

2014

Relationship between weight-related teasing and levels of physical activity

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RELATIONSHIP BETWEEN WEIGHT-RELATED
TEASING AND LEVELS OF
PHYSICAL ACTIVITY

An Abstract of a Thesis
Submitted
in Partial Fulfillment
of the Requirements for the Degree
Master of Arts

Piroska Boros
University of Northern Iowa
August, 2014

ABSTRACT

Weight-related teasing is associated with predictors of physical activity such as self-efficacy and social support. It is possible that more frequent weight-related teasing is directly associated with engagement in physical activity.

The purpose of the study was to examine the relationship between weight-related teasing and engagement in physical activity, body composition and physical activity enjoyment among female college students. This study also investigated the possibility that physical activity enjoyment mediates the relationship between weight-related teasing and physical activity.

Fifty-seven female college students participated in the study. Participants completed the Physical Activity Enjoyment Scale to measure how much they enjoyed participating in physical activity and the Perception of Teasing Scale to evaluate experiences of weight teasing. Participants also wore the Actigraph GT3X+ accelerometers for seven days. Finally, body composition was analyzed using bioelectrical impedance.

Body fat percentage was negatively correlated to physical activity enjoyment ($r = -.313, p < .05$) and vigorous physical activity ($r = -.296, p < .05$), and positively correlated to teasing frequency ($r = .397, p < .05$). Physical activity enjoyment was negatively related to frequency of weight-related teasing ($r = -.313, p < .05$), and positively correlated to the physical activity habit variables ($r = .543, p < .05$). Weight-related teasing was negatively correlated to vigorous physical activity ($r = -.232, p < .05$). Weight-related teasing was not a significant predictor of vigorous physical activity ($F_{1,55}$

= 3.14; $p = .082$; $r^2 = .05$), but it was a significant predictor of physical activity enjoyment ($F_{1,55} = 16.4$; $p < .01$; $r^2 = .23$). Finally, physical activity enjoyment was a significant predictor of vigorous physical activity ($F_{1,55} = 5.96$; $p = .018$; $r^2 = .10$).

It is important to design physical activity programs that participants find enjoyable and safe, specially overweight and obese female participants. Fitness instructors should be educated about the effects of teasing on physical activity enjoyment and engagement in vigorous physical activity.

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This Study by: Piroska Boros

Entitled: Relationship between Weight-Related Teasing and Levels of Physical Activity

has been approved as meeting the thesis requirement for the

Degree of Masters of Arts

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to Mom and Dad

no words can express how much

I love and miss you forever

Anyunak és Apunak

kimondhatatlanul hiányoztok

szeretlek Benneteket mindörökké

ACKNOWLEDGEMENT

I would like to express my deepest appreciation to my thesis advisor and committee chair, Dr Fabio Fontana, who introduced this study for me. This project would not have been finished without his guidance, mentoring, knowledge, persistent encouragement and helpful feedbacks.

I would like to thank my committee members, Dr Jennifer Waldron and Dr Trey Leech, for their feedback and support that helped me to finish this thesis.

I would also like to thank my academic advisor, Dr Forrest Dolgener, for advising me throughout my educational journey at University of Northern Iowa.

My special thanks to Dr Ferenc Ihász, my very first mentor, academic advisor and undergraduate thesis advisor for believing in me, encouraging me to read and learn more, and for involving me in research studies that implemented my humble and thirst for knowledge and for science.

I would like to thank Dr Miklós Bánhidi at University of West Hungary for influencing the will to explore cultures and life out of Hungary.

I am grateful to Dr Kevin Finn, for introducing the international exchange program between University of West Hungary and University of Northern Iowa, and for his persistent encouragement to apply for a Master's degree at University of Northern Iowa.

I am forever in debt to all my professors at University of West Hungary and University of Northern Iowa for influencing and shaping my knowledge and thoughts,

and for providing me with the skills and knowledge needed in order to complete a Master's degree.

I would like to acknowledge and thank my Iowan host family, Robin and Greg Cooper, and their family, for supporting me, cheering me up when I was down and for creating a family environment far away from home.

Special thanks to my beloved family and friends at home in Hungary for believing in me, encouraging me and for the hour-long Skype conference calls that often meant the world for me.

Very special thanks to my beloved Anyu (Mom) and Apu (Dad) for their unconditional love and support, and for raising me up to the woman who I am today. 'Anyu, Apu, I love and miss you very much, and I hope, as you look down on me from Heaven you are happy and pleased with my accomplishments. You will be always with me in my heart.'

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CHAPTER I

INTRODUCTION

Regular participation in aerobic physical activity reduces the risk of developing chronic and even fatal cardiovascular and metabolic diseases (Hedley et al., 2004). According to the World Health Organization/WHO (2013), cardiovascular disease is the second among all mortality causes in the United States. More than 10% of the US adult population has raised fasting blood glucose levels (WHO Statistics, 2013), 30.6% has high blood pressure, and 69% is at least overweight (US Department of Health & Human Services, 2013). On the other hand, research indicates that adequate level of physical activity prevents hypertension and different cardiovascular conditions (Carnethon et al., 2010), increases brain function and enhances the neurogenesis of certain brain cells in the adult brain (Kempermann & Gage, 1999; Radák et al., 2014). Increasing the level of physical activity is an important strategy to reduce the risk factors of metabolic diseases such as Type II Diabetes by reducing weight, waist circumference, low density lipoprotein cholesterol, and fasting blood glucose levels (Kujala et al., 2011).

To prevent cardiovascular and metabolic diseases, the American College of Sports Medicine (ACSM) recommends that adults engage in at least 30-60 minutes of moderate intensity aerobic exercise on five days a week, or 20-60 minutes of vigorous intensity exercise on three days a week (Garber et al., 2011). However, there are several factors that may prevent young adults from meeting the physical activity recommendations. Graduating from high school and entering young adulthood is a vulnerable time when new habits are being established. Habits that are being developed

during this period are more likely to remain throughout life, including physical activity habits (Bray & Born, 2004). Changes in lifestyle due to transition to college from high school (Terenzini et al., 1994), the low levels of social support (Wallace, Buckworth, Kirby, & Sherman, 2000), and the time constraints due to work and study (Manthei & Gilmore, 2005) result in less time for being physically active.

Beside the environmental factors, enjoyment also plays a role in levels of physical activity engagement (Dishman et al., 2005). Previous physical activity experience (Raedeke, Focht, & Scales, 2007), appropriate training stimulus (Ekkekakis, Parfitt, & Petruzzello, 2011), high quality social interaction (Wininger, 2002) and the physical environment (Prochaska, Sallis, Slymen, & Mckenzie, 2003) influence the levels of enjoyment. Positive attitude towards physical activity is related to higher enjoyment. However, the attitude towards physical activity is affected by weight status with more obese individuals showing greater avoidance from physical activity (Deforche, De Bourdeaudhuij, & Tanghe, 2006).

In addition to environmental factors and enjoyment of physical activity, participation in physical activity may be affected by weight-related teasing experiences (Li & Rukovina, 2012; Storch et al., 2007). Teasing experiences have a negative influence on psychological functioning such as social anxiety, loneliness and depression (Eisenberg, Berge, Fulkerson, & Neumark-Sztainer, 2011). It is less clear if weight-related teasing prevents individuals from living a physically active lifestyle.

Statement of the Problem

The purpose of the study was to examine the relationship between weight-related teasing and engagement in physical activity, body composition and physical activity enjoyment among female college students. This study also investigated the possibility that physical activity enjoyment mediates the relationship between weight-related teasing and physical activity.

Research Questions

- Is body fat percentage positively associated with the frequency of teasing, and negatively associated with enjoyment of physical activity and engagement in physical activity?
- Is enjoyment of physical activity positively associated with participation in physical activity, and negatively associated with weight-related teasing? Is the latter relationship still significant after controlling for body fat percentage?
- Is the prevalence of weight-related teasing negatively associated with engagement in physical activity? Are these two variables correlated when controlling for body fat percentage?
- Is enjoyment a mediator between weight-related teasing and physical activity?

Hypotheses

The study hypothesized body fat percentage has a positive relationship with the frequency of teasing, and an inverse relationship associated with enjoyment of physical activity and engagement in physical activity. Secondly, it was hypothesized enjoyment of physical activity is positively associated with participation in physical activity, and

negatively associated with weight-related teasing even after controlling for body fat percentage. In addition, it was hypothesized that prevalence of weight-related teasing has an inverse association with engagement in physical activity even when controlling for body fat percentage. Finally, physical activity enjoyment was hypothesized as a mediator between weight-related teasing and physical activity.

Significance of the Study

The negative comments about weight may have an adverse effect on individuals' psychological well-being and emotional development, and is often linked to low self-esteem, body dissatisfaction, and depression. Insufficient levels of physical activity are positively associated with higher incidence of chronic diseases such as cardiovascular disease and diabetes, and more information may help us to understand whether weight teasing experiences prevent young female adults from being more physically active.

Delimitations

This study was restricted to a minimum of 60 college female students from the University of Northern Iowa. Each participant underwent a 7 day intervention period containing two 10-minute meetings on the day before and on the day after the 7 day intervention period. The study used 2 different questionnaires (Physical Activity Enjoyment Scale, Perception of Teasing Scale), a stadiometer, a body composition analyzer and accelerometers. Physical measurements used the International System of units.

Limitations

Several limitations may have influenced the study such as participants' motivation to wear the accelerometers for the intervention period. This study used volunteers from one Midwest University, and convenience sampling may bias the results. Participants' honesty and motivation throughout the study and when filling out the questionnaires may have also affected the results. The reactivity to accelerometry could have influenced the results. Data of majors and academic year of participants were not collected. Participants were recruited on only two sites of the campus and one of the sites attended health-related majors.

Assumptions

It was assumed that the applied devices worked appropriately, and instruments possessed appropriate validity evidence for the study sample. It was also assumed that participants wore the accelerometers appropriately, filled out the questionnaires honestly and from the best of their knowledge.

Definition of Terms.

- Mediation analysis: A statistical analysis method for assessing a moderator variable in social and psychological research (Baron & Kenny, 1986).
- Physical activity: refers to all motor activities that were performed throughout the day. According to the effort required to perform the activity, physical activity was differentiated into intensity categories. In this study, moderate and vigorous intensity levels were examined. Moderate intensity requires a moderate amount of effort and slight increase in heart rate. Vigorous intensity

requires a large amount of effort that involves rapid increase in breathing rate and heart rate (WHO, 2014).

- Segmental Bioelectrical Impedance Analysis: A rapid, non-invasive method for assessing body composition by measuring the impedance to current flow through different segments of the body with a single frequency bioelectrical impedance analyzer (Wagner & Heyward, 1999). In this study the lower extremity impedance will be analyzed using TBF300A (TANITA) portable body composition analyzer.
- Weight-related teasing: A type of communication emphasizing the physical appearance of the target that can be manifested in negative weight-talk, name calling and negative evaluation (Leary, Kowalski, Smith, & Phillips, 2003).

CHAPTER II

REVIEW OF RELATED LITERATURE

Regular physical activity is an effective strategy to reduce the levels of overweight and obesity and the risk of cardiovascular and metabolic side effects of excessive body fat and sedentary lifestyle (Carnethon et al., 2010). An individual's physical activity engagement is highly dependent on social support, self-efficacy, motivation and enjoyment (Page, Ihász, Simonek, Klarova, & Hantiu, 2007; Sylvia-Bobiak & Caldwell, 2006; Wankel, 1993). Another factor that may impact physical activity engagement is weight-related teasing, but there is a lack of scientific investigation on the topic. Thus, the purpose of the study is to examine the relationship between weight-related teasing and engagement in physical activity, body composition and physical activity enjoyment among female college students. The mediating roles of enjoyment between teasing and physical activity will also be investigated. This review of literature consists of four major sections: (1) Physical activity habits of college students; (2) Description of physical activity enjoyment; (3) The impact of weight-related teasing on psychological variables; (4) Effects of weight-related teasing occurring in physical activity settings on physical activity engagement.

College Students' Physical Activity Habits

There are several factors that may affect the ability and willingness of individuals to meet the ACSM physical activity recommendations. For young college-aged adults, drastic changes in the environment and lifestyle as they move from high school to college have been described as possible factors preventing young college students from being

more physically active (Lafreniere & Ledgerwood, 1997). If habits for regular physical activity are not developed during the first few months after transition to college, students are more likely to become less active during their academic career (Bray & Born, 2004).

In the first two years of college over 70% of students gain significant weight, become less physically active and develop unhealthy eating behaviors (Racette, Deusinger, Strube, Highstein, & Deusinger, 2005). Even with the significant weight gains students do not seem willing to improve their physical activity habits or dietary behavior. In fact, during freshman and sophomore years a reduction is observed in the engagement of aerobic exercise. Huang et al. (2003) described similar findings in which a high proportion of college students in the study did not meet the dietary and physical activity guidelines. In both studies (Huang et al., 2003; Racette et al., 2005) about 20% of the total students were overweight, and female students on average were significantly less physically active than male students. The previously described research findings indicate that students, especially females, become less involved in moderate to vigorous physical activity upon entering to college.

To understand the factors that might prevent more college students from exercising, different environmental, demographic and psychosocial variables are needed to be examined. A convenient fitness facility with easy access is positively correlated with leisure time physical activity (Huston, Evenson, Bors, & Gizlice, 2003). The location of dormitories within campus is associated both with weight gain and physical activity levels. Students, who lived closer to the fitness facility, exercised more, students, who lived closer to central campus, exercised less (Kapinos & Yakusheva, 2011). Miller,

Noland, Rayens, and Staten (2008) found the accessibility of the fitness facility important in the engagement of physical activity, and reported that in their study, females tend to use the on-campus fitness facility less than males. Kapinos and Yakusheva (2011) also found that those students who lived in a dormitory with dining facility inside tended to gain more weight.

As tuitions and cost of living raises, paid employment among college students raises as well. The combination of work and study may lead to time management issues and put extra stress on students. To meet both school and work requirements students end up with less time for social life (Moreau & Leathwood, 2006) and recreational activities including physical activities (Manthei & Gilmore, 2005). Availability of time may be a significant predictor of time spent in social events and physical activity.

Transferring to college from high school is a critical time in developing future behaviors. During that socially sensitive transition time, two strong psychosocial influences on students' physical activity participation are social support and self-efficacy (Page et al., 2007; Sylvia-Bobiak & Caldwell, 2006; Wallace et al., 2000). The sources for social support for physical activity seem to differ by gender: Males tend to have more support from peers, while females are more likely to receive the support from the family (Sylvia-Bobiak & Caldwell, 2006). College is a totally new environment for students, and neither parental nor peer support exist sufficiently. The lack of social support might be one of the responsible factors of the marked decline in the physical activity levels of incoming freshmen. It may be even more difficult for females because they have to transition from family to peer support.

A strong relationship exists between social support and self-efficacy which is also found to be significant predictor of more engagement in fitness activities (Wallace et al., 2000). The belief of being capable of executing movements increases the willingness to be active. In the study of Sylvia-Bobiak & Caldwell (2006), the higher physical activity self-efficacy, the more engaged college students were in physical activity. The existing strong relationship between social support, self-efficacy, and active lifestyle highlights the vulnerable nature of the transition time to college, when the necessary social support do not yet exist.

The transition to college that involves the first few months of attendance is a very complex and unique phenomenon for each individual. Students may face many difficulties while adjusting to the new environment. The transition to college requires an adaptation to the new academic, social and oftentimes even new cultural settings (Terenzini et al., 1994). Many previous studies identified a decline in the physical activity levels of college students during the first few months of college when compared to their physical activity levels in high school (Bray & Born, 2004). In fact, individuals who have lower exercise self-efficacy tend to have more problems with adjusting to the new environment, find less social support, and are less physically active (Page et al, 2007; Wallace et al., 2000). Being less physically active during the first few months of college when new habits are being developed may continue throughout the whole academic career. Female students tend to be more vulnerable and sensitive during the transition process and are more likely to be less physically active in college (Bray & Born, 2004). Along with insufficient levels of physical activity, unhealthy dietary behaviors seem to

develop during early academic life and lead to unhealthy weight gain and future health problems (Racette et al., 2005).

Physical Activity Enjoyment of College Students

Determinants of physical activity participation among college students including environmental, demographic and psychosocial factors were described previously. Enjoyment of physical activity is another significant predictor of physical activity engagement. Enjoyment is defined as a positive affective state, a reflection of feelings associated with pleasure and amusement (Raedeke, 2007). The rate of engagement in an activity is related to the rate of the quality of the experience. Peak enjoyment occurs when an individual is so engaged to activity that nothing else matters (Csikszentmihályi, 1997). Enjoyment, as an intrinsic motivator, is highly associated with physical activity participation, exercise adherence and continued involvement (Dishman et al., 2005; Salmon, Owen, Crawford, Bauman, & Sallis, 2003; Wankel, 1993). Therefore, determinants and sources of enjoyment in physical activity settings are crucial to understand the motivation to exercise. Previous physical activity experience, exercise environment, exercise self-efficacy, and the attitude towards physical activity are factors that influence physical activity enjoyment. These factors will be discussed in more detailed next.

Pleasure or displeasure feelings during previous physical activity participation are determinant factors in future involvement in physical activity (Ekkekakis, Hall, & Petruzzello, 2005). As a part of the previous physical activity experience, the exercise instructor's leadership style and characteristics affect the quality of the experience

(Raedeke et al., 2007; Wininger, 2002). Raedeke et al. (2007) compared the level of enjoyment and willingness to participate in future physical activity depending on the instructors' leadership style: Appearance-related comments versus health-related outcomes of exercising. Participants in the health-oriented group reported significantly higher physical activity enjoyment and willingness for participating in future physical activity (Raedeke et al., 2007).

The instructor's competence and ability to clearly communicate the exercise instructions were also found to be determinants of enjoyment (Wininger, 2002). Students who perceived the instructor to be knowledgeable on their field felt more pleasure of the physical activity. In addition, students who felt that the instructor provides instructions that were easy to understand enjoyed the activity more.

Intensity of exercise also affects the level of enjoyment. Hu, Motl, McAuley, and Konopack (2007) assigned participants to four different groups based on exercise intensity (maximum versus moderate cycling test) and level of self-efficacy (high versus low self-efficacy group). The highest levels of enjoyment were reported for the high self-efficacy group who participated in the maximal effort exercise. It seems that individuals enjoy strenuous exercise when it is coupled with lots of positive encouragement.

With the exception of high intensity/high self-efficacy intensity exercises, results are not as consistent. One study indicated that high intensity has greater impact on physical activity enjoyment (Hu et al., 2007), another found no difference in the intensity-enjoyment relationship (Dyrlund & Wininger, 2008), and one suggested that self-selected exercise intensity is associated with more positive attitude towards physical

activity, higher enjoyment, higher engagement, and greater tolerance to higher intensity activity levels (Ekkekakis et al., 2011). The contradictory findings suggest that other individual factors may play a significant role in the enjoyment of physical activity.

Not only the appropriate training stimuli seems to be a determining factor of enjoyment, but also the exercise environment plays an important role in the quality of the experience. High quality social interaction and how much individuals like and accept others in the exercise group are associated with higher levels of physical activity enjoyment (Wininger, 2002). The quality of social interaction impacts physical activity participation indirectly by influencing motivation (McNeill, Kreuter, & Subramanian, 2006). High quality social interaction enhances individuals' motivation towards physical activity.

In addition to the physical environment where the exercise is performed also affects the pleasure towards physical activity. In the study of Marsh et al. (2006), older adults reported higher enjoyment levels when performing walking exercise on a track field, instead of walking on a treadmill. Similar findings were demonstrated by Focht (2009). Even though both treadmill walking and outdoor walking resulted in enhanced mood, individuals in the study reported that walking outdoor was more enjoyable and they were more willing to repeat the activity. Although participation in outdoor activities may sometimes be limited due to weather conditions, it seems that the majority of individuals prefer being active outdoors.

Positive attitude towards physical activity is associated with higher levels of enjoyment (Prochaska et al., 2003). The attitude of individuals towards physical activity

is highly affected by weight status. Individuals with greater degree of overweight tend to have more negative attitude towards physical activity, enjoy exercising less, and report weaker intention in future physical activity participation (Deforche et al., 2006). One reason for overweight and obese individuals' negative attitude towards physical activity is that they are often targets of weight criticism (Faith, Leone, Ayers, Heo, & Pietrobelli, 2002). Heavier individuals also tend to report having discomfort when exercising because of the feeling of not being good at it (Deforche et al., 2006), the high level of perceived exertion (Ekkekakis & Lind, 2006). Heavier individuals tend to perceive themselves less physically attractive (Page et al., 2006) and are often frustrated when wearing exercise clothes and performing the exercises in public (Sherwood & Jeffery, 2000).

Overweight and obese individuals' motives to physical activity are different than individuals with normal weight. The Self-Determination Theory distinguishes intrinsic and extrinsic motivation (Ryan & Deci, 2000). Intrinsic motivation is when an individual is engaged in an activity because of internal factors (pleasure, enjoyment) while extrinsic motivation is when engaging in an activity for external reasons (losing weight, better appearance). Extrinsic motivation often leads to drop-out when individuals do not meet the expectations, in this case, losing weight. According to Deforche et al. (2006), enjoyment tends to be less important for engaging in physical activity in overweight individuals and they are more interested in the appearance outcomes (looking better, losing weight).

In conclusion, enjoyment seems to be optimized when physical activity instructors' positive supportive leadership style couples with self-selected exercise

stimuli, high quality of social interaction and supportive group environment (Dyrlund & Wininger, 2008; Ekkekakis et al., 2011; Wininger, 2002). More appearance-related environment decreases the quality of experience and may prevent individuals with low self-efficacy and high appearance-related issues from exercising. Positive attitudes towards physical activity increases enjoyment (Prochaska et al., 2003). Overweight individuals tend to exercise for external reasons that easily lead to dropout when not meeting the expectations (Deforche et al., 2006). Individuals who are overweight tend to have negative attitude to physical activity because they find exercising in public embarrassing, have concerns about their appearance, find physical activity more exhausting and are often targets of weight criticism.

Impacts of Weight-Related Teasing on Young Adults

Teasing is a type of personal communication that causes physical or emotional hurt. Teasing is a message to victims that they are not accepted, liked, or valued, and is more likely to occur in the presence of others, where the humiliation is in public (Shapiro, Baumeister, & Kessler, 1991). The presence of others may influence a greater social rejection of the victim, and the perpetrator may influence others to tease the victim as well (Leary et al., 2003). Initial teasing experiences occur in early childhood, but weight-related teasing becomes even more prevalent as we age. As the cognitive capacity enhances with age, the motivation remains the same for every age: the pleasure feeling by causing discomfort in the victim (Warm, 1997).

Scientific evidence suggests that many individuals experience weight-related teasing about their weight and appearance in childhood and adolescence (Haines,

Neumark-Sztainer, Hannan, van den Berg, & Eisenberg, 2008). Approximately one fourth of individuals need to deal with weight related negative comments from parents, siblings, peers, and significant others, including teachers and coaches (Haines et al., 2008). Weight-related teasing and negative weight talk can have adverse effects on children and adolescents' psychological well-being and emotional development (Li & Rukovina, 2012), and is often linked to low self-esteem, low body-esteem, and depression (Bang et al., 2012).

Overweight and obese children and adolescents are often targets of peer victimization (Hayden-Wade et al., 2005; Storch et al., 2007) and more often experience teasing because of their appearance (Li & Rukovina, 2012). Obese individuals are often stereotyped as lazy and unattractive, and described as ugly and stupid because of their weight. Cramer and Steinwert (1998) observed this type of stereotyping as early as preschool age. Due to the negative evaluation and undesirable personal characteristics linked to fatness, some overweight and obese children report that they would rather be physically disabled than viewed as fat (Fox & Edmunds, 2000).

Recent scientific longitudinal studies suggest that even though weight-teasing is more prevalent during childhood and adolescence negative weight talk continues in young adulthood (Eisenberg et al., 2011). Even in those cases when teasing does not continue in young adulthood (i.e. the person lost weight), early teasing experiences may have a remarkable effect on young adults' functioning in many aspects such as dysfunction in interpersonal relationships, less comfort in romantic relationship, loneliness, depressive symptoms, and disordered eating behaviors.

The weight-teasing experience has a great impact on the interpersonal relationships during adulthood (Grilo & Masheb, 2005). Adults teased because of their weight experience interpersonal relationship difficulties. The dysfunction in dealing with others may lead to loneliness and depression (Storch et al., 2004). More importantly, even when the number of close friends is not affected, adults who are teased about their weight feel less support from their friendships (Ledley et al., 2006).

Early teasing experiences may also affect romantic relationships. Difficulties in romantic relationship such as having less comfort with intimacy, less closeness, and more distrust of others have been reported (Ledley et al., 2006). According to research studies, weight is important for both men and women in romantic relationships. One third of college students receive negative comments about their weight from their romantic partners regardless of gender. However, it seems like weight related negative comments within a romantic relationship are more hurtful and cause more dissatisfaction among female victims (Sheets & Ajmere, 2005). Overweight female college students are more likely to receive negative weight related comments and less likely to engage in a romantic relationship (Sheets & Ajmere, 2005).

In addition, teasing experience is associated with psychological dysfunctions, such as depressive symptoms, social anxiety disorders and anxiety sensitivity (Grilo & Masheb, 2005; Roth, Coles, & Heimberg, 2002). According to Roth et al. (2002), memories of teasing are positively related to psychological distress and fear of negative evaluation. Individuals with teasing history are more likely to isolate themselves due to social anxiety (Roth et al., 2002).

Being the target of negative weight related comments during adolescence (Kostanski & Gullone, 2006) or as an adult (Grilo, Wilfley, Brownell, & Rodin, 1994) negatively impacts body satisfaction. The occurrence of teasing is negatively associated with self-esteem and body image evaluation and positively correlated to body image dissatisfaction (Grilo & Masheb, 2005; Matz, Foster, Faith, & Wadden, 2002). The harmful long-term outcome of teasing on body satisfaction may even cause individuals to choose unhealthy weight control strategies such as unhealthy dieting, food deprivation, binge eating, and self-induced vomiting.

The lower self-esteem and body satisfaction are among the factors responsible for the development of eating disorders. Females who are teased about their appearance frequently show symptoms of binge eating disorder (Grilo & Masheb, 2005). Research indicates that the earlier the onset of obesity occurs, the earlier the weight-related teasing experience occurs, the higher the frequency of the teasing, and the higher the frequency of binge eating among overweight and obese women (Jackson, Grilo, & Masheb, 2002).

Weight teasing during childhood and adolescence predicts continuing negative weight talk in young adulthood (Eisenberg et al., 2011). Hurtful weight comments not just continue, but also the history of early weight teasing experience is related to adulthood body image problems (Grilo et al., 1994), eating disorders (Grilo & Masheb, 2005; Jackson, Grilo, & Masheb, 2000), depression, and dysfunction in interpersonal relationships (Ledley et al., 2006; Roth et al., 2002)

Weight-related Teasing and Physical Activity

As it was described earlier, overweight and obese individuals have a negative attitude towards physical activity due to their concerns about appearance, find physical activity more exhausting and are often targets of weight criticism (Ekkekakis & Lind, 2006; Faith et al., 2002; Sherwood & Jeffery, 2000). In addition, the thin is good and fat is bad stereotype has been observed even in preschool children (Cramer & Steinwert, 1998). Although it is very likely that negative views of obese individuals are manifested in physical activity environments, current research has focused exclusively on physical activities offered in school setting (Faith et al., 2002; Fox & Edmunds, 2000; Slater & Tiggemann, 2011).

Li and Rukovina (2012) qualitatively interviewed overweight adolescents about weight teasing during Physical Education classes. According to the interviews, teasing occurred both in the locker rooms and during the Physical Education classes. The reported agents of teasing during Physical Education classes targeted the overweight and obese individuals' physical capabilities assuming that they were unable to execute different tasks like running, performing jumping jacks or push-ups. The teasing manifested in pointing at the victim, laughing on him/her, name calling, and asking them to sit down. Physical Education teachers had a major responsibility to handle teasing situations that occurred during the class but some of the victims reported that the teacher made the situation worse by laughing at the weight comments (Li & Rukovina, 2012), or making negative comments themselves (Bauer, Yang, & Austin, 2004).

In after school recreational programs, the competitive nature of the different physical activities are also a major barrier. Heavier individuals are more likely to be chosen last, have less role in a team or often excluded from games (Taylor et al., 2002). These individuals are usually those who sit on the bench waiting for substitution, or those who are being teased and yelled at when failing (Bauer et al., 2004).

The majority of individuals who are teased in school physical activity settings are overweight and obese, and unfortunately, girls are more frequently the targets of weight-related teasing girls. The teasing targets the victims' capabilities to execute different tasks and dresses them with negative and fictional personal characteristics (Fox & Edmunds, 2000; Li & Rukovina, 2012).

Although initial evidence suggests that weight-related teasing is a barrier for individuals to be active, there is no research investigating the relationship between teasing experiences and physical activity among college female students. Current evidence indicates that teasing occurs in the gym and weight room. Weight-related teasing experiences in physical education classes and school-based physical activity programs may prevent targeted individuals from being physically active. Although, the insufficient levels of physical activity are positively associated with higher incidence of chronic diseases such as cardiovascular disease and diabetes, more information is necessary to determine whether weight teasing experiences prevent young female adults from being more physically active.

CHAPTER III

METHODOLOGY

Weight-related teasing is a form of social rejection that impacts social support, self-efficacy, and exercise motivation. Overweight and obese females are frequently the targets of weight criticism. However, it is not known whether weight-related teasing impacts physical activity engagement and enjoyment of physical activity during young adulthood. Therefore, the purpose of the study was to examine the relationship between weight-related teasing and engagement in physical activity, body composition and physical activity enjoyment among female college students. It was also investigated whether enjoyment mediates the relationship between teasing and physical activity.

Research Design

This study used a non-experimental correlational design. It identified relationships between negative weight-related comments, physical activity levels, enjoyment of physical activity, body composition, the prevalence of teasing, and engagement in physical activity.

Research Participants

For this study, 65 healthy female college students ($M_{\text{age}} = 21.89$ years, $SD = 2.883$) were recruited from the University of Northern Iowa. Out of the 65 participants, one dropped out of the study. Data from seven participants had to be excluded due to not meeting the minimum of 10 accelerometer wear time hours per day for at least three weekdays and one weekend day. The final sample consisted of 57 participants. All

participants signed informed consent forms (Appendix A). The study was approved by the Institutional Review Board of University of Northern Iowa.

Instrumentation

Anthropometric Measurements

Anthropometric measurements were performed using a **stadiometer** (Shorr Productions) that measured height and a **TBF300A Body Composition Analyzer** (TANITA) that measured weight and body fat percentage. Body fat percentage was used to classify individuals into groups (ultra lean, lean, moderately lean, excess fat, and high-risk fat) based on cut-points described by McArdle, Katch, and Katch (2009).

Perception of Teasing Scale

The **Perception of Teasing Scale** (POTS, APPENDIX D) is a Likert like survey ranging from 1 (never) to 5 (very often) and contains six two-part items. The first question of each item asks the frequency of teasing experience (i.e. ‘People made fun of you because you were heavy’) and a corresponding follow-up question asks about how upsetting the teasing experience was (i.e. ‘How upset were you’). The POTS has acceptable validity evidence for assessing female college students (Thompson, Cattarin, Fowler & Fisher, 1995). Cronbach’s alpha for the current study was equal to .78. Consistent with previous studies (Eisenberg et al., 2011; Keery, Boutelle, Van Den Berg, & Thompson, 2005; Neumark-Sztainer et al., 2010), only scores from frequency items were used for statistical analysis. A large proportion of studies also measured teasing frequency using only the first two questions of POTS (Eisenberg et al., 2011; Keery et

al., 2005; Neumark-Sztainer et al., 2010), so the combination of frequency scores for the first two questions were also used to measure weight related teasing.

Physical Activity Enjoyment Scale

The **Physical Activity Enjoyment Scale** (PACES, APPENDIX C) is a Likert like survey measuring how much participants enjoy physical activity. The Likert scale ranges from 1 (disagree a lot) to 5 (agree a lot). There are sixteen items in the scale, and they attempt to differentiate between pleasant and unpleasant conditions experienced during exercise (i.e. ‘When I am active I enjoy it’). PACES has been found to be a valid measure of physical activity enjoyment (Kendzierski & DeCarlo, 1991). Negatively worded questions on PACES were reversed and scores were summed.

Physical Activity Habits

Participants were asked to wear a **GT3X+ accelerometer** (Actigraph) for seven days to measure physical activity habits. To be included in data analysis, participants were asked to wear the accelerometers for at least 3 weekdays and one weekend day. A day was considered valid if the accelerometer was worn for a minimum of 10 hours. An hour was considered valid if activity counts equaling zero during the hour were less than 30 consecutive minutes (Adams, Caparosa, Thompson & Norman, 2009). **Actilife version 6.5.1** (Actigraph) software was used to extract data from accelerometers. Epoch time for accelerometers were set at 60 seconds. Data from accelerometers were transformed to daily minutes of moderate and vigorous physical activity on each of the seven days of testing using Freedson intensity estimates (Freedson, Melanson, & Sirard, 1998).

Procedures for Collecting Data

Two strategies were used to recruit participants. The researcher advertised the study during academic classes and booths were set at dining house and academic buildings. Upon signing the written consent form, participants were asked to fill out the Perception of Teasing Scale (Appendix B) and the Physical Activity Enjoyment Scale (Appendix C). Before completing the first day of data collection, a GT3X+ (Actigraph) accelerometer was provided to each participant. Oral and written explanation of the appropriate wearing and handling the device was provided to participants (Appendix E). Participants were asked to wear the accelerometers around their waist on the dominant side of the body during a seven day period except while sleeping and during activities where the device could get wet. At the completion of first day measurement, participants were asked to return the accelerometers seven days later during a second meeting. Participants' height was measured to the nearest centimeter using a stadiometer (Shorr Productions) and weight and body composition were measured using a portable body composition analyzer (TANITA TBF300A). For measuring height and weight participants were asked to wear light clothes without shoes and socks.

Data Analysis

Body fat percentage, prevalence of teasing, magnitude of enjoyment and minutes spent in moderate and vigorous physical activity from the accelerometer were the dependent variables. Data analysis was performed using SPSS Statistics version 20 (IBM) software. Descriptive statistics were used to describe participants' demographic and anthropometric characteristics. One-tailed Pearson Moment Product correlations

were used to determine the relationship between study variables. Partial correlations were used to investigate the relationship between teasing and enjoyment, and teasing and vigorous physical activity after controlling for body fat percentage. Mediation analysis was performed to identify mediating roles of enjoyment between teasing and physical activity following the procedures established by Baron and Kenny (1986). For the first three steps, simple regression analyses were computed to determine whether (1) weight-related teasing significantly predicted physical activity engagement, (2) weight-related teasing significantly predicted physical activity enjoyment, and (3) physical activity enjoyment significantly predicted physical activity engagement. Significance in all three steps implies at least partial mediation is likely then a fourth step is computed to search for full mediation. The fourth step consists of a multiple regression analysis to determine if weight-related teasing predicts physical activity after controlling for physical activity enjoyment (Baron & Kenny, 1986). P-values were set at .05.

CHAPTER IV

RESULTS

Demographic and Anthropometric Characteristics of Participants

A description of participant characteristics is available in Table 1. The majority of participants were Caucasians. The participants averaged 29.15% body fat (SD = 6.96). Approximately 45 percent of the participants were classified in the moderately lean category and 35 percent in the excessive fat category. The mean values for physical activity suggests that participants were moderately active, but the high standard deviation indicates a high variability between participants. Mean scores and standard deviations for weight-related teasing frequency and physical activity enjoyment are available in Table 2.

Correlational Analyses

Body fat percentage was moderately and negatively correlated to physical activity enjoyment and vigorous physical activity, and positively correlated to teasing frequency. Physical activity enjoyment was negatively and moderately related to frequency of weight-related teasing, and strongly positively correlated to the physical activity habit variables. Weight-related teasing was moderately and negatively correlated to vigorous physical activity. Correlation results are available in Table 3.

When controlling for body fat percentage, the correlations between teasing and physical activity enjoyment, and teasing and vigorous physical activity were not significant. Only the sum scores of Q1 and Q2 teasing frequencies were used to compute partial correlations. Partial correlation results are available in Table 4.

Table 1.

Participant Characteristics

Characteristic	Percentage (%)	
Race		
Caucasian	86	
Asian	8.8	
African American	3.5	
Hispanic	1.8	
Other	0	
Bod Fat Classification		
Ultra lean	3.5	
Lean	10.5	
Moderately lean	45.6	
Excessive fat	35.1	
Risky (high body fat)	5.3	
Physical Activity Levels		
	Minutes/Day	
	M	SD
Moderate	37.34	±14.31
Vigorous	7.44	±12.29
Moderate + Vigorous	44.79	±22.08

Table 2.

Scores for PACES and POTS

Questionnaire	M	SD
PACES score	70.37	7.15
POTS frequency score	1.2	.34
POTS Q1+Q2 score	2.85	1.34

Table 3.

Pearson Correlations between Study Variables

	PA	Teasing Frequency		Physical activity habits		
	Enjoyment	Overall	Q1+Q2	Moderate	Vigorous	Overall
Body Fat %	-.313*	.287*	.397*	-.096	-.296*	-.227
PA Enjoyment		-.249*	-.313*	.424*	.479*	.543*
Teasing Frequency				.021	-.229*	-.114
Teasing Q1+Q2				-.043	-.232*	-.157

*p < .05

Table 4.

Partial Correlations Accounting for Body Fat %

	Teasing	
	r	p
PA Enjoyment	-.22	.11
Vigorous PA	-.13	.34

Mediation Analysis

Mediation analysis was performed using Baron and Kenny 4-step model (1986). Instead of using overall teasing scores, it was decided to use the teasing frequency reported in the first two questions of the POTS questionnaire because they were more strongly correlated with physical activity than overall teasing scores. The use of the first

two questions of POTS is a procedure frequently used in previous studies (Eisenberg et al., 2011; Keery et al., 2005; Neumark-Sztainer et al., 2010). Due to the lack of significance in the correlation between teasing and moderate physical activity and teasing and combined moderate-vigorous physical activity, vigorous physical activity was the only variable used in the mediation analysis. Out of the first three steps of the model, teasing frequency was a significant predictor of enjoyment of physical activity ($F_{1,55} = 16.4$; $p < .01$; $r^2 = .23$), and physical activity enjoyment was a significant predictor of vigorous physical activity ($F_{1,55} = 5.96$; $p = .018$; $r^2 = .10$). However, teasing frequency was not a significant predictor of physical activity ($F_{1,55} = 3.14$; $p = .082$; $r^2 = .05$). Based on the lack of significance in the prediction of physical activity by teasing frequency, step 4 was not computed.

CHAPTER V

DISCUSSION

Approximately one out of every four individuals experience negative comments about their weight during their live span (Haines et al., 2008). The experience of weight-related teasing has been linked to many undesired psychological conditions such as social anxiety, loneliness and depression (Eisenberg et al., 2011). Physical activity participation is determined by many factors such as levels of enjoyment, self-efficacy and social support, and it is possible that weight-related teasing prevents individuals from living a physically active lifestyle. Weight-related teasing negatively affects important predictors of physical activity such as physical activity enjoyment (Faith et al., 2002), self-efficacy and social support (Sylvia-Bobiak & Caldwell, 2006; Wallace et al., 2000). Thus, the purpose of the study was to examine the relationship between weight-related teasing and engagement in physical activity, body composition and physical activity enjoyment among female college students. This study also investigated the possibility that physical activity enjoyment mediates the relationship between weight-related teasing and physical activity.

The first hypothesis stated that body fat percentage would have a positive relationship with the frequency of teasing, and an inverse relationship with enjoyment and engagement in physical activity. This hypothesis was partially supported. Higher body fat percentage was positively related to more frequent weight-related teasing. This finding is similar to previous findings that overweight and obese individuals are often targets of weight criticism (Hayden-Wade et al., 2005; Storch et al., 2007). It was also

found that higher body fat percentage was negatively related to physical activity enjoyment. Previous studies suggest that heavier individuals tend to enjoy physical activity less than their normal weight counterpart (Deforche et al., 2006; Faith et al., 2002; Sherwood & Jeffery, 2000). The relationship between body fat percentage and moderate or combined moderate-vigorous physical activity were not significant, but higher levels of body fat percentage were associated with lower levels of vigorous physical activity. Previous studies have found significant relationship between excess weight and overall self-reported levels of physical activity (Deforche et al., 2006; Faith et al., 2002; Sherwood & Jeffery, 2000). It is possible that differences in findings were due to the use of accelerometers in this study whereas other studies used surveys. Accelerometers differentiate between physical activity levels and are more easily discriminate between different intensities of exercise.

Secondly, it was hypothesized that enjoyment of physical activity would be positively associated with participation in physical activity, and negatively associated with weight-related teasing even after controlling for body fat percentage. The results indicated that physical activity enjoyment was strongly correlated to both moderate and vigorous physical activity. These findings are in consensus with previous research studies, in which physical activity enjoyment was highly associated with physical activity participation (Dishman et al., 2005; Salmon et al., 2003; Wankel, 1993). In addition, physical activity enjoyment was negatively associated to weight-related teasing, but the correlation was not significant after controlling for body fat percentage. It seems that body fat percentage plays a critical role in the relationship between physical activity

enjoyment and weight-related teasing. Heavier individuals tend to enjoy physical activity less than their normal weight peers due to different factors including being targets of weight-related teasing (Faith et al., 2002). It is also possible that obese individuals are self-conscious about their appearance which causes them not to enjoy physical activity as much. In conclusion, these findings indicate that it is important to make sure that obese individuals find the physical activity options offered to them enjoyable.

In addition, it was hypothesized that prevalence of weight-related teasing would be inversely associated with engagement in physical activity even when controlling for body fat percentage, and physical activity enjoyment would be a mediator between weight-related teasing and physical activity. Studies focusing on adolescents found that weight criticism is a significant predictor of physical activity avoidance (Bauer et al., 2004; Li & Rukovina, 2012). However, with the exception of vigorous physical activity, this study found no significant relationship between weight-related teasing and moderate and the combined moderate-vigorous physical activity. A possible reason for the fact that only vigorous physical activity was negatively associated with weight-related teasing might be due to the fact that individuals who are teased more frequently may avoid organized physical activity (i.e. fitness centers, team sports). Organized types of physical activity are likely to engage participants in more vigorous exercising. On the other hand, every day type of physical activity such as walking to class may be more ubiquitous among college students, so the relationship between teasing and moderate physical activity was not expected to be significant.

Enjoyment did not significantly mediate the relationship between weight-related teasing and physical activity. The mediation analyses were unsuccessful after weight-related teasing failed to predict engagement in vigorous physical activity. Lack of significance may have been due to a small sample size or heavily recruiting participants at a building attending health-related majors. Although participants were recruited from multiple sites within the university, a department for health-related majors was a commonly used as a recruitment site. Finally, it is possible that weight-related teasing is not by itself an important predictor of physical activity engagement at this age considering that physical activity is influenced by several other factors such as fitness center accessibility (Miller et al., 2008), time constraint due to work and study (Manthei & Gilmore, 2005), and social support and self-efficacy (Sylvia-Bobiak & Caldwell, 2006; Wallace et al., 2000).

The findings of this study suggest that individuals with higher degree of overweight and obesity are more teased because of their weight, enjoy physical activity less, and are more likely to avoid participation in vigorous physical activity. The evidence that teasing prevents individuals from being more active is tenable, but we cannot discard that teasing experiences negatively influence physical activity participation by negatively affecting important predictors of physical activity (Sylvia-Bobiak & Caldwell, 2006; Wallace et al., 2000). Enjoyment seemed to be essential for higher participation in physical activity. It is important to design programs that overweight and obese females find enjoyable and avoid things that increase discomfort about their weight (Bauer et al., 2004; Sherwood & Jeffery, 2000). The positive health

related outcomes of physical activity should also be promoted among heavier individuals to increase their enjoyment during physical activity experiences. When teased, obese individuals are not only at greater risk for psychopathologies (Eisenberg et al., 2011), but also have greater potential to develop cardiovascular diseases and diabetes (Carnethon et al., 2010) due to their lower engagement in vigorous physical activity.

Results of this study are preliminary. Future steps to strengthen the results include expanding the sample size and recruiting a more diverse sample of participants. More sites within the university will be used for future recruitment of participants.

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APPENDIX A

WRITTEN CONSENT FORM

**UNIVERSITY OF NORTHERN IOWA
HUMAN PARTICIPANTS REVIEW
INFORMED CONSENT**

Project Title: Relationship Between Weight-Related Teasing and Levels of Physical Activity

Name of Investigator(s): _Piroska Boros_____

Invitation to Participate: You have been invited to participate in a research project conducted through the University of Northern Iowa. The University requires that you give your signed agreement to allow your child to participate in this project. The following information is provided to help you made an informed decision whether or not to participate.

Nature and Purpose: The purpose of the study is to examine the relationship between weight related teasing and the engagement in regular physical activity. We will also be investigating the roles of body composition and enjoyment of physical activity in the frequency of teasing and participation in physical activity.

Explanation of Procedures: Data collection procedures will occur in the Meditation Room at Maucker Union and in the Psychomotor Lab at WRC buildings, during a time convenient to you. We will ask you to participate in two short sessions, none of which lasts more than 10 minutes. As part of the study, you will be asked to wear a small, lightweight device around your waist for a period of 7 consecutive days. The device is small, approximately half the size of a cell phone.

First meeting session:

On the first day of testing, you will be asked to fill out the Perception of Teasing Scale and the Physical Activity Enjoyment Scale. The Perception of Teasing Scale is a Likert like survey containing six two-part items. The first question of each item asks the frequency of teasing experience and a corresponding follow-up question asks about how upsetting the teasing experience was. The Physical Activity Enjoyment Scale is a Likert like survey measuring how much you enjoy physical activity. There are sixteen items in the scale. Data collection including the completion of questionnaires will take approximately 6-8 minutes. An activity monitor (Actigraph accelerometer) will be provided and explained to you including the appropriate wearing and handling of the device. You will be asked to wear the accelerometer around your waist during a seven day period except while sleeping or during activities where the device can get wet. This device will measure how much and how hard you exercise during the seven day testing period.

Second meeting session:

Seven days later, you will be asked to attend a short (less than 10 minutes) second session. The session will be held in the Meditation Room at Maucker Union or in the

Psychomotor Lab at the WRC (wherever location is more convenient to you). On the second day of testing, your height, weight, and body composition will be measured using a portable Body Composition scale. This scale measures weight and calculates body fat percentage. You will be asked to remove shoes, socks and any heavy clothing like winter jackets during measurements. Both height weight and body composition measurements will take place privately. You will not see the display of the Body Composition Analyzer; therefore, you will not know your weight and body fat percentage. During this session we will collect the accelerometer as well.

Discomfort and Risks: Risks of the participation are minimal. You may feel some emotional discomfort during the recall of teasing experiences or during measurement of height and weight. There may also be a small discomfort associated with wearing the accelerometer around the waist for 7 consecutive days.

Benefits and Compensation: This study has no direct benefit to you. However, approximately a week after completion of data collection, you will receive a feedback about your physical activity habits containing advice about how to be more physically active and how to deal with bullying experiences.

Confidentiality: Information obtained during this study which could identify you will be kept strictly confidential. The summarized findings with no identifying information may be published in an academic journal or presented at a scholarly conference.

Right to Refuse or Withdraw: Your participation is completely voluntary. You are free to withdraw from participation at any time or to choose not to participate at all, and by doing so, you will not be penalized or lose benefits to which you are otherwise entitled.

Questions: If you have questions about the study you may contact or desire information in the future regarding your participation or the study generally, you can contact Piroska Boros (Principal investigator) at 319-433-8012 or the project investigator's faculty advisor Fabio Fontana at the Department of HPELS, University of Northern Iowa 319-273-6854. You can also contact the office of the Human Participants Coordinator, University of Northern Iowa, at 319-273-6148, for answers to questions about rights of research participants and the participant review process.

Agreement: Include the following statement:

I am fully aware of the nature and extent of my participation in this project as stated above and the possible risks arising from it. I hereby agree to participate in this project. I acknowledge that I have received a copy of this consent statement. I am 18 years of age or older.

(Signature of participant)

(Date)

(Printed name of participant)

(Signature of investigator)

(Date)

(Signature of instructor/advisor)

(Date)

[NOTE THAT ONE COPY OF THE ENTIRE CONSENT DOCUMENT (NOT JUST THE AGREEMENT STATEMENT) MUST BE RETURNED TO THE PI AND ANOTHER PROVIDED TO THE PARTICIPANT. SIGNED CONSENT FORMS MUST BE MAINTAINED FOR INSPECTION FOR AT LEAST 3 YEARS]

APPENDIX B

INVITATION SCRIPT

Maucker Union and WRC

I am a graduate student from UNI and I am conducting a study to examine exercise and activity patterns of women, physical activity enjoyment and factors related to it.

If you agree to participate, you will be asked to:

1. answer 2 surveys
2. have your height and weight measured
3. and wear a device, called accelerometer, around your waist for seven days. An accelerometer is a device that measures how hard and how many times you are exercising throughout the day (Show the device).

By completing the study (wearing the device and returning it to us, and answering the questions on the survey), you will receive a report about your physical activity habits containing advice about how to be more physically active. Your participation is completely voluntary. You are free to withdraw from participation at any time or to choose not to participate at all, and by doing so, you will not be penalized or lose benefits to which you are otherwise entitled.

If you are interested and are available right now (approximately 10 minutes), we can start the data collection right away in a private room nearby.

If you are interested but do not have time right now, please leave me your name, email address, and telephone number and I will contact you to explain more about my study, answer your questions, and set up a time to meet to collect the initial data and give you your accelerometer.

If you are NOT interested in participating in the study, please just leave the paper blank and thank you for your time.

Name:

Email:

Phone #:

Classroom recruitment

I am a graduate student from UNI and I am conducting a study to examine exercise and activity patterns of women, physical activity enjoyment and factors related to it.

If you agree to participate, you will be asked to:

1. answer 2 surveys
2. have your height and weight measured
3. and wear a device, called accelerometer, around your waist for seven days.

Any questions?

If you are interested in participating in the study, please leave me your name, email address, and telephone number and I will contact you to explain more about my study, answer your questions, and set up a time to meet to collect the initial data and give you your accelerometer.

If you are NOT interested in participating in the study, please just leave the paper blank and thank you for your time.

I will be collecting all of the papers before I leave the room.

Name:

Email:

Phone #:

APPENDIX C

PHYSICAL ACTIVITY ENJOYMENT SCALE

When I am active.....

	<i>disagree a lot</i>	<i>disagree</i>	<i>not sure</i>	<i>agree</i>	<i>agree a lot</i>
1. I enjoy it	1	2	3	4	5
2. I feel bored	1	2	3	4	5
3. I dislike it	1	2	3	4	5
4. I find it pleasurable	1	2	3	4	5
5. It's no fun at all	1	2	3	4	5
6. It gives me energy	1	2	3	4	5
7. It makes me depressed	1	2	3	4	5
8. It's very pleasant	1	2	3	4	5
9. My body feels good	1	2	3	4	5
10. I get something out of it	1	2	3	4	5
11. It's very exciting	1	2	3	4	5
12. It frustrates me	1	2	3	4	5
13. It's not at all interesting	1	2	3	4	5
14. It gives me a strong feeling of success	1	2	3	4	5
15. It feels good	1	2	3	4	5
16. I feel as though I would rather be doing something else	1	2	3	4	5

APPENDIX D

PERCEPTION OF TEASING SCALE

We are interested in whether you have been teased and how this affected you.

First, for each question rate how often you think you were teased (using the scale provided, "never" (1) to "always" (5)).

Never		Sometimes		Very Often
1	2	3	4	5

Second, unless you responded "never" to the question, rate how upset you were by the teasing "not upset" (1) to "very upset" (5) .

Not upset		Somewhat upset		Very upset
1	2	3	4	5

- | | | | | | | |
|----|--|---|---|---|---|---|
| 1. | People made fun of you because you were heavy. | 1 | 2 | 3 | 4 | 5 |
| | How upset were you? | 1 | 2 | 3 | 4 | 5 |
| 2. | People made jokes about you being heavy. | 1 | 2 | 3 | 4 | 5 |
| | How upset were you? | 1 | 2 | 3 | 4 | 5 |
| 3. | People laughed at you for trying out for sports
because you were heavy. | 1 | 2 | 3 | 4 | 5 |
| | How upset were you? | 1 | 2 | 3 | 4 | 5 |
| 4. | People called you names like "fatso." | 1 | 2 | 3 | 4 | 5 |
| | How upset were you? | 1 | 2 | 3 | 4 | 5 |
| 5. | People pointed at you because you were
overweight. | 1 | 2 | 3 | 4 | 5 |
| | How upset were you? | 1 | 2 | 3 | 4 | 5 |

APPENDIX E
ACCELEROMETER MANUAL

WHAT TO DO?

An accelerometer is a device that measures how many times and how hard you are exercising throughout a day.

How do you wear the device?

1. Make sure that the belt we gave you is worn SNUG against your body and that it does NOT move around.
2. Upon waking up put the belt on. You wear the accelerometer around your waist on the dominant side. If you are right handed, you wear it on the right side of your waist, if left handed then wear it on the left side of your waist. The accelerometer should be in the small pocket on the belt.
3. You should wear the accelerometer all day, except when bathing, showering, swimming, or during any activity that will cause the accelerometer to get wet.
4. Take the device off at night just before you go to bed.
5. Bring the device back after seven days.

Summary:

Wear the device during the entire day from getting up in the morning until bedtime in the evening, except when showering, and return the device back to us at our second meeting session after seven days.

If you have any questions or problems with the device, contact me at 3194338012, or at borosp@uni.edu.

APPENDIX F
FEEDBACK LETTER

Thank you very much for participating in this study. Your participation was very valuable to me.

As a reminder, the purpose of the study was to examine the relationship between weight related teasing and the engagement in regular physical activity.

Physical activity: Engagement in regular physical activity helps you in many ways. If you are physically active, you live a healthier life, have stronger muscles and bones, sleep better, and will likely be able to handle emotional challenges more easily. Interestingly, recent research also suggests that individuals who are more physically active tend to perform better academically.

To enjoy the health benefits of exercising, it is recommended that you exercise for a minimum of 30-60 minutes on 5 days of the week.

According to the data collected you achieved at least 30 minutes of moderate to vigorous physical activity on _____ days, and at least 60 minutes of moderate to vigorous physical activity on _____ days during our 7-day data collection. Keep up OR it is important that you find ways to be more physically active.

There are many ways that you can be physically active person. Find a physical activity that most suits you and you really enjoy doing. It can be a walk in the park, dancing, playing an active video game like Dance Dance Revolution, skating or biking, shoving snow or gardening, swimming, or playing your favorite sport.

Weight-teasing: From time to time, some of us will receive negative comments about our weight. These comments may hurt our feelings and possibly cause us to feel more insecure about ourselves.

**Always remember that you are a worthy person, and avoid showing your feelings so weight-teasing comments are less likely to repeat.
Also remember to always be respectful of others.**