011).

Developmental Considerations

The majority of undergraduate university students fall into the categories of late adolescence (ages 18-21) and early adulthood (ages 21-34) (Harkreader, Hogan, & Thobaben, 2007). Young people are on the edge of entering into adulthood and becoming independently functioning persons. Just before this developmental period, adolescents are completely focused inward on their own thoughts and body image. They develop beliefs that everyone else is also entirely focused on them, which can carry into their early years of late adolescence and create an exaggerated idea of the amount of attention others place on them.

Erickson (1963) identified adolescence as a time that young people are trying to develop their own identity, apart from their family and to explore the roles that they want to take on and be connected with. Levinson (1978) describes the young adult's tasks as

leaving the family and making the transition to the adult world. The typical university student, therefore, is experiencing many different thoughts, feelings, challenges, and changes while attending college and becoming a part of a new social group. These young people leave their families to gain other intimate relationships and develop their own plan for making it in the world. People of this age group are also at risk for taking part in risky behaviors, such as engaging in drug and alcohol use and abuse. These lifestyle behaviors can have many adverse effects on self-esteem and body image (Harkreader et al., 2007).

Body Image and Dissatisfaction

Body image has a profound impact on behaviors of individuals, and body dissatisfaction affects individuals of all ages. It is important to understand how body dissatisfaction affects adolescents and young adults because their feelings about their bodies can have an effect on their behaviors into their adult years (Wilkosz et al., 2011). Data from the Youth Risk Surveillance Report indicates that 27.7% of high school students in the United States described themselves as slightly or very overweight (Centers for Disease Control [CDC], 2010). This percentage increased as students moved from the ninth grade to the twelfth grade. A total 44.4% reported that they were trying to lose weight, and this percentage was higher for girls (59.3%) than for boys (30.5%) (CDC, 2010). This is consistent with the findings of a recent study that adolescent females tend to report greater body dissatisfaction than adolescent males and that females reported a greater size discrepancy from their actual body size than did their male counterparts (Jones, Fries, & Danish, 2007).

Factors Affecting Body Image

Body image may be influenced by several factors. These include socioeconomic status, ethnicity, and exposure to obesity.

Socioeconomic status (SES). In general, young people with higher SES have a smaller ideal body size (Lynch et al., 2007). With respect to perception of personal body size, however, the data are conflicting. Although Lynch et al. (2007) found that SES did not influence perception of personal body size, a survey of more than 87,000 high school students in Minnesota found that those from low-income families tended to underestimate their own weight (Park, 2011).

Ethnicity. Ethnicity can affect the way a person perceives body image. Data from the Youth Risk Surveillance Report indicates that 33.3% of Hispanic students, 26.4% of white students, and 22.9% of black students describe themselves as overweight (CDC, 2010). This finding is consistent in multiple recent studies indicating that white adolescent girls are more likely to feel dissatisfied with their bodies than black adolescent girls (Jones et al., 2007; Neff, Sargent, McKeown, Jackson, & Valois, 1997; Yates, Edman, & Aruguete, 2004). Asian girls' perception of body image is more similar to white girls', and white boys reported a higher level of body satisfaction than boys of all other ethnicities (Neumark-Sztainer et al., 2002a).

Exposure to obesity. It is possible that repeated exposure to persons who are overweight or obese can influence an adolescent's own perceptions. Maximova et al. (2008) found that underestimation of personal weight status was higher in adolescents whose parents and/or schoolmates had higher BMIs. Similarly, teens in a focus group

indicated that they become used to seeing overweight individuals in school, therefore they are no longer aware of it (Williams, Taylor, Wolf, Lawson, & Crespo, 2008).

Body Image and Effect on Health

Body dissatisfaction has been linked to low self-esteem (Presnell et al., 2004) and a higher BMI (Paxton et al., 2006). Depressive symptoms in adolescents have been associated with a perception of not being the appropriate weight (Daniels, 2005). Girls tend to report more depressive symptoms associated with weight than boys (Martyn-Nemeth et al., 2009). In fact, girls report more depression and low self-esteem than do boys, regardless of their weight (Swallen et al., 2005). Hispanic adolescents report higher rates of poor general health, depression, and low self-esteem than their white counterparts (Swallen, Reither, Haas, & Meier, 2005). Asian adolescents are also more likely than whites to report higher levels of depression and low self-esteem. However, black adolescents are less likely than their white counterparts to report low self-esteem.

The desire to control weight can escalate to dangerous levels when adolescents engage in other health-compromising behaviors while engaging in unhealthy weight control behaviors. One study found a significant relationship between unhealthy weight control behaviors and suicidal ideation in the adolescent population (Neumark-Sztainer, Story, Dixon, & Murray, 1998).

In a national longitudinal study of adolescent health, a significant relationship was found between being overweight or obese and higher reporting a poorer level of general but not emotional health (Swallen et al., 2005). When stratified by gender, the differences in reported general health disappeared for overweight and obese girls, but remained for overweight and obese boys. Age alone did not prove to be a predictor of health-related

quality of life. The 15-17 year-olds reported the highest levels of depression and lowest self-esteem (Swallen et al., 2005). In contrast, a study conducted at a university in Hawaii found a significant positive correlation between BMI and body dissatisfaction and self-dissatisfaction for both male and female students (Yates et al., 2004).

Healthy Lifestyle Behaviors

Healthy lifestyle behaviors are those behaviors that demonstrate responsibility for one's own health, taking part in physical activity, having adequate nutritional intake, realizing self-actualization, establishing interpersonal relations, and learning how to manage stress (Hacıhasanoğlu et al., 2011). Diet, exercise, and stress management have been recognized as some of the major behaviors to target for analysis in the late adolescent and young adult age group, since prevention at an early stage in life is paramount to remaining healthy in later years when the risks for disease are so much higher (Harkreader et al., 2007). Body image, a concept that late adolescents struggle with, can have an effect on these target lifestyle behaviors.

Students who are attending a university are dealing with many pressures, including being away from home for the first time. They are required to make more independent decisions, which can be stressful. It is vitally important that they receive the proper guidance when the opportunity arises, because the decisions they make will affect their futures as independently functioning adults (Lee & Yuen Loke, 2005).

Barriers to Healthy Behaviors

The Youth Risk Surveillance Report (CDC, 2010) found that 32.8% of students watched at least three hours of television on a typical school day. In many cases, young children learn to be sedentary and not include physical activity into their lives. A

qualitative study of families with children ages 5-12 years found that parents did not encourage children to go out and play, and did not limit screen time for the children (Puglisi, Okely, Pearson, & Vialle, 2010). Cited barriers to encouragement of active versus passive play included single-parent homes, lack of friends in the neighborhood, inclement weather, children's lack of perceived competence to engage in athletic activities, parents belief that physical activities were not as safe as sedentary indoor activities whenever they were not available to supervise their children, and children's perception that they were better at and more confident in participating in the indoor activities than the physical activities.

In a study conducted in Toronto examining the exercise habits and beliefs of a group of male adolescents (ages 15-16), boys indicated that they participated in physical activity because they found it enjoyable, it provided a sense of accomplishment and an opportunity to socialize and spend time with other adolescents, and was a way to pursue a healthy way of life and reap the physical and psychological health benefits (Allison et al., 2005). Perceived barriers included feeling they were just not cut out for physical activities due to physical characteristics (including being overweight), psychological factors, and perceived lack of competency. Some participants reported that they would rather spend the time doing academic work or engage in technical activities (watching television, using the internet, playing video games). They were less likely to exercise if their families and friends did not exercise. Students with obligations such as schoolwork, part time jobs, and relationships felt as if they did not have enough time to regularly participate in exercise activities (Allison et al., 2005).

A similar study was conducted involving adolescent girls (ages 11-14) from the Midwest region of the United States (Robbins, Pender, & Kazanis, 2003). Seven common perceived barriers that were reported by greater than half of the girls in the study. These barriers were that they felt self-conscious about what they looked like while exercising, they were not motivated to exercise, they did not have anyone to exercise with, and they felt as if they were too busy to fit exercise into their lives. Other perceived barriers were that they did not feel like putting the effort into exercising after having a bad or tiring day, they felt like they could not exercise if the weather was bad, and they felt as if physical activity is too difficult (Robbins et al., 2003).

Living situations can affect eating habits. A comparative study of university students of various majors taking an introductory nutrition class was conducted to analyze the differences in dietary habits of students living on campus versus students living off campus (Brevard & Ricketts, 1996). Students living off campus had a significantly higher protein intake than those students living on campus. Adolescents also report that meals eaten with family members at home are generally healthier, and include more vegetables than meals eaten out and those eaten with friends (Croll, Neumark-Sztainer, & Story, 2001). Adolescents may be knowledgeable about healthy eating and often report that they know that they are eating unhealthy foods, but do not particularly want to do anything about it at their current age. In general, boys value healthier food choices more for their ability to provide lasting energy, while girls see healthy food consumption as a way to stay thin (Croll et al., 2001).

Body Mass Index and Lifestyle Behaviors

A cross-sectional descriptive study examined the relationship between BMI and the healthy lifestyle behaviors of a group of undergraduate nursing students in Kuwait (Al-Kandari, Vidal, & Thomas, 2008). The study utilized the Health Promotion Lifestyle Profile II (HPLP II) to evaluate the health-promoting behaviors of 202 students between the ages of 17 and 35. The average BMI for all of the students in the study was 24.4. Only 45.1% of the sample had a normal BMI; 11.9% were obese, 26.2% were overweight, and 16.8% were underweight. With the exception of being underweight and having a normal BMI, the other BMI categories were higher for males than females. The lowest HPLP II scores were for the 17-20 year-old group. There was a significant correlation between the BMI and the overall HPLP II score as well as the nutrition subscale. A study of Taiwanese workers also found that individuals with high BMIs tended to have lower HPLP II scores (Huang, Li, & Tang, 2010).

Nutrition

A study of university students in Sweden found that females actually had higher knowledge related to healthy eating and healthier nutritional habits than males and that there was not a relationship between the students' nutritional habits and their knowledge of healthy food (von Bothmer & Fridlund, 2005). In contrast, a descriptive correlational study of a variety of third year university students in Turkey found that no gender difference in the knowledge of healthy eating (Tirodimos, Georgouvia, Savvala, Karanika, & Noukari, 2009).

Physical Activity

Physical activity is also affected as students transition from high school to a university. A study conducted in Canada found that 66% of students reported having enough physical activity while in high school, but only 44% of this sample reported having enough physical activity once they got to the university level (Bray & Born, 2004). In general, there seems to be little difference in time spent doing physical activity between the first and fourth year college students (Keating, Guan, Piñero, & Bridges, 2005).

In a meta-analysis of the physical activity behaviors of college students 30-50% did not engage in enough physical activity to reap the health benefits of education (Keating et al., 2005). Only 6.4-48.6% of the participants in a Hong Kong university study reported incorporating any kind of physical activity into their lives at all (Lee & Yuen Loke, 2005), and 59.5% of the students in a German university study reported not reaching the minimum required amount of physical activity (Keller, Maddock, Hannover, Thyrian, & Basler, 2007). In contrast, a study of university students in Sweden found that 71% reported that they exercise regularly (von Bothmer & Fridlund, 2005).

Students from a rural historically black college reported relatively high levels of physical activity. Nearly 30% of the sample met the definition of moderate physical activity: at least 30 minutes per day at least five days out of the week. More than 42% met the vigorous physical activity requirements: sustained activity for at least 20 minutes per day for at least three days per week (Kemper & Welsh, 2010). In another study, individuals who were overweight, but not obese, reported significantly more time spent

doing vigorous physical activity and strength training versus the normal weight individuals (Stanziano & Butler-Ajibade, 2011).

In a study of university students in Hong Kong, male students reported engaging in physical exercise more often than females (Lee & Yuen Loke, 2005). This is supported by findings of studies in Turkey (Tirodimos et al., 2009), and Hawaii (Yates et al., 2004). von Bothmer and Fridlund (2005), however, found no significant difference between male and female students' participation in physical activity. Males also enjoy taking part in physical activities for recreational purposes more so than females (Lee & Yuen Loke, 2005).

Differences in Healthy Lifestyles by College Major

It is interesting to classify groups of university students according to major to assess for patterns among students of the same major. In a study of German university students, medical students reported the lowest levels of smoking and binge drinking, and law students had the lowest exercise rate and the highest binge drinking rate. Education students had the highest smoking rate, and education and law students had the lowest fruit and vegetable consumption (Keller et al., 2007). In a study of nursing versus non-nursing students at a university in Istanbul, Turkey, similar results were found between groups, with nursing students reporting higher health responsibility, nutrition, interpersonal relations, and stress management (Can et al., 2008).

Within nursing programs, there appears to be an increase in stress management abilities from entry to graduation (Alpar, Senturan, Karabacak, & Sabuncu, 2008; Can et al., 2008). A longitudinal descriptive study found significant increases from the time of entrance into the program to graduation on the total HPLP II score and every subscale of

the HPLP II except exercise (Alpar et al., 2008). Interestingly, Al-Kandari et al. (2008) found that the HPLP II scores decreased from the first semester in the nursing program through the second, third, and fourth semesters, only to rebound to their original levels during the final semester.

Summary

The research supports the notion that there are numerous factors that play a role in the relationship between body image and lifestyle behaviors of late adolescents and young adults. Age, sex, living situation, college major, and support systems are examples of some of the factors that have an effect on the participation in healthy lifestyle behaviors for this population. Of important note in this literature review is that most of these studies have been done in vastly different cultures, so there may not be obvious comparisons that can be drawn between the groups since culture has such a profound effect on the functioning and beliefs of individuals. These relationships will be examined in this study of the undergraduate student population at the University of North Florida, which will be more of a homogenous population than the various groups that have been mentioned in this literature review.

Chapter Three: Methods

This chapter includes the methodology for this descriptive correlational study beginning with identification of the design and a description of the setting, the sample, and the sampling procedure. This is followed by a description of the instruments used, the data collection procedures, and protection of human subjects.

Design

This was a non-experimental Level II correlational study employing an online survey technique to explore the relationships between body image and healthy lifestyle behaviors in university students.

Setting

The setting was a university campus in northeast Florida with a student body of 16,600 students. The majority of the students at this university are Caucasian (74%), with 10% black, 7% Asian, and 6% Hispanic. The school admits approximately 1,100 freshmen each fall, 57% of whom are female.

Sample

A convenience sample was used in this study. Participants were required to be: (a) enrolled as an undergraduate student; (b) >17 and <25 years-of-age; and (c) able to read and understand English. Power analysis indicated that for a probability of 80 percent to detect a moderate correlation ($r = .30$) between body image and healthy lifestyle behavior at a two-sided 0.05 significance level, a sample size of 64 was needed. With more than 16,000 undergraduate students enrolled at the University, a conservative

estimate of a 10% response rate was estimated to yield an anticipated sample size of 1,600. A similar online survey previously delivered at UNF had a response rate of 17.6% (Dembeck, 2010).

Data Collection

An email was sent out through the Institutional Research department to all enrolled undergraduate students during the sixth week of the fall semester (see Appendix A). This time was chosen, as the enrollment during this semester is the highest of any of the semesters. The email included an invitation and a link to participate in an online survey. A reminder email was sent two weeks later to provide for increased participation of students (see Appendix B). Electing to complete and submit the survey constituted consent to participate.

The survey was created and deployed through Vovici Enterprise, a survey tool hosted and administered on university servers using multiple layers of network security. Vovici stores responses in a database instance of MS SQL Server. This provides good protection and scalability and is on a protected server within the Network Operations Center. The survey used a HTML form to collect responses in a secure database and responses were totally anonymous. The survey remained open for one month after the initial e-mail invitation was deployed.

Instruments

The online survey was used to collect demographic data as well as measures of body image and healthy lifestyle behaviors (see Appendix C). The survey contained a total of 74 questions, taking approximately 10 minutes to complete.

Demographic Data

Demographic data included the students' age, gender, ethnicity, place of abode, grade level, part time or full time designation, college major, work status, self-reported height and weight, and self-reported health status.

Body Image

Data about body image was collected using the body dissatisfaction questions developed by Wilkosz et al. (2011). These questions were derived from those used in the California Health Interview Survey (UCLA Center, 2007). The survey is available at <http://www.askchis.com/> There are five "Yes" "No" questions related to behaviors with respect to gaining or losing weight in the previous 7 days. Each answer is given a point value of 1 for "Yes" or 0 for "No. The points are totaled to provide the measure of body dissatisfaction. The higher scores are indicative of a higher level of body dissatisfaction.

Lifestyle Behaviors

Lifestyle behaviors will be assessed in three ways. These include sedentary activity, physical activity, and healthy lifestyle behavior.

Sedentary activity. Data regarding the amount of sedentary activity reported by students was collected using the screen time questions developed by Wilkosz et al. (2011). These questions were derived from those used in the California Health Interview Survey (UCLA Center, 2007). The amount of time reported watching television, playing video games, and/or using the computer for leisure (not for schoolwork) was divided into less than and greater than two hours per day. Two hours is significant because the American Academy of Pediatrics (2001) recommends less than two hours of sedentary activity per day.

Physical activity. The 60-minute moderate to vigorous physical activity screening (MVPA) screening tool was used to measure exercise behavior. The tool contains two questions querying the individual's number of days of moderate to vigorous exercise in the past week and in a typical week. The MVPA score is the average of the two questions. The tool is reliable (interclass correlation= 0.77) and valid ($r= 0.40$ in a test against the computer science and applications accelerometer) (Prochaska et al., 2001). Permission to use this tool was obtained from the author.

Healthy lifestyle behavior. Lifestyle behavior was assessed using the Health Promoting Lifestyle Profile (HPLP) II. The original instrument (HPLP) had 48 items (Walker et al., 1987). The instrument was revised to include more up-to-date information and to even out the number of items in each subscale (Walker & Hill-Polerecky, 1996). There are 52 items on the HPLP II, divided into six subscales: spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management. The internal consistency of the instrument as a whole is high, with an alpha coefficient of .943. Individual subscale alpha coefficients range from .793 to .872. The stability of the instrument was found to be .892 for the total scale (Walker & Hill-Polerecky, 1996). The scale has been widely used in studies of university students across the world (Can et al., 2008; Díez & Pérez-Fortis, 2009; Stark, Manning-Walsh, & Vliem, 2005). Permission to use this tool was obtained from the author.

Protection of Human Subjects

Approval under expedited status was obtained from the Institutional Review Board at the university prior to deployment of the survey. The actual deployment of the survey to the students was done by the university's department of institutional research

through the Vovici platform, thus ensuring anonymity of both those invited as well as those responding.

Chapter Four: Results

This chapter describes the findings of this level II correlational study examining the relationship between body image and healthy lifestyle behaviors of undergraduate university students. Descriptive analyses of the characteristics of the sample and correlations between the variables are presented.

Demographic Data

Invitations to participate in the online survey were e-mailed to 11,909 undergraduate university students. A total of 1,813 individuals logged on to the survey. Of those, 560 only partially completed the survey. There were 148 individuals who logged on to the survey and did not complete any survey items. Out of the 1,105 individuals who completed the survey, there were 49 people who were over the age of 24. Therefore, the final sample size was 1,056.

Participants were 18-24 years old. The mean age of the sample was 20.47 (SD = 1.73). The average height was 66.18 inches (range = 57-77, SD = 3.77), the average weight was 147.58 pounds (range = 85-345, SD = 34.83), and the average BMI was 23.58 (range = 14.56-50.48, SD = 4.63). Of the 1,056 participants, 19.7% were overweight and 9% were obese (see Table 4.1).

The majority of the sample were Caucasian (75.3%) and female (75%). Most of the participants were upperclassmen (65.5%), in a non health-related major (69.8%) and enrolled as a full-time student (92.5%). The majority of the participants were living on

Table 4.1. BMI Distributions for the Sample

Classification	N	%
Severely underweight (< 16.0)	3	0.3
Underweight (16.0-18.5)	62	5.9
Normal weight (18.5-25.0)	687	65.1
Overweight (25.0-30.0)	208	19.7
Obese class I (30.0-35.0)	70	6.6
Obese class II (35.0-40.0)	15	1.4
Obese class III (>40.0)	11	1.0

their own either on or off-campus (64.8%) and were employed (61.8%). See Table 4.2 for details on the sample characteristics.

Table 4.2. Sample Characteristics

Characteristic	N	%
Ethnicity		
Asian	63	5.9
Biracial	31	2.9
Black	60	5.7
Caucasian	795	75.3
Hispanic	95	9.0
Middle Eastern	6	0.6
Other	6	0.6
Gender		
Female	792	75.0
Male	264	25.0
College Level		
Freshman	174	16.5
Sophomore	190	18.0
Junior	388	36.7
Senior	304	28.8
Major		
Health-related	319	30.2
Non health-related	737	69.8
Enrollment Status		
Full-time	977	92.5
Part-time	79	7.5
Living Situation		
On campus	293	27.7
Own home/apartment	392	37.1
With parent/guardian	371	35.1
Work Status		
Full-time	115	10.9
Part-time	538	50.9
Not working	403	38.2

Body Image and Satisfaction

In general, participants reported being satisfied with their body image (71%) and with their weight (91.9%). Even though the vast majority of participants stated they were satisfied with their weight, 60.3% reported that they currently wanted to gain or lose weight, meaning they had some level of body dissatisfaction (see Table 4.3). There was no difference in body image and satisfaction by age, gender, or college major.

Table 4.3. Body Dissatisfaction

	N	%
Current Weight Loss Goals		
Lose, or gain weight	637	60.3
Stay same, not do anything	419	39.7
In past 7 days, diet to gain/lose weight		
Yes	307	29.1
No	749	70.9
In past 7 days, exercise to gain/lose weight		
Yes	518	49.1
No	538	50.9
In past 7 days, do anything else to gain/lose weight		
Yes	37	3.5
No	1,019	96.5

Thirty-seven (3.5%) of the participants listed activities for weight loss or gain other than diet and exercise. Some of these were healthy behaviors, some were not. Eighteen individuals used dietary supplements or weight loss aids, 8 admitted to purging, 4 avoided eating at all, 3 increased their water intake, 2 increased their hours of sleep, 1 had dental work which affected food intake, and 1 was breastfeeding.

Physical Activity

The MVPA tool was used to assess whether participants were meeting established physical activity guidelines. Of the 1,056 participants, only 268 (25.3%) were meeting physical activity guidelines of a minimum of five days per week with 60 minutes of

physical activity per day (see Table 4.4). There was no difference in physical activity by age, gender, or college major.

Table 4.4. MVPA Scores for Physical Activity

Days	60 Minutes/Day Past 7 Days		60 Minutes/Day Typical Week		Average Score*	
	N	%	N	%	N	%
0	227	21.5	177	16.8	155	14.7
1	131	12.4	113	10.7	131	12.4
2	152	14.4	155	14.7	163	15.4
3	184	17.4	207	19.6	196	18.6
4	121	11.5	145	13.7	143	13.6
5	96	9.1	107	10.1	110	10.4
6	63	6.0	78	7.4	84	7.9
7	82	7.8	74	7.0	74	7.0

*Average score <5 = not meeting physical activity guidelines

The screen time questions were used to assess sedentary activity scores for participants. During a typical school week, 74.7% of participants used a computer for greater than the recommended time per day. The percentage of participants who used a computer for greater than the recommended time per day was only slightly less on the weekends (68%). Only 34.5 % of the sample excessively watched television and/or played video games during the school week, but this percentage increased during the weekends (48.5%) (see Table 4.5).

Healthy Lifestyle Behaviors

The HPLP II was used to assess the healthy lifestyle behaviors of participants. Cronbach's alpha for the total score in the current sample was .94, indicating high internal consistency. The scores for each subscale range between two and four, which equates to a frequency of performing the behaviors sometimes or often, respectively. Therefore, healthy lifestyle behaviors included in health responsibility, physical activity,

Table 4.5. Screen Time

Days	TV/Video Games		Computer	
	N	%	N	%
Monday-Friday				
≤2 hours	692	65.5	267	25.3
3-5 hours	253	24.0	467	44.2
6-8 hours	41	3.9	132	12.5
9-10 hours	33	3.1	59	5.6
>10 hours	37	3.5	131	12.4
Saturday-Sunday				
≤2 hours	544	51.5	338	32.0
3-5 hours	376	35.6	445	42.1
6-8 hours	88	8.3	169	16.0
9-10 hours	26	2.5	52	4.9
>10 hours	22	2.1	52	4.9

Two hours or less of screen time per day is an American Academy of Pediatrics recommendation

nutrition, spiritual growth, interpersonal relations, and stress management are performed more often than never, but not routinely, on average for this sample (see Table 4.6).

There was no difference in healthy lifestyle behaviors by age, gender, or college major.

Table 4.6. HPLP II Scores for Lifestyle Behaviors

	Mean	SD
Overall Score	2.59	0.45
Health responsibility	2.09	0.61
Physical activity	2.40	0.67
Nutrition	2.53	0.56
Spiritual growth	3.04	0.60
Interpersonal	3.02	0.58
Stress management	2.45	0.53

Scores are based on a Likert scale: 1-never, 2-sometimes, 3-often, 4-routinely

Relationships Between Body Image and Healthy Lifestyle Behaviors

There was a low, but significant positive correlation between body image and some of the healthy lifestyle behaviors, the highest of which was with the physical activity subscale (see Table 4.7). There was a significant moderate correlation between MVPA scores and body image ($r = .20$, $p = 0$) as well as between MVPA scores and a

health promoting lifestyle total ($r = .37$; $p = 0$). Sedentary activity was not significantly correlated with body image, but it had a low, yet significant, negative correlation to health promoting lifestyle total ($r = .10$; $p = .02$).

Table 4.7. Correlations among Variables

	Body Image Total	
	Correlation Coefficient	P-value
Health promoting lifestyle	0.066	0.033
Health responsibility	0.061	0.047
Physical activity	0.236	0.000
Nutrition	0.091	0.003
Spiritual growth	-0.046	0.134
Interpersonal	-0.025	0.425
Stress management	-0.023	0.450
MVPA	0.203	0.000
Sedentary activity	-0.026	0.404

Chapter Five: Discussion

This chapter provides a discussion of the study findings relevant to the relationship between body image and healthy lifestyle behaviors among undergraduate university students. This is followed by delineation of the limitations of the study and articulation of implications for evidence-based advanced nursing practice and for strategic planning for persons involved in health promotion of college students. Finally, directions for future research are presented.

Body Image and Lifestyle Behaviors

Body Image

It is known that a poor body image can have a negative effect on healthy lifestyle behaviors (Wilkosz et al., 2011). The majority of participants in this study reported being satisfied with their body image (71%), and 91.9% of individuals reported being satisfied with their weight, although the percentage of students with a normal BMI was 65.1%, which is only little greater than half.

Despite high percentages suggesting body satisfaction mentioned above, 60.3% of participants reported wanting to do something to gain or lose weight. This finding is suggestive of body dissatisfaction. Perhaps after more specific questioning about wanting to gain or lose weight, participants realized that they were in fact, not exactly satisfied with their body image. Because beliefs about body image held during teenage years can carry into young adulthood, these data can be compared to previous data examining adolescents' beliefs about their weight. Data from the CDC shows that 44.4% of

adolescents are trying to lose weight (CDC, 2010). This is less than the 60.3% of participants from this survey who reported wanting to alter their weight. However, the percentage of individuals who reported being dissatisfied with their weight was relatively low for each survey group (8.1% for this group and 27.7% for the CDC study group). In either case, the amount of people wanting to do something to alter their weight was not proportional to the amount of people reporting body dissatisfaction.

Lifestyle Behaviors and Barriers to Health Promoting Activity

It is also known from the data that not all activities done to gain or lose weight are healthy behaviors. This is concerning because some of these strategies, such as purging and avoiding food altogether, are extremely dangerous. There are a total of 78.2% of students who are dieting (29.1%) or exercising (49.1%) to alter weight, which should lead to a change in body image perception. This is encouraging when compared to the literature because so many individuals reported various barriers to exercise participation and eating healthy. According to data from previous studies, students living on their own had less nutritional intake than those living with family, citing vegetable intake and home cooked meals in particular being higher for those living with family (Croll et al., 2001). The majority of this sample were living on their own (64.8%). The difference can most likely be attributed to the fact that there are other people available to cook meals in homes where students live with a parent or guardian.

Physical Activity

One of the most bothersome findings of the study was that only 25.3% of participants were meeting physical activity guidelines. According to the literature, less than half of the participants in various studies conducted in multiple university settings

were meeting physical activity guidelines, so this frequency (25.3%) is consistent with historical data (Bray & Born, 2004; Keating et al., 2005; Lee & Yuen Loke, 2005; Keller et al., 2007). This was true except for one study done in a historically black college where 72% of the sample was meeting either moderate or vigorous activity levels every week (Kemper & Welsh, 2010). The difference in physical activity participation could possibly be explained by the majority of ethnic groups in each sample. The majority of respondents in this study were Caucasian (75.3%), and only 5.7% were black as compared to the students at the historically black college.

The most time-consuming sedentary activity was computer use (versus television watching). The amount of students using a computer for greater than two hours per day during the week was 74.7%, and 68% of students used a computer for greater than two hours per day on the weekends. The excessive sedentary time spent on the computer could possibly be attributed to the fact that this survey was conducted with a university population who most likely depends heavily on computers for functionality in school.

Analysis of Relationships between Variables

The frequency of performing healthy lifestyle behaviors for the sample was more often than never but not as often as routinely. This means that the six subscales of healthy behaviors are all performed to some degree, but not consistently for this sample. One would expect a group reporting a 71% body satisfaction rate to be performing healthy lifestyle behaviors, as a positive body image has been shown to be linked with the performance of healthy behaviors. This held true for this sample as there was a low, but significant positive correlation between body image and the healthy lifestyle profile. This means that as the scores for body image increase, the frequency of performing healthy

behaviors increases. The strongest correlation between body image and items on the HPLP II was between body image and physical activity. This means that as body image scores increase, physical activity scores should increase. However, only 25.3% of this sample reported engaging in the required amount of physical activity per week according to the MVPA tool. This can be explained by recalling that the frequency of physical activity participation was between sometimes and often for the sample.

The MVPA scores were moderately correlated with body image and the healthy promoting lifestyle total. The individuals reporting more physical activity were also reporting a better body image and higher frequencies of healthy behaviors. This is consistent with the literature as previously mentioned. No correlation was found between sedentary activity and body image, but sedentary activity was negatively correlated with the total scores for the HPLP II. This finding is rather expected, as one should score lower on a questionnaire about healthy behaviors if one spends more time being sedentary.

Relation to Theoretical Framework

The study results can be related back to the theoretical framework of the study. Participants were dynamic and had various profiles of perceived barriers and benefits to action. Theoretically, those who reported body dissatisfaction should have had more perceived barriers to action, since a negative body image is related to less performance of healthy behaviors. The dichotomy in this study is that 71% of participants reported being satisfied with their body image, but 60.3% wanted to gain or lose weight (which suggests dissatisfaction). According to these percentages, 71% of individuals would have perceived benefits to participating in healthy lifestyle behaviors, and should also have

higher HPLP II scores, but 60.3% of individuals should also have perceived barriers to action, which would drive down performance of healthy behaviors. In reality, the healthy behaviors are being performed on a frequency between sometimes and often, but not routinely. Therefore, the background evidence and the results are consistent with the health promotion model.

Study Limitations

The survey was rather lengthy, and the response rate may have been higher if there were not as many items to be answered. The incomplete entries could not be considered in the final data analysis. There were several other surveys that were sent by the university to these same students during the time that this study was done. This may have also contributed to the low response rate. Although 1,056 is a good sample size, it represents less than 10% of the population.

It would also be beneficial to administer this survey across various settings within the same age group to compare various university settings, as well as those young adults and late adolescents who are not enrolled in a university. Their behaviors could be different, and it would be interesting to recognize and study any differences that may exist in these populations.

Implications for Advanced Practice Nursing

These data are of great value to clinicians because of the epidemics of obesity and chronic disease in this country. The ultimate answer to these problems is prevention, and these data can help clinicians to understand what motivates people to participate in healthy lifestyle behaviors. Because college is such a transitional period for young adults, it is a critical time to be aware of and identify any barriers to healthy lifestyles for these

individuals. The cyclical nature of body dissatisfaction leading to less physical activity and other healthy behaviors, which only further spirals into an even worse body image, must be stopped sooner in the downward progression in order to promote healthy body images, which should lead to healthy lifestyles. Ideally, the obesity and chronic disease epidemics could be slowed, and maybe even stopped, by getting young people in the right state of health.

Implications for College Health

These data could be foundational for the development of programs to focus on the promotion of positive body image and therefore healthy behaviors. College campuses need to offer adequate facilities for exercise and various activities that promote physical activity and social interaction, such as intermural sports. These resources should be advertised in such a way that the students are aware of the opportunities. A variety of options should be offered so that those who are less likely to exercise in front of a large group of people will have an opportunity to exercise. This could be solved by offering extended hours in the gym facilities for those who might like to exercise when the gym is less crowded. The idea is to decrease the amount of perceived barriers, in conjunction with the health promotion model. Student ambassadors could be recruited to lead activity groups in a judgment-free atmosphere.

The food choices offered on campus must also be analyzed for nutritional value. Healthy choices need to be abundant and easily available. The less healthy choices should be limited.

It might also be beneficial for colleges to offer support groups for those struggling with body image, weight issues, unhealthy weight management habits, etc. These could

be advertised and available through student health resources. Education should also be provided to young adults regarding the link between unhealthy behaviors and the development of obesity and chronic disease later in life so that awareness is raised for the importance of instituting healthy behaviors in the prevention phase of disease.

Implications for Future Research

Since the link between body image and healthy behaviors has been established, it is now important to develop interventions targeting young people. The ultimate goal for intervention studies would be to identify actions that will bring about significant impact on those affected by body dissatisfaction, and therefore unhealthy behaviors. The physical and mental health of individuals is intimately intertwined, and developing and testing programs that bring these two hemispheres into focus at the same time could be impactful for the future of adolescents and young adults. Ultimately, healthy lifestyle behaviors need to be promoted, but it is now understood that before individuals feel free to participate in these health-promoting behaviors, they may need to eliminate barriers such as body dissatisfaction. If the link could be identified for these young people, and groups could be formed for support and education, then there may be a movement toward the promotion of healthy lives and disease prevention.

Future research needs to be conducted regarding the institution of support groups for those with body dissatisfaction. The body dissatisfaction scores for these groups should be analyzed prior to intervention, and again post-intervention to assess for any changes in body image. These groups should be offered support and education, as well as guidance in initiating and maintaining healthy behaviors such as health responsibility, physical activity, nutrition, stress management, interpersonal relations, and spiritual

growth (which are the subscales of the HPLP II). In theory, this education and support should promote healthy behaviors and therefore, a more healthy body image, which will again foster maintenance of a healthy lifestyle.

Appendix A

Informational E-mail

My name is Tracy Wright, and I am a nurse practitioner student in the School of Nursing at the University of North Florida. I am interested in the relationship between body image and healthy lifestyle behaviors of undergraduate students at the University of North Florida. I am, therefore, looking for undergraduate students, age 18-24, to complete an online survey. Completion of the survey will take approximately 10 minutes and can be done from anywhere you have access to a computer.

No compensation will be provided for participation in the study. There are no known risks to participating in this study. All of your responses will be anonymous. Participation is completely voluntary and you may end your participation at any time. Your choice to participate or not to participate will not affect your rights as a student at the University of North Florida.

If you are a student, age 18-24 and choose to participate in the study, please complete the questionnaire by clicking on the link below. Completion of the questionnaire indicates your consent to participate. Please do not put your name on the questionnaire.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Tracy Wright, at _____ or Dr. Kathaleen Bloom, Professor of Nursing at UNF, _____. This research has been approved by the UNF Institutional Review board (11-067). If you have any questions regarding your rights as a research subjects, you may contact Dr. Katherine Kasten, UNF Institutional Review Board at _____.

To complete the survey click here [link]. The survey will remain open for responses until [date].

Appendix B

Follow-up E-mail

Ten days ago you received an invitation to participate in an online survey. If you have completed that survey, thank you for your participation. If you have not yet completed the survey, there is still time. Please see below for complete information and a link to the online survey.

My name is Tracy Wright, and I am a nurse practitioner student in the School of Nursing at the University of North Florida. I am interested in the relationship between body image and healthy lifestyle behaviors of undergraduate students at the University of North Florida. I am, therefore, looking for undergraduate students, age 18-24, to complete an online survey. Completion of the survey will take approximately 10 minutes and can be done from anywhere you have access to a computer.

No compensation will be provided for participation in the study. There are no known risks to participating in this study. All of your responses will be anonymous. Participation is completely voluntary and you may end your participation at any time. Your choice to participate or not to participate will not affect your rights as a student at the University of North Florida.

If you are a student, age 18-24 and choose to participate in the study, please complete the questionnaire by clicking on the link below. Completion of the questionnaire indicates your consent to participate. Please do not put your name on the questionnaire.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Tracy Wright, at _____ or Dr. Kathaleen Bloom, Professor of Nursing at UNF, _____. This research has been approved by the UNF Institutional Review board (11-067). If you have any questions regarding your rights as a research subjects, you may contact Dr. Katherine Kasten, UNF Institutional Review Board at _____.

To complete the survey click here [link]. The survey will remain open for responses until [date].

Appendix C

Online Survey

Body Image and Healthy Lifestyle Behaviors

My name is Tracy Wright, and I am a nurse practitioner student in the School of Nursing at the University of North Florida. I am interested in the relationship between body image and healthy lifestyle behaviors of undergraduate students at the University of North Florida. No compensation will be provided for participation in the study. There are no known risks to participating in this study. All of your responses will be anonymous. Participation is completely voluntary and you may end your participation at any time. Your choice to participate or not to participate will not affect your rights as a student at the University of North Florida. There are no foreseeable risks or costs to participation, other than the time it takes to complete this survey. The survey will take approximately 10 minutes to complete. This site is secure, and only survey data are captured and recorded. We receive only the aggregate report, with no identifying data. By completing this survey, you attest that you are no younger than 18 and no older than 24 years of age. Completion and submission of the survey indicates your willingness to participate.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Tracy Wright, at _____ or Dr. Kathaleen Bloom, Professor of Nursing at UNF, _____. This research has been approved by the UNF Institutional Review board (IRB#11-067). If you have any questions regarding your rights as a research subjects, you may contact Dr. Katherine Kasten, UNF Institutional Review Board at _____

Demographic Data: Please complete the following information to help me know a little about you.

1. Age _____
2. Gender: _____
3. Ethnicity: Asian Black Caucasian Hispanic
Other [Please specify] _____
4. Level at UNF: Freshman Sophomore Junior Senior
5. Major: Health-related Non health-related
6. Enrollment Status: Part-time Full-time
7. Currently living: With parents/guardian Own home/apartment On-Campus
8. Work Status: Full-time Part-time Not working
9. Estimated Height: ___ feet ___ inches
10. Estimated Weight: _____ pounds
11. In general, would you say your health is: excellent very good good
fair poor

Body Image:

12. Compared with what you would like to be, would you say you are: very underweight slightly underweight about the right weight slightly overweight very overweight
13. Are you currently trying to: lose weight stay the same weight gain weight not do anything about your weight
14. In the past 7 days, did you diet to lose or gain weight? Yes No
15. In the past 7 days, did you exercise to lose or gain weight? Yes No
16. In the past 7 days, did you do anything else to lose or gain weight? Yes No

If you answered "Yes," what was it? _____

Activity Level:

17. Thinking about your free time on **MONDAY THROUGH FRIDAY**, on a typical day, about how many hours do you usually watch TV or play video games _____
18. Thinking about your free time on **MONDAY THROUGH FRIDAY**, on a typical day, about how many hours do you use a computer? _____
19. Thinking about your typical **SATURDAY** and **SUNDAY**, about how many hours do you usually watch TV or play video games _____
20. Thinking about your typical **SATURDAY** and **SUNDAY**, on a typical day, about how many hours do you use a computer? _____

Physical activity is any activity that increases your heart rate and makes you get out of breath some of the time. Physical activity can be done in sports, playing with friends, or walking around school. Some examples of physical activity are running, brisk walking, rollerblading, biking, dancing, skateboarding, swimming, soccer, basketball, football, and surfing.

21. Over the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day?

0 days 1 2 3 4 5 6 7days

22. Over a typical or usual week, on how many days were you physically active for a total of at least 60 minutes per day?

0 days 1 2 3 4 5 6 7days

Healthy Lifestyle Profile: The following includes statements about your *present* way of life or personal habits. Please respond to each item as accurately as possible. Indicate the frequency with which you engage in each behavior.

1. Discuss my problems and concerns with people close to me.	Never	Sometimes	Often	Routinely
2. Choose a diet low in fat, saturated fat, and cholesterol.	Never	Sometimes	Often	Routinely
3. Report any unusual signs or symptoms to a physician or other health professional.	Never	Sometimes	Often	Routinely
4. Follow a planned exercise program.	Never	Sometimes	Often	Routinely
5. Get enough sleep.	Never	Sometimes	Often	Routinely
6. Feel I am growing and changing in positive ways.	Never	Sometimes	Often	Routinely

7. Praise other people easily for their achievements.	Never	Sometimes	Often	Routinely
8. Limit use of sugars and food containing sugar (sweets).	Never	Sometimes	Often	Routinely
9. Read or watch TV programs about improving health.	Never	Sometimes	Often	Routinely
10. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber).	Never	Sometimes	Often	Routinely
11. Take some time for relaxation each day.	Never	Sometimes	Often	Routinely
12. Believe that my life has purpose.	Never	Sometimes	Often	Routinely
13. Maintain meaningful and fulfilling relationships with others.	Never	Sometimes	Often	Routinely
14. Eat 6-11 servings of bread, cereal, rice and pasta each day.	Never	Sometimes	Often	Routinely
15. Question health professionals in order to understand their instructions.	Never	Sometimes	Often	Routinely
16. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week).	Never	Sometimes	Often	Routinely
17. Accept those things in my life which I can not change.	Never	Sometimes	Often	Routinely
18. Look forward to the future.	Never	Sometimes	Often	Routinely
19. Spend time with close friends.	Never	Sometimes	Often	Routinely
20. Eat 2-4 servings of fruit each day.	Never	Sometimes	Often	Routinely
21. Get a second opinion when I question my health care provider's advice.	Never	Sometimes	Often	Routinely
22. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	Never	Sometimes	Often	Routinely
23. Concentrate on pleasant thoughts at bedtime.	Never	Sometimes	Often	Routinely
24. Feel content and at peace with myself.	Never	Sometimes	Often	Routinely
25. Find it easy to show concern, love and warmth to others.	Never	Sometimes	Often	Routinely
26. Eat 3-5 servings of vegetables each day.	Never	Sometimes	Often	Routinely
27. Discuss my health concerns with health professionals.	Never	Sometimes	Often	Routinely
28. Do stretching exercises at least 3 times per week.	Never	Sometimes	Often	Routinely
29. Use specific methods to control my stress.	Never	Sometimes	Often	Routinely
30. Work toward long-term goals in my life.	Never	Sometimes	Often	Routinely
31. Touch and am touched by people I care about.	Never	Sometimes	Often	Routinely
32. Eat 2-3 servings of milk, yogurt or cheese each day.	Never	Sometimes	Often	Routinely

33. Inspect my body at least monthly for physical changes/danger signs.	Never	Sometimes	Often	Routinely
34. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking).	Never	Sometimes	Often	Routinely
35. Balance time between work and play.	Never	Sometimes	Often	Routinely
36. Find each day interesting and challenging.	Never	Sometimes	Often	Routinely
37. Find ways to meet my needs for intimacy.	Never	Sometimes	Often	Routinely
38. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	Never	Sometimes	Often	Routinely
39. Ask for information from health professionals about how to take good care of myself.	Never	Sometimes	Often	Routinely
40. Check my pulse rate when exercising.	Never	Sometimes	Often	Routinely
41. Practice relaxation or meditation for 15-20 minutes daily.	Never	Sometimes	Often	Routinely
42. Am aware of what is important to me in life.	Never	Sometimes	Often	Routinely
43. Get support from a network of caring people.	Never	Sometimes	Often	Routinely
44. Read labels to identify nutrients, fats, and sodium content in packaged food.	Never	Sometimes	Often	Routinely
45. Attend educational programs on personal health care.	Never	Sometimes	Often	Routinely
46. Reach my target heart rate when exercising.	Never	Sometimes	Often	Routinely
47. Pace myself to prevent tiredness.	Never	Sometimes	Often	Routinely
48. Feel connected with some force greater than myself.	Never	Sometimes	Often	Routinely
49. Settle conflicts with others through discussion and compromise.	Never	Sometimes	Often	Routinely
50. Eat breakfast.	Never	Sometimes	Often	Routinely
51. Seek guidance or counseling when necessary.	Never	Sometimes	Often	Routinely
52. Expose myself to new experiences and challenges.	Never	Sometimes	Often	Routinely

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