

EXPLORATION LINKING SELF-REPORTED DISORDERED EATING AND
WELLNESS IN UNDERGRADUATE HEALTH STUDENTS

ABSTRACT OF APPLIED PROJECT

An applied project submitted in partial fulfillment
of the requirements for the degree of
Education Specialist at Morehead State University

by

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Morehead, Kentucky

2009

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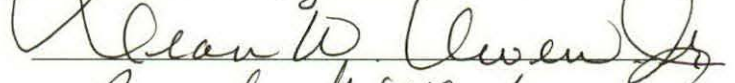
Nola Aagaard

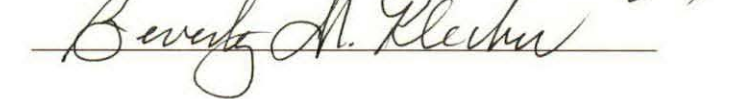
University campus environments are conducive to the development of disordered eating in students. Busy schedules, easy access to fast food, and the transition from high school to college contribute to the development of disordered eating in university students. This researcher explored whether a relationship exists between self-reported disordered eating and wellness among Morehead State University undergraduate health students. During fall 2008, two hundred fifty-five students from the Department of Health, PE and Sports Sciences at MSU completed Eating Attitudes Test (EAT-26) and Five Factor Wellness Evaluation of Lifestyle, Adult Version (5F-Wel-A). After screening unusable data, results from 249 students were correlated. The alternative hypothesis stated that there will be a negative correlation between college students' overall wellness scores and disordered eating. The null

hypothesis stated that the correlation between disordered eating and wellness would be equal to or greater than zero. Results supported the null hypothesis revealing no correlation between overall wellness and disordered eating.

Accepted by:







Chair

APPLIED PROJECT

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Graduate School

Morehead State University

2009

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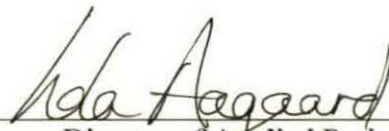
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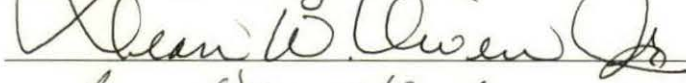
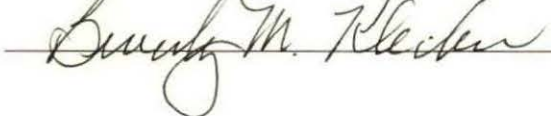
2009

Accepted by the graduate faculty of the College of Education,
Morehead State University, in
partial fulfillment of the requirements for the
Education Specialist Degree in Adult and Higher Education



Director of Applied Project

Applied Project Committee:

 , Chair



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Chapter 1

Introduction

University and college campuses report eating disorders as one of the most prevalent problems facing students (Wiles, 1997). Baker (1995) supports this assessment with the following statistics: Although dieting is 80-95% ineffective for maintaining a healthy weight long term, 91% of college women admit to having dieted to control their weight. Approximately one-third of college women use bingeing and purging techniques to control their weight. Up to 40% of males and females on campuses binge-eat regularly. Of all populations, college-age women suffer the highest rate of bulimia. From 5-7% of undergraduates meet diagnostic criteria for anorexia. As a result, one of the biggest challenges of campus counseling centers is to identify and help students with disordered eating.

The researcher in this study explored self-reported disordered eating in students of higher education with emphasis given to determining whether a link exists between self-reported disordered eating and wellness attitudes and behaviors in MSU undergraduate health students using EAT-26 and 5F-Wel-A. Following Flot (2006), the researcher considers disordered eating throughout this study as being on a continuum. Flot described this continuum where persons who do not display dieting, bingeing, purging, or other eating disorder behaviors as being on the lower end. On the upper end of the continuum are persons hospitalized with clinically diagnosed eating disorders identified in the *Diagnostic and Statistical Manual of Mental*

Disorders, Fourth Edition, Text Revision (*DSM-IV-TR*) (American Psychiatric Association, 2000).

The EAT-26 (See Appendix A.), an abbreviated version of the Eating Attitudes Test (EAT-40) (Garner & Garfinkel, 1997), contains 26 questions that measure attitudes and behavior patterns associated with anorexia nervosa. Research (Garner & Garfinkel; Garner, Olmsted, Bohr, & Garfinkel, 1982; Orbitello et al., 2006) identifies three subscales to the EAT-26: bulimia, dieting, and the tendency to self-control.

Research reflects a number of definitions for wellness. For example, Powers and Dodd (2003) defined wellness “as a state of optimal health achieved by living a healthy lifestyle” (p. 10). According to Hettler (1980), “Wellness is a positive approach to living—an approach that emphasizes the whole person” (p. 78). Hettler (1980, 1984) divided wellness into six dimensions, including intellectual, emotional, physical, social, occupational, and spiritual. Hettler (1980) reported that Halbert Dunn initially defined high-level wellness “in 1959 as ‘an integrated method of functioning which is oriented toward maximizing the potential of which the individual is capable, within the environment where he is functioning’” (p. 77). Following Myers and Sweeney (2005), developers of the wellness instrument proposed for this study, the researcher considers

wellness as a way of life oriented toward optimal health and well-being in which body, mind, and spirit are integrated by the individual to live more fully within the human and natural community. Ideally, it is the optimum state of

health and well-being that each individual is capable of achieving. (Myers, Sweeney, & Witmer, 2000, p. 252)

Reviewing the multiple definitions of wellness found in literature, the researcher concludes that one's level of wellness would typically remain stable. However, one's level of wellness may vary with factors such as lifestyle choices (e.g., a decision to start drinking or smoking) or catastrophic events (e.g., a car accident or natural disaster affecting one's health or well-being unexpectedly).

The 5F-Wel-A, according to Myers and Sweeney (2005a, 2005b), is a 73-item instrument that measures "the single higher order wellness factor (Total Wellness), the five second-order factors (Creative, Coping, Social, Essential, and Physical Selves), and the original 17 discrete scales" (p. 41) assessed in the original version of the Wellness Evaluation of Lifestyle. Due to copyright regulations, the researcher was unable to include a copy of 5F-Wel-A as an appendix in this paper.

Background

University students have served as the population for much prior research related to eating attitudes and behaviors. The areas studied in prior research are broad, and include competitive attitude and achievement orientation related to disordered eating (Burckle, Ryckman, Gold, Thornton, & Audesse, 1999); past abuse and eating disorders (Beckman & Burns, 1990; Connors & Morse, 1993; Ferrier, Martens, & Cimini, 2005; Hund & Espelage, 2005; Kinzl, Traweger, Guenther, & Biebl, 1994; Mazzeo & Espelage, 2002; Murray & Waller, 2002; Thunberg, 1992); cultural differences in eating disorders (Heesacker, Samson, & Shir, 2000; Nielsen, 2000);

exercise habits and eating disorders (Matheson & Crawford-Wright, 2000); eating behaviors and mental functioning (Benton & Sargent, 1992; Benton, Slater, & Donohoe, 2001; Trockel, Barnes, & Egget, 2000); purging and negative alcohol-related effects in college females (Adams & Araas, 2006); trauma, stress, ethnic identity, and binge eating (Harrington, Crowther, Henrickson, & Mickelson, 2006); eating behaviors in varsity athletes (Hausenblas & Carron, 2000); body dissatisfaction and eating disorders (Tripp & Petrie, 2001; Tylka, 2004); a multifactorial model of disordered eating etiology (Tylka & Subich, 2004); and, intuitive eating and disordered eating symptomatology in college women (Tylka & Wilcox, 2006).

University students also have served as the population for prior research related to wellness. Murray (1996) used the College Version of TestWell (TW), a wellness instrument developed by Hettler (1980). Researchers who generated data using the Adult Version of TW with university students include McClanahan (1993) and Owen (1999). Van Dyke (2001) used a modified Adult Version of TW with university students. Mack and Shaddox (2004) conducted a study using students in university wellness courses. Steiner, Pyle, Brassington, Matheson, and King (2003) explored wellness behaviors in college athletes.

Osborn (2005) reported on studies with undergraduate students using the original WEL or the 5F-Wel. Osborn described four studies using the WEL with undergraduate students. These studies include Hermon and Hazler (1999), Enochs (2001), Myers and Bechtel (2004), and Shurts and Myers (2005). Studies Osborn

noted using the 5F-Wel include Spurgeon and Myers (2004), Sinclair and Myers (2004), and Myers and Mobley (2004).

Purpose of the Study

The purpose of this study was to identify whether a relationship exists between self-reported disordered eating and wellness among MSU undergraduate students in health courses. During fall 2008, two hundred fifty-five students from the Department of Health, PE and Sports Sciences at MSU completed Eating Attitudes Test (EAT-26) and Five Factor Wellness Evaluation of Lifestyle, Adult Version (5F-Wel-A). Previously no data had been generated concerning the relationship between wellness practices and disordered eating using these instruments.

Justification of the Study

With no foreseeable risks accompanying participation of this study, students were not expected to encounter any risks before, during, or after completing the surveys. Potential participant benefits of this study included the opportunity to assess one's own wellness behaviors and eating attitudes and behaviors; thus, identifying areas where change is needed. Furthermore, "comprehensive wellness promotion on the university campus has the potential to increase students' retention in academic programs (thus increasing faculty retention). These programs also improve student chances for success once they have been graduated" (Hettler, 1980, p. 79), particularly since employers now realize the cost effectiveness of hiring healthy employees, which gives students who display healthy lifestyles a competitive advantage given equal academic qualifications.

Other long term benefits to promoting wellness in university students exist, according to Hettler (1980, 1984). He cited evidence that many contributing factors to premature death or disability, such as heart disease and cirrhosis of the liver, in mid-life stem from unhealthy behavior practices established in adolescence and the young adult years. Hettler pointed out how universities can help students develop healthy lifestyles beneficial not only in preventing premature deaths but in decreasing sick leave and minimizing illness-care costs, both sure signs of job effectiveness. Hettler (1980) concluded:

Wellness promotion is a responsibility of the university. If the citizens of tomorrow have more skills in dealing with the forces of society and develop positive health practices during the college years, they will be more productive citizens and decrease the amount of illness care required in future years. (p. 91)

Keeling (2000) supports Hettler's (1980) conclusion that universities need to advocate for students to improve their health. Keeling compared the factors that make up health to "the components of some nonmonetary individual retirement account (IRA)" (p. 3). Keeling reported, "deposits made early on ('good' health behaviors, for example, and the more the better) eventually pay off with substantial returns, and there are significant penalties for premature withdrawals (risk behaviors, illnesses, and injuries)" (p. 3). Keeling emphasized disease prevention and reducing risks of harm in students remain important goals for colleges to advocate in students.

The aforementioned subject benefits of this study and the described long term benefits of wellness promotion on campuses are not the only reasons this study was conducted. The researcher thought that from the results determining the relationship between self-reported disordered eating and wellness, university officials would be better equipped to assess students with disordered eating. If the two factors of disordered eating and wellness showed a strong relationship, the researcher thought universities that assess for disordered eating might want to consider using 5F-Wel-A to do so, as taking a wellness survey sounds much less threatening than taking a screening test for disordered eating. If results of this study did not show a link, the researcher thought that perhaps developing another wellness instrument that would screen for disordered eating would be appropriate.

Chapter 2

Literature Review

This section is divided into two parts. In the first section are reviews of the studies regarding disordered eating studies in university students that might be related to wellness. In the second section studies are reviewed that look at wellness in university students but that do not deal with disordered eating specifically.

University Students and Disordered Eating Studies

Competitive attitude and achievement orientation related to disordered eating. Burckle et al. (1999) gave 198 Caucasian females from introductory psychology classes at a largely middle-class university in Maine packets of inventories that would enable the researchers to determine the relationship between hypercompetitiveness (unhealthy) and disordered eating, personal development competitiveness (healthy) and eating disorders, and achievement orientation and disordered eating. Results of the student responses lead Burckle et al. to conclude:

1. Hypercompetitiveness, associated with various pathologies and which requires success at any cost, is related positively to disordered eating.
2. A healthy generalized competitive attitude is not linked to disordered eating.
3. A generalized need to achieve is not related to disordered eating; but, when attractiveness was the primary domain of competition for the subjects, the motivation to achieve was related significantly to bulimic and anorexic symptoms.

Past abuse and eating disorders. Whether sexual abuse and eating disorders are linked is debatable based on conflicting results of prior researchers. Beckman and Burns (1990) explored the relationship between self-report of previous sexual abuse and self-report of current eating behaviors consistent with bulimia. Results of this study offered limited support for a link between sexual abuse and bulimia. Beckman and Burns proposed that perception of control might be a key variable that mediates the possible link between sexual abuse and bulimia.

Connors and Morse (1993) reviewed research literature that investigated a possible relationship between sexual abuse and eating disorders and that used university students and clinical populations as subjects of investigation. They attributed the discrepant results found by earlier researchers to methodological issues such as diagnostic criteria, study design, and assessment techniques and to the comorbidity of eating pathology with personality disorders. Connors and Morse concluded that in general prior sexual abuse might be regarded as a risk factor in a biopsychosocial etiological model of eating disorders.

Kinzl et al. (1994) asked a stratified sample of 350 females attending the University of Innsbruck, a large public institution, to complete three questionnaires to assess how dysfunctional family dynamics and childhood sexual abuse relate to adult sexual dysfunctions, eating disorders, and personality development. The researchers concluded from their results that childhood sexual abuse is neither necessary nor sufficient for the later development of an eating disorder; however, results reveal that an adverse family background may be a key etiological factor.

From the results of his study, Thunberg (1992) concluded that women who report having been sexually abused as a child seem to face a greater risk of developing an eating disorder than those who report no prior abuse. He attributed low self-esteem as one possible marker contributing to this link.

Ferrier et al. (2005) studied a group of 463 female undergraduates who “completed the National College Health Assessment (NCHA; American College Health Association, 2000)” (p. 120). For purposes of this study, Ferrier et al. reported focusing on the survey questions asking whether the respondents had been abused in the past year and whether they had in the last 30 days engaged in dieting, exercising, vomiting or taking laxatives, or taking diet pills to loose weight. From the results, Ferrier et al. concluded, “experiencing any type of abuse might be a potential risk factor” (p. 122) for developing disordered eating behaviors.

The research by Hund and Espelage (2005) and Mazzeo and Espelage (2002) suggested that stress resulting from sexual abuse was the mediating factor leading to disordered eating. Studies showed that the disordered eating resulted from the stress and not from the abuse directly. Developing disordered eating became the means of coping with the stress associated with the sexual abuse.

The study by Murray and Waller (2002) indicated that significant levels of internalized shame exist in clients reporting sexual abuse and bulimic symptoms. According to Murray and Waller, the shame results from the sexual abuse with the bulimic attitudes and behaviors used as coping methods to deal with the shame.

Cultural differences in eating disorders. A study by Heesacker et al. (2000) comparing disordered eating in American college women with Israeli college women revealed higher levels of disordered eating among American college women. The findings were consistent with the idea that sociocultural factors may cause disordered eating. Nielsen (2000) conducted a study that compared eating disorders in 56 Black female undergraduates and 353 White female undergraduates in a small, Southern, coeducational, predominantly White, private university. Almost 25% of the White students reported previously or currently having an eating disorder while only 9% of the Black women gave an account to an earlier or current eating disorder.

Exercise habits and eating disorders. Matheson and Crawford-Wright (2000) examined risk factors displayed by undergraduate obligatory exercisers and whether any differences in the profiles of undergraduate obligatory and non-obligatory exercisers were exhibited. Obligatory exercise, considered unhealthy, refers to exercise that causes excessive physical pain, interferes with significant relationships or work, results in a lack of time for other leisure activities, becomes an obsession, or results in other psychological problems. Among the risk factors found by Matheson and Crawford-Wright in a student obligatory exercise population that might lead to disordered eating are a feeling of social isolation, high anxiety, and body dissatisfaction.

Eating behaviors and mental functioning. Studies by Benton and Sargent (1992), Benton et al. (2001), and Trockel et al. (2000) suggested eating breakfast, considered healthy, improves mental functioning. Benton and Sargent studied 33

university students (17=habitual breakfast eaters; 16=routinely skipped breakfast) to investigate whether increased blood glucose levels after eating breakfast influences memory. Benton and Sargent found, “The performance on two memory tests was quicker when breakfast was taken, suggesting that the ability to retrieve memories had been facilitated. Performance on a spatial memory test correlated significantly with blood glucose levels” (p. 207). Benton et al. offered supporting evidence of the conclusions reached earlier by Benton and Sargent. Trockel et al. analyzed a random sample of 200 students living in on-campus residence halls in a large private university to determine the effect of several health behaviors on grade point average. Results revealed that students who eat breakfast on average have higher grade point averages than students who go without breakfast.

Purging and negative alcohol-related effects in college females. Adams and Araas (2006) analyzed a random sample of 47,202 college women from 74 schools nationwide completing the NCHA to determine whether 18-24 year old college females who report purging are more apt to participate in greater alcohol consumption and whether these same women reported more negative consequences to their drinking. Results revealed affirmative answers on both questions.

Trauma, stress, ethnic identity, and binge eating. Harrington et al. (2006) used as subjects 85 Caucasian females and 93 African American females recruited from “undergraduate psychology courses, undergraduate student organizations, faculty and staff mass mailings, and word of mouth” (p. 215) to determine whether binge eating is influenced by trauma, stress, and ethnicity. Harrington et al. found binge eating

significantly related to trauma and stress in both races, with a stronger relationship in the Caucasian women between stress and binge eating.

Eating behaviors in varsity athletes. With athletes considered high-risk for developing disordered eating, Hausenblas and Carron (2000) studied 62 female and 69 male athletes from a significant university located in Southern Ontario to determine whether teammates affect individual eating and dieting activities. Hausenblas and Carron reported results revealed that a majority of the university athletes did not perceive team members as affecting their individual eating and dieting practices. For those subjects reporting group influence, 30% of the athletes perceived teammate influence as positive while only 10% reported a negative influence from teammates.

Body dissatisfaction and eating disorders. Tripp and Petrie (2001) studied 330 female undergraduates to compare relationships among sexual abuse, eating disorders, bodily shame, and body disparagement. The researchers found that body disparagement explicitly predicts eating disorder symptoms. Tylka (2004) reported on two studies linking body dissatisfaction to disordered eating. In these studies, other variables were introduced as mediating or interacting variables influencing the development of disordered eating. In the first study, researchers looked at social insecurity and poor impulse regulation as moderators between body dissatisfaction and disordered eating. In this study, a group of 304 female psychology students from two Midwestern universities completed the Eating Disorder Inventory-2 (EDI-2). Tylka described investigating in the second study appearance control beliefs, body

surveillance, whether the subject had a friend or relative with an eating disorder, and neuroticism as mediators between body dissatisfaction and disordered eating. For this study, Tylka reported 373 female students recruited from sororities or undergraduate psychology courses on two Midwestern campuses completed packets containing (a) “the EDI-2 Body Dissatisfaction subscale (Garner, 1991)” (p. 184), (b) “two subscales of the Objectified Body Consciousness scale (OBC; McKinley & Hyde, 1996)” (p. 184), (c) “Neuroticism subscale of the NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992)” (p. 184), and (d) EAT-26 (Garner & Garfinkel, 1997). As anticipated, Tylka found

body surveillance, neuroticism, and having a family member and friend with an eating disorder intensified the primary body dissatisfaction—eating disorder symptomatology relation. Contrary to hypothesis, social insecurity and appearance control beliefs did not moderate this relation, and poor impulse regulation weakened the relation between body dissatisfaction and 1 component of eating disorder symptomatology (i.e., drive for thinness). (p. 178)

Multifactorial model of disordered eating etiology. Tylka and Subich (2004) analyzed information from 463 college females to examine a proposed multifactorial model of disordered eating symptomatology. The researchers reported that results of the study support a multifactorial basis for disordered eating symptomatology, including sociocultural, personal, and relational factors as contributors to disordered eating.

Intuitive eating and disordered eating symptomatology in college women. In two studies, Tylka and Wilcox (2006) examined college females using the EAT-26 along with other instruments to explore what relationships existed among intuitive eating, or eating in response to internal physiological hunger, positive affect; self-esteem; proactive coping; and, the level of eating disorder symptomatology. Results indicated that “unconditional permission to eat” (Tylka & Wilcox, p. 474), a component of intuitive eating, overlapped significantly with lower levels of disordered eating symptomatology while other aspects of intuitive eating contributed to each measure of well-being.

University Students and Wellness Studies

As part of a life-style improvement campaign for university students at University of Wisconsin-Stevens Point, Hettler (1980) developed Lifestyle Assessment Questionnaire (LAQ), “an important component of the total health promotion program” (p. 82), which consisted of four key sections, including a wellness inventory, a personal growth section, a health hazard or risk of death appraisal, and a medical alert section. From a preliminary study of 268 university students completing the LAQ during the spring session of 1979, Hettler found that 23% of the respondents reported the LAQ printout results prompted them to modify at least one life-style behavior, such as alcohol consumption, seat belt use, smoking, and weight.

Murray (1996) used the College Version of TW to determine the efficacy of wellness instruction among university undergraduates. Participants were 803 students

enrolled in a 16-week introductory wellness course and 57 students not enrolled in the wellness course. The College Version of TW was the pretest and posttest for both groups. Significant differences were found among enrolled students on the Physical, Social, and Spiritual dimensions as well as Total Wellness score.

Other researchers have generated data with university students using the Adult Version of TW. McClanahan (1993) investigated the influence of a 16-week wellness course among university undergraduates. Students were assigned to activity-based instruction ($n = 95$), cognitive-based instruction ($n = 106$), or a control group ($n = 74$). The Adult Version of TW was the pretest and the posttest for the three groups. On the Nonphysical factor, at posttesting all three groups performed significantly higher than at pretesting. A significant posttest difference was found between all three groups on the Nonphysical factor. On the Physical factor, at posttesting the activity-based and cognitive-based groups performed significantly higher than at pretesting. A significant posttest difference was found between the activity-based and the control group on the Physical factor. Owen (1999) sought to examine the relationship between wellness and self-directed learning readiness among a sample of 185 randomly selected graduate students. Total wellness scores had a moderate linear correlation with total self-directed learning readiness scores ($r = .45$; $p < .001$). Using a modified Adult Version, Van Dyke (2001) examined the relationship between wellness and ethnicity among 540 university students. To examine the differences among five ethnic groups on five wellness dimensions, an analysis of variance (ANOVA) was conducted. The ANOVA yielded significant main effects for

ethnicity, indicating that the students' scores on Value-Orientation, Physical, and Preventive Behaviors differed among the five ethnic groups. However, wellness scores among ethnic groups did not differ on Self-Responsibility and Self-Regulation.

Mack and Shaddox (2004) studied university students who completed Personal Wellness courses. Mack and Shaddox reported results of a pretest on the first day of class and a posttest on the last day of class using Attitudes Toward Exercise and Physical Activity (ATEPA) inventory revealed a significant improvement in student attitudes toward exercise and physical activity.

Steiner et al. (2003) conducted another study to investigate the overall health of college student athletes. Through this study, researchers developed College Health Related Information Survey (CHRIS-73) to assess overall health of student athletes. In this pilot study of the new instrument, 408 Stanford University athletes and 110 Stanford University students not members of an intercollegiate athletic team completed the CHRIS. Using factor analysis, Steiner et al. reported finding four factors among the subjects, including eating problems, mental health problems, performance pressure, and risk behaviors. Steiner et al. found "Factors were internally consistent, reasonably independent, and clearly discriminated between athletes and non-athletes, and males and females" (p. 97), leading the researchers to conclude that CHRIS is a useful instrument to assess health issues in college student athletes.

Researchers utilizing the WEL or the 5F-Wel with undergraduate students include Hermon and Hazler (1999); Enochs (2001), as cited by Osborn (2005); Myers and Bechtel (2004); Shurts and Myers (2005), as cited by Osborn; Spurgeon and

Myers (2004), as cited by Osborn; Sinclair and Myers (2004); and Myers and Mobley (2004). Hermon and Hazler, Enochs, Myers and Bechtel, and Shurts and Myers used the WEL in their research with university students. Hermon and Hazler examined the link between undergraduates' perceived state of happiness identified using "Memorial University of Newfoundland Scale of Happiness (Kozma & Stones 1994)" (Hermon & Hazler, p. 339) and five factors of wellness identified using the WEL. The five factors from the WEL include "spirituality; work, recreation, and leisure; self-regulation; friendship; and love" (p. 340). Hermon and Hazler reported that a significant relationship existed between students' compliance to the wellness model and their perceived state of happiness. The factors work, recreation, and leisure and self-regulation best predicted a students' perceived state of happiness.

Enochs (2001), as cited by Osborn (2005), gave a version of the WEL to 511 freshmen at a Southern, state university to investigate whether the type of residence hall a student lived in affected wellness practices. Half of the subjects lived in freshmen dormitories with more student support available while the other half of the subjects resided in regular residence halls. Enochs, as cited by Osborn, found subjects living in the freshmen dormitories reflected significantly higher overall wellness scores than subjects living in regular residence halls.

Myers and Bechtel (2004) gave 179 cadets in introductory psychology classes at West Point the WEL along with the Perceived Stress Scale and the General Mattering Scale. Myers and Bechtel designed the study to investigate the wellness model compared "to perceived stress and mattering in cadets, with the goal of

providing additional information on which to plan health promotion and wellness programs for military trainees” (p. 476).

Shurts and Myers (2005), as cited by Osborn (2005), gave the WEL plus two instruments measuring liking and love attitudes to 242 undergraduates in “human development and career and life planning” (Osborn, p. 81) courses at two universities. Osborn reported “Shurts and Myers found that mean scores on the six WEL scales ranged from 74.1 (Work) to 90.8 (Love), with a mean score of 77.4 on Total Wellness, reflecting reasonably high self-assessments of wellness” (p. 81).

Spurgeon and Myers (2004), as cited by Osborn (2005); Sinclair and Myers (2004); and Myers and Mobley (2004) conducted studies using 5F-Wel with college students as subjects. Osborn reported Spurgeon and Myers used 5F-Wel to compare 100 male African American upper classmen from a predominantly White university with 103 male African American upper classmen from a traditionally Black university. Mean scores for total wellness from the two institutions were similar. However, subjects from the predominantly White institute scored significantly higher than the subjects from the traditionally Black institute in the area of Social Self.

Sinclair and Myers (2004) used the 5F-Wel and two other instruments to look at body surveillance, appearance control beliefs, and body shame compared to wellness in 190 undergraduate female students of traditional age attending a Southeastern midsize university. According to Sinclair and Myers, results reflected a negative correlation between body shame and body surveillance and several aspects

of wellness while a positive correlation existed between wellness components and appearance control beliefs.

Myers and Mobley (2004) used 5F-Wel data acquired over 5 years including 1,567 undergraduate students to compare wellness levels between traditional and nontraditional students. Myers and Mobley reported results showed a significant difference in four wellness components. Scores for nontraditional students were higher on the Realistic Beliefs and Spirituality sub-scales while scores for traditional age students were higher on the sub-scales of Exercise and Leisure. Researchers also indicated that traditional Caucasian students compared with nontraditional students of different races scored higher on overall wellness and several aspects of wellness.

Powers and Dodd (2003) noted that physical fitness, healthy eating and weight management, appropriate stress management, and healthy lifestyle choices make up the key components leading to wellness. These same components are keys in the treatment and management of disordered eating (Arterburn & Mintle, 2004; McGraw, 2003). However, no prior researchers had tried to link disordered eating and wellness.

Problem Statement and Hypothesis

Problem Statement

The purpose of this study was to investigate the relationship between self-reported disordered eating (as measured by the EAT-26) and self-reported wellness (as measured by the 5F-Wel-A) in undergraduate students at one regional university in the Mid-South.

Hypothesis

For the alternative hypothesis, the researcher proposed that there will be a negative correlation between college students' overall wellness scores and disordered eating. The null hypothesis stated that the correlation between disordered eating and wellness would be equal to or greater than zero.

Chapter 3

Method

Design and Participants

The study utilized a correlational design. During fall 2008 255 volunteers from the Department of Health, PE and Sports Sciences at MSU completed EAT-26 and 5F-Wel-A to determine whether a relationship exists between self-reported disordered eating and wellness. The final sample consisted of 249 students. One student was dropped because she had already completed her undergraduate degree, two students returned packets with no signed informed consent, and three students failed to complete one of the surveys.

Instrumentation

Research supports the use of both the EAT-26 (Garner & Garfinkel, 1997) and the 5F-Wel-A (Myers & Sweeney, 2005a, 2005b) selected for use in this study. The EAT-26 has been shown to be a valid instrument in screening for eating disorders (Garner & Garfinkel; Jones, Bennett, Olmsted, Lawson, & Rodin, 2001). “The EAT-26 has acceptable criterion-related validity by significantly predicting group membership” (Jones et al., 2001, p. 548). Research (Desai, Miller, Staples, & Bravender, 2008; Garner, Olmsted, Bohr, & Garfinkel, 1982, Trautmann, Rau, Wilson, & Walters, 2008) reports the EAT-26 highly correlates with the original EAT-40 instrument ($r = .98$). A study by Thome and Espelage (2004) reported a Cronbach’s alpha of .91 for the EAT-26 total scale. Myers and Sweeney (2005a) reported an overall wellness score alpha of .94 for the 5F-Wel. The second-order

factor scores in the same study ranged from low scores of .85 (Coping Self and Social Self) to the high score of .92 (Creative Self).

Measures and Procedure

During fall 2008, data were collected through the use of an information packet compiled specifically for this study. The information packet consisted of the EAT-26; Eating Attitudes Test Self-Scoring Instructions, presented as Appendix B; 5F-Wel-A; Informed Consent Form, presented as Appendix C; and, a debriefing statement, presented as Appendix D. The researcher recruited subjects through courses in the Department of Health, PE and Sports Sciences at MSU. During classtime the researcher introduced the study to students enrolled in HLTH 151 Wellness: Theory to Action, HPE 160 Foundations of Health and PE, and HLTH 203 Safety and First Aid. The packets containing informed consents, surveys, and debriefing statements were distributed. Students who wished to participate completed the surveys immediately. Then all students returned the packets, completed or uncompleted, to the researcher.

Participant identity was kept confidential. No personally identifying marks characterized the surveys. Completed surveys were kept confidential. No individual responses were reported. All data were reported in composite form.

Variables

The study included 10 correlational variables. These variables were EAT-26 overall score, three EAT-26 subscales, Total Wellness score, and the five second-order factors aforementioned.

Analytical Procedure

Both the EAT-26 and 5F-Wel-A use Likert-type scales. Research regarding Likert scales by Parker, McDaniel, and Crumpton-Young (2007) indicated that Likert scale data could be considered as interval level and analyzed with parametric statistics. Thus, after inspecting scatterplots of the data to check for linearity, Pearson's correlations were used to analyze the data.

Chapter 4

*Results**Demographics*

Gender. Most of the students participating in this study were female. Table 1 outlines the available information about gender from the final sample of participants in this study.

Table 1. Gender of Students Participating in the Disordered Eating and Wellness Study (N=249)

<i>Gender</i>	<i>Number</i>	<i>Percentage</i>
Male	101	41.06
Female	145	58.94
Data Missing	3	

Grade level. Most of the students participating in this study were underclassmen (freshmen and sophomores). Table 2 outlines the available information about the grade levels from the final sample of participants in this study.

Table 2. Grade Level of Students Participating in the Disordered Eating and Wellness Study (N=249)

<i>Grade Level</i>	<i>Number</i>	<i>Percentage</i>
Freshmen	79	33.47
Sophomores	81	34.32
Juniors	45	19.07
Seniors	24	10.17
Data Missing	20	

Age. Most of the students participating in this study were under 20 years of age. Table 3 outlines the available information about the ages from the final sample of participants in this study.

Table 3. Age of Students Participating in the Disordered Eating and Wellness Study (N=249)

<i>Age</i>	<i>Number</i>	<i>Percentage</i>
18	52	21.31
19	64	26.23
20	68	27.87
21+	60	24.60
Data Missing	5	

Marital Status. Most of the students participating in this study had never been married. Table 4 outlines the available information about the marital statuses from the final sample of participants in this study.

Table 4. Marital Status of Students Participating in the Disordered Eating and Wellness Study (N=249)

<i>Marital Status</i>	<i>Number</i>	<i>Percentage</i>
Single	193	78.14
Married	50	20.24
Separated	2	0.81
Divorced	2	0.81
Data Missing	2	

Employment. Most of the students participating in this study either worked part time or not at all. Very few of the students worked full time. Table 4 outlines the available information about the marital statuses from the final sample of participants in this study.

Table 5. Employment of Students Participating in the Disordered Eating and Wellness Study (N=249)

<i>Employment</i>	<i>Number</i>	<i>Percentage</i>
Full time	11	4.45
Part time	123	49.80
Not working	113	45.75
Data missing	2	

Reliabilities

For the EAT-26, reliabilities in this study ranged from 0.59 (Control) to 0.88 (Dieting). The alpha coefficient for the EAT-26 Total resulted in 0.86. The alpha coefficients of the EAT-26 found in this study support the findings of Hund and Espelage (2005) and Tylka and Wilcox (2006). Hund and Espelage reported alpha coefficients of .87 (Dieting), .79 (Bulimia), and .49 (Control) while Tylka and Wilcox reported alpha coefficients of .88 (Dieting), .82 (Bulimia), and .60 (Control). Because of the low alpha coefficient for Control, both of these earlier studies only used data from the Dieting and Bulimia subscales for analysis. Alpha reliabilities for the EAT-26 in this study are listed in Table 6.

Table 6. EAT-26 Scale Reliabilities

<i>Scale</i>	<i>Chronbach Alpha</i>
EAT-26 Total	0.86
Dieting (13 Items)	0.88
Bulimia (6 Items)	0.71
Control (7 Items)	0.59

For the 5F-Wel-A Total Wellness and five subscales, alpha coefficients in this study ranged from 0.80 (Social and Essential) to 0.86 (Physical), with the 5F-Wel-A Total Wellness alpha score 0.92. These findings are generally consistent with the alpha coefficients reported by Myers and Sweeney (2005b). Alpha coefficients reported by Myers and Sweeney ranged from 0.85 (Coping and Social) to 0.92 (Creative), with the Total Wellness alpha score 0.90. Alpha reliabilities for the 5F-Wel-A in this study are listed in Table 7.

Table 7. 5F-Wel-A Scale Reliabilities

<i>Scale</i>	<i>Chronbach Alpha</i>
5F-Wel-A Total (73 Items)	0.92
Creative (20 Items)	0.83
Coping (19 Items)	0.81
Social (8 Items)	0.80
Essential (16 Items)	0.80
Physical (10 Items)	0.86

All scale reliabilities obtained for this study were adequate with the exception of the EAT-26 Control scale. As this was essentially an exploratory study, however, this scale was left in with the understanding that any results involving it would be interpreted cautiously (Garson, 2009).

Means and Standard Deviations

Table 8 depicts the means and standard deviations of the total EAT-26 and 5F-Wel-A scales and their subscales. Mean scores on the four EAT-26 scales ranged from 1.06 (Bulimia) to 3.76 (Dieting), with 6.84 the EAT-26 Total mean. Mean scores on the six 5F-Wel-A scales ranged from 71.21 (Physical) to 90.59 (Social), with 78.54 the mean score on Total Wellness.

Table 8. Means and Standard Deviation on All Scales (N=249)

<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
EAT-26 Total	6.84	6.73	0	47.00
Dieting	3.76	4.91	0	33.00
Bulimia	1.06	1.63	0	14.00
Control	2.02	2.34	0	12.00
5F-Wel-A Total	78.54	7.55	58.56	97.60
Creative	79.00	8.71	57.50	100.00
Coping	74.77	9.20	47.37	97.37
Social	90.59	9.69	46.88	100.00
Essential	81.01	10.61	51.79	100.00
Physical	71.21	14.64	35.00	100.00

Correlation

Table 9 depicts the Pearson Correlation Coefficients of the EAT-26 and the 5F-Wel-A scales and their subscales. Correlation coefficients clustered around zero with nothing stronger than -0.17 (5F-Wel-A Coping and EAT-26 Bulimia). The correlation coefficient for overall disordered eating and wellness was -0.02.

**Table 9. Pearson Correlation Coefficients of EAT-26 scales with 5F-Wel-A
(N=249)**

	<i>EAT-26</i>	<i>EAT-26</i>	<i>EAT-26</i>	<i>EAT-26</i>
	<i>Total</i>	<i>Dieting</i>	<i>Bulimia</i>	<i>Control</i>
5F-Wel-A Total	-0.02	0.00	-0.10	0.02
Creative	0.06	0.06	0.01	0.05
Coping	-0.16	-0.15	-0.17	-0.03
Social	-0.01	0.01	-0.10	0.02
Essential	-0.01	0.00	-0.05	0.01
Physical	0.07	0.10	-0.07	0.04

Chapter 5

Discussion

No prior research has examined whether a link exists between self-reported disordered eating and wellness using the EAT-26 and 5F-Wel instruments, respectively. This study examined whether a relationship exists between self-reported disordered eating and wellness among MSU undergraduate students in health courses. To test the alternative hypothesis that there would be a negative correlation between college students' overall wellness scores and disordered eating, a Pearson correlation analysis was conducted. With no correlation between overall wellness and disordered eating found, the results supported the null hypothesis that the correlation between disordered eating and wellness would be equal to or greater than zero. Possible reasons for the unexpected results include the type of wellness instrument used where eating and exercise behaviors are such a small part of it; the nature of the design of the EAT-26, students hiding the extent of their disorder; students compartmentalizing disordered eating where it does not affect other areas of wellness, and the nature of the population chosen for the study.

Results of this study would imply that the 5F-Wel-A should not be used to screen for eating disorders. However, the researcher thinks further study could utilize another type of wellness instrument to see whether similar results occur.

Regarding using the EAT-26 for this study, although the overall reliability was good and supported the reliability presented by Thome and Espelage (2004), the researcher thinks this instrument was too simplistically designed only to be used to

screen for eating disorders and not intended to be used in such studies. Perhaps using a more clinical instrument, such as the Eating Disorder Inventory-3 (EDI-3) (2009), would produce better results. Jones et al. reported that the EDI is “the most widely and standardized self-report instrument for the assessment of specific eating attitudes and behaviors” (Jones et al., 2001, p. 548). With this information the researcher recommends using the EDI for future research purposes, especially with it being a newer instrument. However, for all practical purposes with limited funding, I think the EAT-26 available in the public domain is suitable for clinicians to use as an early screening instrument for eating disorders in individuals.

Although, the researcher recommends trying other eating disorder or wellness instruments for future research studies, she would encourage college health personnel and counselors to use both instruments for their intended purpose. The EAT-26 could be given to patients at university health clinics and clients at university counseling centers to screen for eating disorders while the 5F-Wel-A could be given to the same population to raise overall awareness of wellness behaviors.

Regarding the population chosen for this study, the researcher thinks that adding another group of individuals from a clinical setting diagnosed with eating disorders would have produced a more reliable result where the norms of the wellness scores of the students could be compared to the norms of the wellness scores of the clinically diagnosed subjects. The researcher recommends such a study be conducted in the future.

Although earlier studies have not looked at trying to link disordered eating and wellness in university students as this researcher attempted to do, earlier studies have considered disordered eating and wellness in university students independently or linked to other issues faced by students. Many of the earlier studies related to disordered eating in university students used the EDI or another instrument that asks about eating attitudes and behaviors rather than the EAT-26 used in this study. Studies the researcher found that did use all or two of the subscales of the EAT-26 include Desai et al. (2008), Hund and Espelage (2005), Mazzeo and Espelage (2002), Thome and Espelage (2004), Trautmann et al. (2008), Tylka (2004), Tylka and Subich (2004), Tylka and Wilcox (2006), and Wiles (1997). The researcher was unable to compare her results with any of the results of these earlier studies. The researcher chose to use the recommended scoring procedure of the instrument's originators while Desai et al., Hund and Espelage, Mazzeo and Espelage, Thome and Espelage, Tylka and Subich, and Tylka and Wilcox used non standard scoring methods preventing any comparison. This study is not comparable to the study by Trautmann et al. because that study involved only freshmen (as opposed to the broader undergraduate population) college students in an education course (as opposed to health classes) at another university. These differences would make any attempt at drawing comparisons limited. The subjects of the study by Tylka included only women making comparison to this study including both males and females inappropriate. With access to only the abstract of the Wiles study, the researcher had insufficient information from that study to make any comparisons.

Trying to compare results of earlier studies using the 5F-Wel with this study, the researcher looked at Myers and Mobley (2004); Sinclair and Myers (2004); and Spurgeon and Myers (2004), as cited by Osborn (2005). Results of this study are comparable to the data of traditional undergraduates analyzed by Myers and Mobley. While mean scores on the 5F-Wel-A on the current study ranged from 71.21 (Physical) to 90.59 (Social) with 78.54 the mean score on Total Wellness, mean scores of the traditional undergraduates from Myers and Mobley's study ranged from 70.65 (Coping) to 83.82 (Social), with 76.35 the mean score on Total Wellness. Comparing rank order of the subscale scores for the two studies, only the two lowest scoring positions of Physical Self and Coping Self were reversed. The results of this study could not be generalized to the population bases used by Spurgeon and Myers or Sinclair and Myers making comparison inappropriate. Spurgeon and Myers used all male, African American subjects while this study analyzed mostly females with only a very small amount of students not Caucasian. Only females were included in the study by Sinclair and Myers.

As exemplified in the researcher's limited ability to make comparisons to earlier studies using either the EAT-26 or the 5F-Wel-A with university students, a key limitation of this study is the applicability of the results to other populations. Using participants only in health courses from the one university does not allow generalization to other universities, affecting the study's external validity. Furthermore, results of the study might be skewed depending on the characteristics of the students who volunteered to participate. The researcher thinks that students who

practice disordered eating behaviors (e.g.: bingeing or purging) might have hesitated to volunteer at all or to answer honestly (particularly if in denial of the problem, rather than intentional lying) due to embarrassment or fear of being found out, which would threaten the external as well as the internal validity of the study.

The reliability and validity of the EAT-26 and 5F-Wel-A instruments could affect internal validity as well. For examples, internal validity could be affected by students interpreting the scales differently and by students lying about their disordered eating attitudes and behaviors.

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Appendix A

Eating Attitudes Test

EAT©David M. Garner & Paul E. Garfinkel (1979), David M. Garner, et al., (1982)

SECTION A

Complete the following questions:

1) Birth Date: Month _____ Day: _____ Year: _

2) Gender: Female _____ Male _____

3) Height: Feet _____ Inches _____

4) Current Weight (lbs.):

6) Lowest Adult Weight:

5) Highest Weight (excluding pregnancy):

7: Ideal Weight:

SECTION B

Please check one response for each of the following statements.	Always	Usually	Often	Sometimes	Rarely	Never
1. Am terrified about being overweight						
2. Avoid eating when I am hungry						
3. Find myself preoccupied with food						
4. Have gone on eating binges						

where I feel I may not be able to stop						
5. Cut my food into small pieces						
6. Aware of the calorie content of foods I eat						
7. Particularly avoid food with a high carbohydrate content (bread, rice, potatoes, etc.)						
8. Feel that others would prefer if I ate more						
9. Vomit after I have eaten						
10. Feel extremely guilty after eating						
11. Am preoccupied with a desire to be thinner						
12. Think about burning up calories when I exercise						
13. Other people think I'm too thin						
14. Am preoccupied with the thought of having fat on my body						

15. Take longer than others to eat my meals						
16. Avoid foods with sugar in them						
17. Eat diet foods						
18. Feel that food controls my life						
19. Display self-control around food						
20. Feel that others pressure me to eat						
21. Give too much time and thought to food						
22. Feel uncomfortable after eating sweets						
23. Engage in dieting behavior						
24. Like my stomach to be empty						
25. Have the impulse to vomit after meals						
26. Enjoy trying new rich foods						

SECTION C—Behavioral Questions

In the past 6 months have you:

	Never	Once a month or less	2-3 times a month	Once a week	2-6 times a week	Once a day or more
A. Gone on eating binges where you feel that you may not be able to stop?						
B. Ever made yourself sick (vomited) to control your weight or shape?						
C. Ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?						
D. Exercised more than 60 minutes a day to lose or control your weight?						

E. Lost 20 pounds or more in the past 6 months Yes: No:

Appendix B

Eating Attitudes Test
Self-Scoring Instructions

Student ID Number: _____

Date: _____

Score your answers as noted in the table below:

For questions #1-25:

Always—give yourself 3 points.

Usually—give yourself 2 points.

Often—give yourself 1 point.

Sometimes—0 points

Rarely—0 points

Never—0 points

For question #26 only:

Always—0 points

Usually—0 points

Often—0 points

Sometimes—1 point

Rarely—2 points

Never—3 points

“D” Subscale		“B” Subscale		“C” Subscale	
1.		3.		2.	
6.		4.		5.	
7.		9.		8.	
10.		18.		13.	
11.		21.		15.	
12.		26.		19.	
14.				20.	
16.					
17.					
22.					
23.					
24.					
25.					
“D” Subtotal:		“B” Subtotal:		“C” Subtotal:	

*Grand Total Score: _____

****If your EAT-26 score is at least 20, we recommend that you see your physician.***

Interpreting Your EAT Score

1. Did you answer yes to questions A, B, C, or D? _____
2. Determine whether you are underweight significantly according to the weight chart below.
3. If your EAT-26 score is at least 20, if your answer to question 1 above was YES, or if you are underweight significantly, we recommend that you see your physician to discuss the results.

Significantly Underweight According to Height (Body Mass Index of 18)*

Height (inches)	Weight (pounds)	Height (inches)	Weight (pounds)
58	86	68	118
58 _	88	68 _	120
59	89	69	121
59 _	90	69 _	124
60	91	70	125
60 _	93	70 _	127
61	95	71	128
61 _	96	71 _	131
62	99	72	132
62 _	100	72 _	134
63	101	73	135
63 _	103	73 _	138
64	105	74	140
64 _	106	74 _	141
65	108	75	144
65 _	109	75 _	146
66	112	76	147
66 _	113	76 _	149
67	114	77	152
67 _	117	77 _	154
BMI = (lbs) ÷ (inches) ÷ (inches) X 703			

* Chart taken from "Scoring the Eating Attitudes Test (EAT-26) ©" By Matthew Tiemeyer. Available: http://eatingdisorders.about.com/od/riskfactors/a/eat26test_2.htm

Appendix C

INFORMED CONSENT STATEMENT

PROJECT TITLE: Linking Disordered Eating and Wellness in University Students

FOR: Pamela K. Owens, Morehead State University
Dr. Lola J. Aagaard (Academic Advisor), Morehead State University
Professional Programs in Education Department
Morehead State University
(606) 783-2261

Dear Student,

I am asking for your help with a research project I am doing on the link between wellness and disordered eating. Disordered eating is anything on a scale from single dieting to serious eating disorders such as anorexia and bulimia. By helping me you will gain more understanding of your wellness behaviors and eating habits. Results could help school leaders promote wellness in future students.

You must be 18 years of age or older to take the surveys. This study has been reviewed to make sure your rights are protected. The smallest possible risk or discomfort could occur from taking Five Factor Wellness Evaluation of Lifestyle and Eating Attitudes Test.

You do not have to help me. If you do not wish to take part in this study, then you do not have to answer any of the questions. Taking the surveys is voluntary. You may refuse to answer any question. You may drop out of the study at any time without any penalty from anyone. Completing the forms should take about 30 minutes.

Your answer sheets will be kept secret. The answers you give also will be kept private. After scoring, survey answers will be stored in a locked filing cabinet in a locked office. Please feel free to contact me or Lola if something does not make sense to you or if you have any questions.

If you have questions later about this research project, feel free to contact me or Lola J. Aagaard (783-2531). If you have any discomfort, you may contact the counseling center located on the second floor of Allie Young. You also may call Pathways at 784-4161.

If you decide to help, please be sure to print and sign your name below. This will let us know that you understand the reason for this research project and that you took part willingly.

Name (printed): _____

By signing below, I verify that I am at least 18 years of age and have been informed of and understand the nature and purpose of the project and freely consent to participate.

Signature: _____

Date: _____

Appendix D

Debriefing Statement-Research Project
Disordered Eating and Wellness

The information you have just given is part of a research project to determine the relationship between disordered eating and wellness in university students. Your answers and the answers of other participants will assist us in completing this project. We appreciate your participation. If you have any questions about the research project, the researcher or advisor will be happy to try to answer them for you.

Again, as a reminder, if you experience any discomfort at any time from completing these surveys, please contact the counseling center located on the second floor of Allie Young or you may contact Pathways at 784-4161. Thank you.