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Facebook as Social Support for a One-Time Weight Loss Intervention Among College Students

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FACEBOOK AS SOCIAL SUPPORT FOR A ONE-TIME WEIGHT LOSS
INTERVENTION AMONG COLLEGE STUDENTS

by

Erica Seely

B.S., Southern Illinois University, 2011
M.S., Southern Illinois University, 2013

A Thesis
Submitted in Partial Fulfillment of the Requirements for the
Master of Science Degree.

Food and Nutrition Department
in the Graduate School
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THESIS APPROVAL

FACEBOOK AS SOCIAL SUPPORT FOR A ONE-TIME WEIGHT LOSS
INTERVENTION AMONG COLLEGE STUDENTS

By

Erica Seely

A Thesis Submitted in Partial
Fulfillment of the Requirements
for the Degree of Master of Science
in the field of Food and Nutrition

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November 01, 2013

AN ABSTRACT OF THE THESIS OF

Erica Seely, for the Master of Science degree in Food and Nutrition, presented on November 1, 2012 at Southern Illinois University Carbondale.

TITLE: FACEBOOK AS SOCIAL SUPPORT FOR A ONE-TIME WEIGHT LOSS INTERVENTION AMONG COLLEGE STUDENTS

MAJOR PROFESSOR: Dr. Sara Long Roth

Approximately 32% of college-aged individuals are overweight or obese, yet few weight loss programs have effectively motivated this population to adopt a healthier lifestyle. A majority of this population frequently uses the social networking site Facebook. This study examined the impact of a Facebook social support group on weight loss efforts of college students.

A total of 24 students were randomly assigned to either the intervention group, which consisted of a Facebook support group, or control group after attending a one-time weight loss class. Assessments were taken at baseline and four weeks.

DEDICATION

This thesis is dedicated to the students who participated in the study and anyone making the journey to become a healthier person. Throughout this process I was able to educate and help people achieve a healthier lifestyle and see their physical and intellectual transformations. I learned the importance of not only being an educator, but also a support system and cheerleader. Even in the short time I was with my groups, I felt immense pride and happiness with their progress. Thank you for letting me be a part of your journey and continue on!

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TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
ABSTRACT	i
DEDICATION	ii
ACKNOWLEDGMENTS.....	iii
LIST OF TABLES.....	vii
LIST OF FIGURES.....	ix
CHAPTERS	
CHAPTER 1 – Introduction	1
Introduction and Background	
Need for the Study	
Purpose of the Study	
Research Questions and Hypotheses	
Research Design	
Sample	
Data Collection Procedures	
Significance of the Study	
Assumptions	
Limitations	
Delimitations	
Definition of Terms	
Summary	
CHAPTER 2 – Review of Literature	10
Introduction	
Obesity and Overweight Prevalence and Complications	
Obesity Treatment	
Self-Efficacy and Weight Loss	
Satisfaction with Weight Loss Outcomes	
Obesity and Overweight Among College Students	
Internet Use for Weight Loss	
Online Social Support Groups and Weight Loss	
Facebook Use Among College Students	
Facebook Group Usage	
Facebook Support Groups as Weight Loss Aid	
Summary	

CHAPTER 3 – Methodology.....	19
Introduction	
Purpose of the Study	
Research Questions and Hypotheses	
Study Setting	
Research Design	
Sample	
Data Collection Instrument	
Nutrition Education Intervention “Eating for the Health of It”	
Facebook Support Group “Healthy Dawgs”	
Data Collection Procedures	
Data Management and Analysis	
CHAPTER 4 – Results	32
Introduction	
Description of the Sample	
Description of Facebook Analysis	
Analysis of Facebook Evaluation Tool Version 1 and 2	
Findings Related to Research Questions/Hypotheses	
Research Question 1	
Research Question 2	
Research Question 3	
Hypothesis 1	
Hypothesis 2	
Hypothesis 3	
CHAPTER 5 – Conclusions, Discussion, Implications, and Recommendations	63
Introduction	
Summary of the Study	
Conclusions	
Discussion	
Recommendations for Future Research	
Implications in Dietetic Practice	
Summary	
REFERENCES.....	79

APPENDICES

Appendix A – Permission to adapt questionnaire.....	86
Appendix B – Participation consent form: control group	88
Appendix C – Participation consent form: intervention group	91
Appendix D – Lifestyle goal worksheet	94
Appendix E – Marketing component for “Eating for the Health of It”	96
Appendix F – Data collection instrument: control group (<i>n</i> = 13)	98
Appendix G – Data collection instrument: intervention group original version (<i>n</i> = 7), modified version (<i>n</i> = 4)	103
Appendix H – Responses to open-ended questions	109
Appendix I – Screen shots of Facebook group “Healthy Dawgs”	111
VITA	117

LIST OF TABLES

<u>TABLE</u>	<u>PAGE</u>
Table 1 <i>Summary of Statistics used for each Research Question/ Hypothesis</i>	30-31
Table 2 <i>Demographic Characteristics of the Sample (n = 23)</i>	33-34
Table 3 <i>Description of Facebook Use (n = 23)</i>	36
Table 4 <i>Intervention Group Survey Responses Regarding Weight</i>	37
Table 5 <i>Intervention Group Survey Responses Regarding Inches</i>	38
Table 6 <i>Intervention Group Survey Responses Regarding Lifestyle Goal and Self- Efficacy Scores</i>	39
Table 7 <i>Intervention Group Survey Responses Regarding Program Satisfaction</i>	40
Table 8 <i>Control Group Survey Responses Regarding Weight</i>	41
Table 9 <i>Control Group Survey Responses Regarding Inches</i>	42
Table 10 <i>Control Group Survey Responses Regarding Lifestyle Goal and Self- Efficacy Scores</i>	43
Table 11 <i>Control Group Survey Responses Regarding Program Satisfaction</i>	44
Table 12 <i>Assessment of Pre-Existing Differences in Self-Efficacy Between the Control Group (n = 13) and Intervention Group (n = 11)</i>	46
Table 13 <i>Differences in Self-Efficacy Between Weight Loss Goal (n = 24) and Inches Loss Goal (n = 21)</i>	47
Table 14 <i>Correlation of Self-Efficacy Total Score and Weight Loss Difference (n = 24), Inches Loss Difference (n =21), and BMI Difference (n = 24))</i>	48

Table 15 <i>Differences in Self-Efficacy for Lifestyle Goal (n = 24)</i>	49
Table 16 <i>Difference Between Control Group (n = 13) and Intervention Group (n = 11) for Weight Loss Difference, Inches Loss Difference, and BMI Difference</i>	51
Table 17 <i>Pearson’s Chi-Squared Analysis of the Proportion of Students in the Control Group (n = 13) and Intervention Group (n = 11) Who Met Their Weight Loss and Inches Loss Goals</i>	52
Table 18 <i>Correlations Between the Perceived Benefit of “Healthy Dawgs” and Weight Loss Difference (n = 11), Inches Loss Difference (n = 10), and BMI Difference (n = 11)</i>	53
Table 19 <i>Differences in Perceived Benefit of “Healthy Dawgs” and Weight Loss Goal (n = 11) and Inches Loss Goal (n = 10)</i>	54
Table 20 <i>Pearson’s Chi-Squared Analysis of Control Group (n = 13) and Intervention Group (n = 11) for Lifestyle Goal</i>	55
Table 21 <i>Differences in Perceived Benefit of “Healthy Dawgs” and Lifestyle Goal (n = 11)</i>	56
Table 22 <i>Difference Between Control Group (n = 13) and Intervention Group (n = 11) for Satisfaction with Weight Loss Goal Efforts and Satisfaction with Lifestyle Goal Efforts</i>	58
Table 23 <i>Differences Between Satisfaction with Weight Loss Efforts and Weight Loss Goal (n = 24), Inches Loss Goal (n = 21); Satisfaction with Lifestyle Goal Efforts and Lifestyle Goal (n = 24)</i>	60
Table 24 <i>Correlations Between Satisfaction with Weight Loss Efforts and Weight Loss Difference (n = 24), Inches Lost Difference (n = 21)</i>	61

LIST OF FIGURES

<u>FIGURE</u>	<u>PAGE</u>
Figure 1 <i>Research Design</i>	21
Figure 2 <i>“Healthy Dawgs” Screen Shot</i>	112
Figure 3 <i>“Healthy Dawgs” Screen Shot</i>	113
Figure 4 <i>“Healthy Dawgs” Screen Shot</i>	114
Figure 5 <i>“Healthy Dawgs” Screen Shot</i>	115
Figure 6 <i>“Healthy Dawgs” Screen Shot</i>	116

CHAPTER 1

INTRODUCTION

The prevalence of obese and overweight individuals in the United States continues to rise. The Center for Disease Control states, “during the past several decades, obesity rates for all population groups—regardless of age, sex, race, ethnicity, socioeconomic status, education level, or geographic region—have increased markedly” (Center for Disease Control, 2011). Furthermore, this trend is now apparent in once less affected populations, such as college students. In fact, the American College Health Association estimates that 32% of college students are obese or overweight, which places this population at greater risk of obesity-related diseases such as hypertension, heart disease, and type 2 diabetes mellitus (T2DM) (American College Health Association, 2006; Van Itallie, 1985).

Many factors influence weight gain in college students including diet quality, meal timing, alcohol consumption, physical activity, sleep, and stress (Nelson et al., 2009). The latter can be particularly influential as adaptation from home to college life can have detrimental impact on physical and mental well-being in college students (Hicks & Heastie, 2008). At the same time, during college, students learn behaviors that can shape their adult lifestyle and impact long-term health status

Need for the Study

Effectiveness of weight loss interventions in college students can be compromised due to daily variations in class and work schedules (Nelson et al., 2009). Weight loss interventions in this population will need to utilize novel strategies to avoid these obstacles. One potential approach involves utilization of social media, such as Facebook, which has approximately 955 million active users monthly and 552 million active users daily (Facebook, 2012). Furthermore, it is estimated that 18-24 year olds make up 31% of all Facebook users (Curran et al., 2011). Incorporation of Facebook into weight loss interventions may provide a useful social support system for obese and overweight college students. At present, no published studies have investigated using Facebook as a potential tool for weight loss in college students. The objective of this research is to determine the effect of a Facebook support group on efficacy of weight loss in college students receiving a one-time nutrition intervention.

Purpose of the Study

The purpose of this study is to determine if use of a Facebook support group in combination with a one-time weight loss class will increase the likelihood of college students meeting weight loss and lifestyle goals, as well as increasing self-efficacy and satisfaction with efforts.

Research Question

1. Which components of the “Healthy Dawgs” Facebook support group assist students in meeting lifestyle and weight loss goals?
2. What are the effects of self-efficacy on ability of students to meet their weight

loss goals?

- a. Rationale: Previous studies have found increased self-efficacy leads to greater weight loss results (Warziski et al., 2008; Linde et al., 2006).
3. What are the effects of self-efficacy on the ability of students to meet their pre-determined lifestyle goal?
 - a. Rationale: A study on the impact of self-efficacy on behavior change and weight loss found that higher self-efficacy was strongly associated with weight loss behaviors (Linde et al., 2006).

Hypotheses

1. The Facebook support group, "Healthy Dawgs," will significantly increase the likelihood that students will reach weight loss goals.
 - a. Rationale: It has been found that participants experience greater weight loss when participating in a weight loss program with friends, thus indicating the positive role of social support in weight loss strategies (Wing and Jeffery, 1999). Social support can be a crucial aspect of online weight control programs including a significant part of weight maintenance (Krukowski et al., 2008). Additionally, group therapy in obesity treatment leads to greater weight loss than individual therapy, further indicating the impact social support plays on weight loss (Renjilian et al., 2001).
2. The Facebook support group, "Healthy Dawgs," will significantly increase the likelihood that students will reach a pre-determined lifestyle goal.

- a. Rationale: A study on longitudinal effects of goal setting found that those who focused on smaller goals to reach an overall weight loss goal lost a higher percentage of their beginning weight after a 12-week study period compared to those who only focused on the overall weight loss goal (Conlon, et al., 2011).
3. The Facebook support group, “Healthy Dawgs,” will significantly increase students’ satisfaction with their ability to meet weight and lifestyle goals.
 - a. Rationale: Finch et al., (2005), found an increase in satisfaction is associated with a significant decrease in body weight. As indicated in a study of satisfaction with weight loss, there is a positive association with satisfaction and weight loss outcomes and experiences (Baldwin et al., 2009).

Research Design

This study is an experimental design with a control group utilizing a pre- and post-assessment of subjects. All subjects received the nutrition intervention in the form of a one-time nutrition education session, and were then randomly placed in either the experimental or control group. Those in the experimental group were introduced to the independent variable or the Facebook support group, entitled “Healthy Dawgs.” Those in the control group did not receive any support after the initial intervention. All subjects were measured at baseline and at a four-week follow-up.

Sample

Those enrolled in the “Eating for the Health of It” weight control class at

Southern Illinois University were solicited for this study. Inclusion criteria included enrollment at Southern Illinois University in addition to enrollment in the weight control group.

Data Collection Procedures

“Eating for the Health of It” weight control classes were one-time nutrition interventions held throughout spring semester for Southern Illinois University students. Participants were actively recruited for either the control or experimental group at the initial nutrition intervention. Participants’ physical data and goals were recorded after conclusion of the nutrition education class. All participants returned to take a four week follow-up survey and were re-measured; results were assessed for changes. Data collectors included the researcher and Lynn Gill, MS RD LDN; both are knowledgeable and experienced with the Health o Meter Professional scale and Myotape Body Tape Measure.

Significance of the Study

This study is the first to utilize Facebook as an aid in weight loss for the college student population. Results are beneficial for determining the best approach for successful weight loss programs in college-aged students. Additionally, this research is applicable to several other behavior change interventions utilizing social support through a Facebook support group.

Assumptions

This study is based on the following assumptions:

1. Participants answered data collection instrument questions honestly and to the best of their knowledge.

2. There was no contamination between groups (i.e. a participant in the intervention group talking to a friend in the control group).

Limitations

The following limitations should be considered when interpreting results of this study:

1. Body Mass Index may not be the best index for weight loss, taking into account those with dense muscle composition and

Delimitations

The following delimitations should be considered when interpreting results of this study:

1. Study participants were limited to currently enrolled Southern Illinois University students who self-enrolled in the “Eating for the Health of It” weight control class.

Definitions

The following terms were utilized in the study and defined to provide an explanation:

Body Mass Index: “Body Mass Index (BMI) is a number calculated from a person’s weight and height. BMI provides a reliable indicator of body fatness for most people and is used to screen for weight categories that may lead to health problems” (Centers for Disease Control, 2011a).

Facebook: Online social networking site founded in 2004 which gives users the ability to “keep up with friends, upload an unlimited number of photos, share links and videos, and learn more about the people they meet” (Facebook, 2011b).

Facebook Support Group/“Healthy Dawgs”: Refers to a private group established for those in the experimental group. Motivational, educational, and supplemental information was posted on the group page throughout the study five days out of the week.

High-Risk Waist Circumference: Refers to a man whose waist circumference is more than 40 inches and non-pregnant woman whose waist circumference is more than 35 inches, putting each at risk for obesity-related conditions (Center for Disease Control, 2011)

Lifestyle Goal Worksheet: Worksheet designed to help participants in Eating for the Health of It weight control class to determine a lifestyle goal that will promote a healthier lifestyle. Each section of the worksheet aligned with topics discussed in the class. This can be viewed in Appendix D.

Obesity: “An adult who has a BMI of 30 or higher” (Centers for Disease Control, 2011a).

Overweight: “An adult who has a BMI between 25 and 29.9” (Centers for Disease Control, 2011a).

Pre-determined lifestyle goal: Participants choose goals, prioritizing one to promote a healthier lifestyle. Goals were chosen from the Lifestyle Goals worksheet provided which is based off the nutrition intervention.

Satisfaction: Refers to satisfaction with weight loss efforts. Weight loss

satisfaction is often highly associated with the amount of weight loss indicating positive weight loss outcomes lead to higher levels of satisfaction (Finch et al., 2005).

Self-efficacy: “General self-efficacy can be defined as a generalization across various domains of functioning in which people judge how efficacious they are” (Luszczynska et al., 2005).

Social networking site: “Web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (Boyd & Ellison, 2007).

Social support: “The individual belief that one is cared for and loved, esteemed and valued, and belongs to a network of communication and mutual obligations” (Cobb, 1976).

Weight loss goal: Participants determined a four-week weight loss goal at the nutrition intervention.

Summary

Obesity is prevalent in various populations. As indicated by the American College Health Association, college students are not exempt from having overweight or obese status, putting this age group at risk for hypertension, heart disease, and T2DM (American College Health Association, 2006; Van Itallie, 1985). Nutrition and physical activity have proven to positively affect controllable risk factors for overweight and obesity and comorbid conditions (Center for Disease Control, 2011).

Introducing proper dietary practices at the college age can result in better health and weight control.

The need for weight loss intervention at the college level is necessary with the literature presented. Weight loss strategies vary, but it is apparent that novel approaches are necessary for success among this population. The Internet provides such approaches in addition to various other benefits, such as 24-hour access and social support. Furthermore, social networking sites continue to gain popularity; Facebook has 552 million daily active users (Facebook, 2012). With the high numbers of college students utilizing Facebook as a social network, a Facebook support group might be beneficial as an aid in weight loss for college students.

CHAPTER 2

REVIEW OF LITERATURE

This chapter presents a review of literature concerning the health of college students and the role social networking sites, such as Facebook, play in weight loss interventions. Obesity has reached epidemic proportions and is affecting all populations including that of college students. With the high number of complications and diseases associated with increased BMI, more college students are presenting with these issues as the number of college-aged individuals become obese. Treatment for obesity comes in various forms, while social support plays a vital role in meeting weight loss goals and adhering to weight loss programs. The Internet presents a novel approach to weight loss programs with 24-hour access and social capabilities. The online social networking site Facebook, which is used by most college students, presents a potential for reaching more college students and aiding in weight loss goals.

Obesity and Overweight Prevalence and Complications

Obesity is at epidemic levels with approximately two-thirds of U.S. adults classified as obese (BMI >30) or overweight (BMI 25-29.9) (Ogden et al., 2006). Health implications of obesity and its related comorbidities are significant. Increased BMI is associated with greater risk for coronary heart disease, T2DM, hypertension, dyslipidemia, stroke, liver disease, gallbladder disease, sleep apnea, gynecological problems, and certain forms of cancers, including endometrial, breast, and colon cancer (Must et al., 1999). Furthermore, the major causes of death in the U.S. (i.e. heart disease, cancer, and stroke) are all metabolic complications of obesity

indicating dietary and lifestyle risk factors such as poor diet and sedentary lifestyle contribute to mortality in the U.S. (Danaei et al., 2009).

Obesity Treatment

There are many venues for obesity treatment and related comorbid conditions, the main focus being weight loss (Clinical guidelines on identification, evaluation, and treatment of overweight and obesity in adults: executive summary). Interventions for weight loss include those that focus on nutrition, exercise, medications, supplements, surgery, or a combination of therapies. Surgery as a form of obesity treatment is generally reserved for extreme conditions when diet modification and exercise are not effective (Smith et al., 2011). Experts within the field of dietetics focus on application of proper dietary and lifestyle practices through behavior theory-based nutrition education programs (Cullen et al., 2001) Nutrition interventions for obesity have proven successful for previous studies with various ways of offering interventions including, one-on-one counseling (Renjilian et al., 2001), group therapy (Harvey-Berino et al., 2010), and online interventions (Womble et al., 2004).

Self-Efficacy and Weight Loss

Self-efficacy has been found to improve weight loss outcomes in some studies although this research has not been found to be definitive. One study evaluated self-efficacy's impact on eating behaviors and weight loss over an 18-month time period. The researchers found that self-efficacy improved over time and was significantly associated with weight loss, suggesting that improved self-efficacy may lead to greater weight loss (Warziski et al., 2008). Another study conducted to examine relationships between self-efficacy and weight control behaviors and weight

loss outcomes found similar results. The researchers found that self-efficacy predicted weight loss outcomes during the active treatment from three to six months, but not during follow-up (Linde et al., 2006). Alternatively, a study on obese Japanese subjects found that high, generalized self-efficacy was associated with low weight loss outcomes (Tomoaki et al., 2010).

Satisfaction and Weight Loss Outcomes

Research has found that better weight loss outcomes lead to higher satisfaction in weight loss participants. In fact, one study found that an increase in satisfaction is associated with a significant decrease in body weight (Finch et al., 2005). Additionally, Baldwin et al. found that there was a positive association between satisfaction and weight loss outcomes and experiences (2009). Furthermore, a study on obese participants looked to determine the association between participant experiences and satisfaction with a weight loss intervention. The researchers found that weight loss, improved diet, increased physical activity, and improved body image were independent predictors of overall satisfaction (Van Wormer et al., 2010). These studies suggest that weight loss programs with experiences that lead to high satisfaction in participants have greater weight loss outcomes.

Obesity and Overweight Among College Students

Obesity and its related comorbidities have been predominantly observed in older populations. However, it is now becoming more prevalent in younger groups, such as college-aged individuals (18-24). In fact, approximately 32% of U.S. college students are estimated to be overweight or obese (American College Health

Association, 2006). College has a significant influence on diet, physical activity, and other lifestyle habits that impact body weight (Racette et al., 2005). Weight gain in college can often be attributed to lifestyle changes related to transition from high school to college. Additional factors that influence weight gain in college students include decreased physical activity, poor dietary habits such as eating poor quality foods in large proportions, and increased alcohol consumption (Bray & Born, 2004; Racette et al., 2005; Nelson et al., 2009). This weight gain increases risk for obesity and complications such as T2DM and cardiovascular disease. Many participants in a study conducted on obesity prevalence in college students already presented with complications such as dyslipidemia, unhealthy weight status, and other criteria indicative of metabolic syndrome (Morrell et al., 2012). These unhealthy lifestyle habits become characteristic of adult habits and thus the duration of obesity increases, causing more issues. Furthermore, elevated BMI at a young age is associated with increased mortality and is found to be even more dangerous than having elevated BMI later in life alone (Van Itallie, 1985).

Internet Use for Weight Loss

The Internet is a widely used source for information and social support. More recently, the Internet has become a novel tool for implementing weight loss programs. Several studies have successfully used Internet-based strategies for weight loss and weight maintenance (Tate et al., 2001; Webber et al., 2008; Womble et al., 2004; Gold et al., 2007; Harvey-Berino et al., 2010; Thomas et al., 2011). One study reported support features such as feedback, support, and motivation attributed to greater weight loss in an online weight control program (Krukowski et al., 2008).

An additional study attributed five key components to the success of Internet-based weight loss program: self-monitoring, counselor feedback, social support, use of a structured program, and use of an individually tailored program (Khaylis et al., 2010). The Internet offers qualities such as 24-hour access and feedback, which other interventions lack. Furthermore, one study suggests that use of the Internet for weight loss has suggested to be more effective than in-person counseling (Harvey-Berino et al., 2010).

Online Social Support Groups and Weight Loss

Social support, which is defined as information leading the subject to believe that one is cared for, loved, esteemed, and a member of a network of mutual obligations, has proven important for adherence to weight loss regimens (Cobb 1976, Wing & Jeffery 1999). One study that measured social support in an online weight loss community found the following major components of the online group: encouragement and motivation, information, and shared experiences ranking in respective order (Hwang et al., 2010). Another study conducted on support needs of overweight African American women indicated social support was needed due to its positive impact on their lives (Thomas et al., 2009).

Increased availability and accessibility of the Internet has made it an important tool for social interaction and support for weight loss interventions (Wing & Jeffery, 1999; Kubota et al., 2008). Wing and Jeffrey demonstrated incorporation of social support strategies increased total weight loss and improved weight loss maintenance from four to ten months (Wing & Jeffery, 1999). Social support enhanced weight loss and decreased waist circumference in Japanese subjects

(Kubota et al., 2008). Another study that compared weight loss between two commercial online weight loss websites found participants with a high perception of social support lost more weight than those with low perceptions of social support (Gold et al., 2007). Despite positive findings, efficacy of Internet-based social support on weight loss is limited by low utilization of online services (Womble et al., 2004). Another study also reported limited use of online support sections in weight loss intervention (McConnon et al., 2009). This issue represents an especially challenging barrier for incorporation of social support into internet-based weight loss programs.

Facebook Use Among College Students

“Founded in 2004, Facebook’s mission is to make the world more open and connected. People use Facebook to stay connected with friends and family, to discover what’s going on in the world, and to share and express what matters to them” (Facebook, 2012). Similar to other social networking websites, Facebook provides services such as join/browse network that connects people in similar areas, businesses, schools, and networks, chat (instant message), online games, photo sharing, groups of common interest, and individual pages which allow users to customize their own interface by sharing status updates, and links for others to see. Facebook also provides additional features such as the news feed, which is an “ongoing list of updates on your home page that shows you what's new with the friends and pages you follow.” One of the newest features of Facebook, the timeline, displays the individual’s pages in a chronological manner. Facebook defines timeline

as, “your collection of the photos, stories, and experiences that tell your story,” making it a more personal experience (Facebook, 2011a).

In 2012, Facebook was the most visited website on the Internet with over 552 million active users logging on daily and 543 million monthly active users utilizing the site via a mobile device (Double-Click Ad Planner by Google, Facebook, 2012). In particular, 97% of undergraduate college students at one Midwestern university were reported to use Facebook in a study conducted on the use of social media to improve college students’ adaption to the college lifestyle (DeAndrea et al., 2012). In 2012, a study conducted to determine the impact of Facebook on academic performance (N = 1839) found 92% of respondents in the study reported to spending time on Facebook (Reynol, 2012). In 2009, a study conducted on Facebook use and college students’ life satisfaction, trust, and participation (N = 2306) found that 94% of respondents were Facebook users (Valenzuela et al., 2009). From these data, it is apparent that Facebook represents a potential social support mechanism for college students, which could greatly enhance weight loss intervention in this population.

Facebook Group Usage

Facebook defines groups as, “close circles of people that share and keep in touch on Facebook.” Although closely related, Facebook groups and Facebook pages differ in that groups offer a common interest dynamic in the form of sharing and communication through open posting. Facebook pages “allow businesses, brands, and celebrities to connect with people on Facebook. Admins (those that create the page) can post information and news feed updates to people who like their pages” (Facebook, 2011a). One study, found four primary reasons groups on

Facebook were utilized: socializing, entertainment, self-status seeking, and information (Park et al., 2009). Facebook groups have successfully been used as social support through awareness raising, fundraising, and/or support seeking for health-related conditions, such as breast cancer, and diabetes (Bender et al., 2011; Greene et al., 2011).

Facebook Support Groups as Weight Loss Aid

One study gathered data from the Weight Watcher's Facebook page to infer how effectively the page offered additional information and emotional support to participants. This study grouped participants into three categories: Active Supporters, Passive Recipients, and Casual Browsers. Active Supporters received a high level of both informational and emotional support and communicated actively. Passive Recipients received a high level of informational and emotional support, but were passive communicators. Casual Browsers received little informational or emotional support and were passive communicators. Those in the Active Supporters and Passive Recipients benefited more from the site than Casual Browsers by utilizing the social support. Furthermore, the researchers found participants varied in the way in which they utilized aspects of the page suggesting there is importance in the way in which weight loss groups should use social support through Facebook (Ballantine & Stephenson, 2011).

Another study utilized Facebook as a means by which to deliver a weight loss program to college students. Students in the study ($N = 52$) were randomly assigned to three groups: Facebook ($n = 17$); Facebook plus text messaging and personalized feedback ($n = 18$); waiting list control ($n = 17$). The researchers found

that the Facebook plus group lost significantly more weight than the Facebook and control groups. Additionally, weight change at post-treatment was not significantly different between the Facebook and waiting list groups (Napolitano et al., 2011).

There are few current studies evaluating the effectiveness of Facebook support groups on weight loss efforts of college students at the time of this study.

Summary

It is apparent obesity is a growing concern for all populations, including college students. As previous research shows, novel approaches to weight loss are needed and the Internet presents many possibilities. One aspect of the Internet that could be a benefit to weight control groups includes social support groups. Social networking sites such as Facebook are extremely popular among the college student population presenting an opportunity to study its impact on weight loss.

There is very little research on the use of Facebook as an aid for weight loss and no research on this topic specifically for the college student population. College campuses could benefit from this research to improve the health of the student population by promoting proper health practices through a venue the students will use.

CHAPTER 3

METHODOLOGY

This chapter describes methodological procedures used to study the impact of a Facebook support group on the weight loss goals, lifestyle goals, self-efficacy, and satisfaction of weight loss among college students. Strategies for research design, sampling, data collection, statistical analysis, and protection of human subjects are detailed.

Purpose of the Study

The purpose of this study was to determine if the use of a Facebook support group in combination with a one-time nutrition intervention would increase the likelihood of college students meeting weight loss and lifestyle goals, as well as increasing self-efficacy and satisfaction with efforts.

Research Questions

1. Which components of the “Healthy Dawgs” Facebook support group assist students in meeting their lifestyle and weight loss goals?
2. What are the effects of self-efficacy on the ability of students to meet their weight loss goals?
3. What are the effects of self-efficacy on the ability of students to meet their pre-determined lifestyle goal?

Hypotheses

1. The Facebook support group, “Healthy Dawgs,” will significantly increase the likelihood that students will reach their weight loss goals.
2. The Facebook support group, “Healthy Dawgs,” will significantly increase the likelihood that students will reach a pre-determined lifestyle goal.
3. The Facebook support group, “Healthy Dawgs,” will significantly increase students’ satisfaction with their ability to meet weight and lifestyle goals.

Study Setting

This study was conducted at Southern Illinois University, a large Midwestern university located in Carbondale, Illinois. More specifically, the study was conducted at the Wellness Center, which is located in the Student Health Services building.

Research Design

The study utilized an experimental design using survey research to explore the impact of a Facebook support group on college students’ weight loss goals, lifestyle goals, satisfaction, and self-efficacy. Weight loss in the form of pounds lost and inches lost were examined as dependent variables. The independent variable in this study includes the Facebook support group.

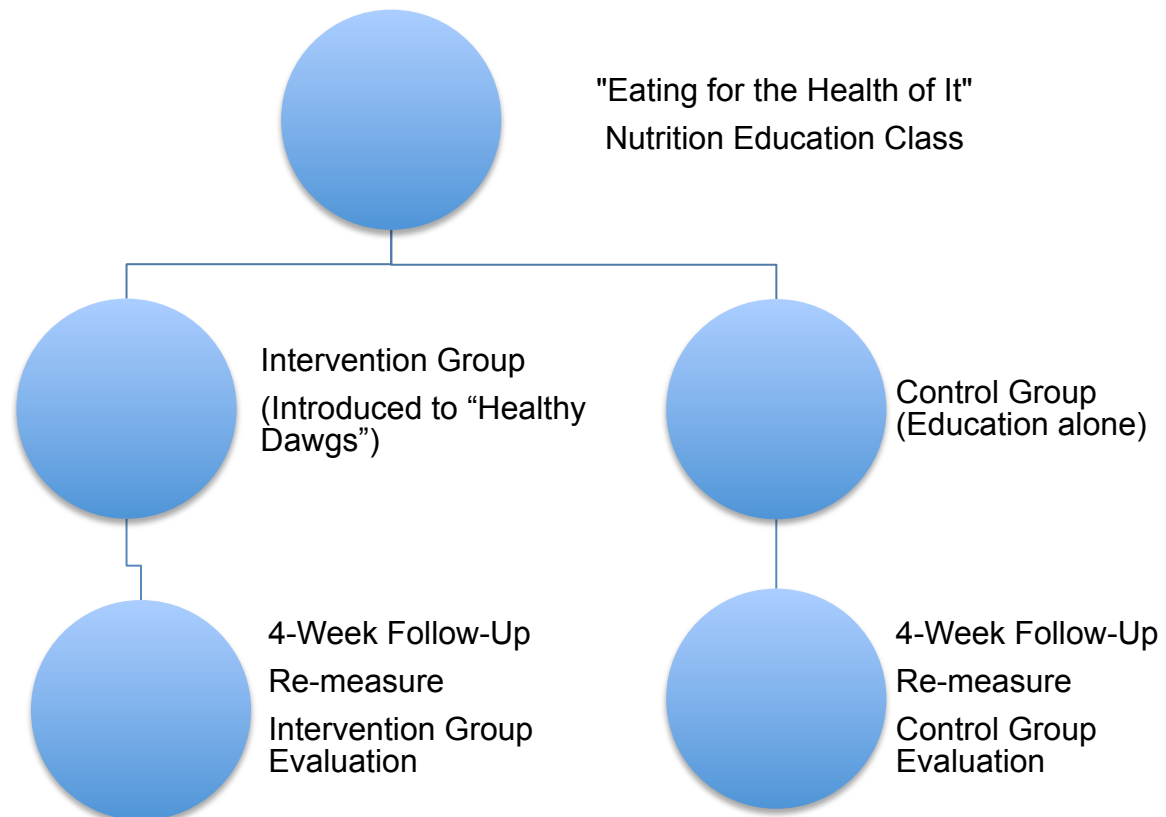


Figure 1. Research Design

Sample

Data were collected from a sample of students over 18 years of age that self-enrolled in a university weight loss class, *"Eating for the Health of It."* SIU Human Subjects approval was obtained prior to the initiation of the study. The class was conducted at the Southern Illinois University (SIU) Wellness Center. The class was available for all students currently enrolled as SIU students. Student Health Services charged a \$6 fee to participate in the class. Participants less than 18 years of age, who had no Facebook account, or who had a pre-existing medical condition were excluded from the study. Study participants were solicited at the initial weight loss class by a third party. Subjects were provided a consent letter and lifestyle goals worksheet during the class. Following the nutrition education intervention, body

weight and waist circumference were collected from those who consented to participation. Participants were then asked to set up a follow-up appointment in four weeks for anthropometrics measurements and a brief survey. The chance to win a \$25 Kroger gift certificate was offered as an incentive to return for the four-week follow-up.

Protection of Human Subjects

All research materials received Human Subjects Approval through the Office of Sponsored Projects Administration at Southern Illinois University in Carbondale.

Nutrition Education Intervention “Eating for the Health of It”

The nutrition education intervention was titled, “Eating for the Health of It.” This class was offered at various times throughout the week, each week during the 2012 spring semester, presented by the researcher. The class incorporated topics such as meal planning, food quality, fluid intake, mindful eating, and physical activity. Mindful eating refers to making conscious food selections and portion sizes. The class discouraged restrictive dieting practices and encouraged mindful, healthful strategies to lose weight. Mindful strategies to weight loss include portioning food to standard portion sizes and tracking food consumption through online food tracking websites. Additional environmental and genetic factors that influence body weight and weight loss were also discussed. Environmental factors included body image, social norms, portion control, and cultural aspects. Genetic factors focused on the role of diet on body type and metabolism, the first being out of the participants’ control and the latter being more in control of the participant due to the factors that affect metabolism. This may include food selection, meal timing, and stress.

Guidelines for healthy weight loss of one to two pounds per week, outlined by the Centers for Disease Control, were discussed with participants (Centers for Disease Control, 2011b). All information was presented in a 40-minute period with PowerPoint. Ten minutes were allotted for questions and to complete the lifestyle goal worksheet at the end of the session. The lifestyle goal worksheet can be viewed in Appendix D.

“Eating for the Health of It” Marketing

The class was advertised through various forms of marketing throughout campus. Posters with pull-tabs were placed in a variety of locations on campus including lecture halls, dormitories, walkways, the recreation center, student center, and the Student Health Services building. In-class announcements were made in multiple times throughout the semester in health education and nutrition classes. The Student Health Services nursing staff made referrals to students who may benefit from weight loss services. An educational table was displayed in the student center and manned by the researcher to advertise the class as well as invite students to ask questions about nutrition-related topics on two separate occasions. Lastly, multiple postings throughout the semester on the Student Health Services Facebook page were made. The visual component for the marketing of this class can be viewed Appendix E.

Facebook Support Group “Healthy Dawgs”

Participants were randomly selected to join a private social support group to interact with peers and nutrition professionals. At the beginning of each week, the researcher would randomly choose which “Eating for the Health of It” classes to participate in “Healthy Dawgs” by performing a random drawing with numbers representing classes for that given week. Remaining classes were not given the opportunity to join the Facebook support group, which represented the control group.

The support group entitled, SIU “Healthy Dawgs” was only accessible to those selected to join. Only those in the group were able to see who was in the group and its contents. Subjects without a Facebook account were not included in the intervention group. Participants who joined the group were given an opportunity to win a \$25 Kroger certificate. Although there was an incentive to join the group, actual participation within the group was not awarded an incentive.

The Facebook group was updated on weekdays with themed information to keep students interested and engaged. The themed days of the week included Movin’ More Mondays pertaining to information on physical activity; Tuesday Tips detailed information on various topics such as wellness, nutrition, and motivation; Wellness Wednesdays included information on stress, goal setting, sleep, and illnesses; Healthy Recipe Thursday provided participants with a variety of healthy recipes; and Free Forum Friday introduced bringing a topic to discussion such as barriers to meeting goals or motivators to inspire interaction between group members.

“Healthy Dawgs” was comprised of an interactive wall that participants were able to leave comments or concerns. This provided a tool to initiate discussion

between participants meant to provide encouragement and peer motivation. The top of the page included an area in which participants could post comments, suggestions, or questions on the wall. The wall consisted of the daily posts as well as any additions by participants. Participants were able to retrieve anything posted previously by scrolling down the wall, which allowed all participants to receive the same amount of information from the group. Under each post, group members had the ability to “like” or post comments. Additionally, subjects had the ability leave private messages for the nutrition professional or other members of the group. Screen shots of “Healthy Dawgs” can be viewed in Appendix I.

Data Collection Instrument

The data collection instrument was reviewed by an expert panel consisting of two registered dietitians, a research expert, and a social media expert. The first section of the compiled survey consisted of information pertaining to lifestyle, weight, and inches loss goals. The second section assessed Facebook usage as well as satisfaction with the class and an open-ended question for comments or concerns about the class evaluated for quality control purposes of the class housed by the Wellness Center. The third section evaluated self-efficacy of participants. The following section assessed satisfaction of participants’ goal meeting ability given the amount of effort. The fourth section, which was not offered on the control group instrument, assessed the impact the group “Healthy Dawgs” had on weight loss efforts. The final section assessed demographic information. The control group and the intervention group data collection instruments are located in Appendix F and G.

Self-efficacy and satisfaction components of the data collection instrument were developed in part from the following studies (Schwarzer & Jerusalem, 1995; Finch et al., 2005):

The self-efficacy section was adapted from the *Generalized Self-Efficacy Scale* (GSE) (Schwarzer & Jerusalem, 1995). This widely used scale has been found to be valid, and has a Cronbach's alpha that has been found to range from .76 to .90 for reliability.

The questions regarding satisfaction with weight loss efforts was adapted from a previously published study on weight loss satisfaction. It was used to determine students' satisfaction with weight goal and lifestyle goals. Chronbach's alpha for this question was found to be .78 (Finch et al., 2005). The questions were as follows: "Given the effort you put into following your weight control plan, how *satisfied* are you with the amount of *weight and/or inches* you have lost during the past four weeks? and Given the effort you put into following your weight control plan, how *satisfied* are you with achieving your *lifestyle goal* from question one?" Responses to these questions were recorded using a five point Likert scale ranging from very dissatisfied to very satisfied. Approval for use of this survey question can be found in Appendix A.

The feedback section was initially used to allow the students to provide feedback on parts of the class they liked or disliked. After the data collection instrument alterations, the feedback section was utilized to determine the aspects of the Facebook support group "Healthy Dawgs" the students thought was helpful or not helpful.

The demographics section of data collection instrument identified gender, ethnicity, and living arrangements. Questions on lifestyle and weight loss goals were used to determine what students' goals were, and if they were achieved. The feedback section of the data collection instrument was used to gain insight into the limitations associated with the intervention and Facebook support group as well as how they heard about the class.

During the study, the intervention evaluation tool was modified. Out of the eleven participants in the intervention group, four took the modified version and seven took the original version. The wording difference consisted of changing the description of the Facebook group from "Facebook" to "Facebook group 'Healthy Dawgs'." Additionally, two questions were added to this evaluation tool: "What aspects of Facebook group, 'Healthy Dawgs' helped you work towards your goals?" and "What aspects of Facebook group, 'Healthy Dawgs' were not helpful?" to gain specific insight regarding the "Healthy Dawgs."

Data Collection Procedures

All participants were given an unidentifiable code for identification throughout the study. This code was used on a tracking sheet, which contained participants' height, pre- and post- weight, pre- and post- waist circumference, lifestyle goal, weight loss goal, and inches loss goal.

The researcher and/or Lynn Gill, MS RD LDN collected all data. Both data collectors were instructed on proper usage of both tools and were able to measure each participant consistently and accurately. Data were collected during the initial intervention and again at the four-week follow-up appointment. The researcher or

Lynn Gill, MS RD LDN took body weight and waist circumference directly after the weight control class. Additionally, participants' heights were recorded by self-reported data. Instruments utilized include Health o Meter Professional scale and Myotape Body Tape Measure. Participants stepped on the scale and the amount was recorded as it was displayed. Myotape Body Tape Measure was placed around the participants' middle section just above the iliac crest. Waist circumference was recorded to the nearest hundredth. At the follow-up appointment, the data collector recorded body weight and waist circumference in the same manner, in addition to administering the data collection instrument. The data collector was available for verbal clarification on any of the data collection instrument components. The instrument was checked for completeness and legibility prior to the participants' dismissal.

Data Management and Analysis

Data were collected between February and April 2012. The study collected non-sensitive data from college students 18 years of age and older. No personal identifiers were collected throughout the study. Completed data collection instruments were kept in a secure location.

Data were analyzed using the Statistical Package for Social Sciences (SPSS), version 18 (SPSS Inc., Chicago, IL). Independent samples *t*-tests, Pearson's chi-square tests, and Pearson product-moment correlation coefficients were used to determine differences or possible associations between the two groups for pre- and post-weight and waist circumference measures, as well as to evaluate any differences between the groups for self-efficacy and satisfaction. Descriptive

statistics were calculated to describe the study sample. A summary of the statistics utilized, along with the data collection instrument, for each research question and hypothesis is displayed in Table 1.

Table 1

Summary of Statistics used for each Research Question/ Hypothesis

<i>Research Question</i>	<i>Data collection instrument components used to answer question</i>	<i>Statistics Utilized</i>
1. Which components of the “Healthy Dawgs” Facebook support group assist students in meeting lifestyle and weight loss goals?	Intervention Group Evaluation Version 1: 12 Intervention Group Evaluation Version 2: 15,16	Qualitative
2. What are the effects of self-efficacy on the ability of students to meet their weight loss goals?	Control Group Evaluation: 3, 4, 5 Intervention Group Evaluation Version 1: 3, 4, 5 Intervention Group Evaluation Version 2: 3, 4, 5	Independent Samples <i>t</i> -Test Mann-Whitney <i>U</i> Pearson Product-Moment Correlation Coefficient
3. What are the effects of self-efficacy on the ability of students to meet their pre-determined lifestyle goal?	Control Group Evaluation: 2, 5 Intervention Group Evaluation Version 1: 2, 5 Intervention Group Evaluation Version 2: 2, 5	Pearson Product-Moment Correlation Coefficient Independent Samples <i>t</i> -Test

Table 1 continued

Hypotheses	Data collection instrument components used to answer question	Statistics Utilized
1. The Facebook support group, "Healthy Dawgs," will significantly increase the likelihood that students will reach their weight loss goals.	Control Group Evaluation: 3, 4	Independent Samples <i>t</i> -Test
	Intervention Group Evaluation Version 1: 3, 4, 13	Mann-Whitney <i>U</i>
	Intervention Group Evaluation Version 2: 3, 4, 13	Pearson's Chi-Square
2. The Facebook support group, "Healthy Dawgs," will significantly increase the likelihood that students will reach their pre-determined lifestyle goal.	Control Group Evaluation: 2	Pearson's Chi-Squared
	Intervention Group Evaluation Version 1: 2, 14	Pearson Product-Moment Correlation Coefficient
	Intervention Group Evaluation Version 2: 2, 14	Mann-Whitney <i>U</i>
3. The Facebook support group, "Healthy Dawgs," will significantly increase students' satisfaction with their ability to meet weight and lifestyle goals.	Control Group Evaluation: 2, 3, 4, 6, 7	Independent Samples <i>t</i> -Test
	Intervention Group Evaluation Version 1: 2, 3, 4, 6, 7	Mann-Whitney <i>U</i>
	Intervention Group Evaluation Version 2: 2, 3, 4, 6, 7	Pearson Product-Moment Correlation Coefficient

CHAPTER 4

RESULTS

This chapter outlines results of data analyses pertinent to the research questions and demographic characteristics of study participants. The first section provides a description of sample characteristics including age, gender, race/ethnicity, and residence. In the second section, the reliabilities of the scales included in the research instrument are provided. The third section consists of descriptive analyses of the Facebook support group including whether or not participants had an account, how long they spent on Facebook, and the number of Facebook groups to which they belong. Finally, the fourth section consists of analyses relevant to the research questions.

Description of the Sample

Study participants ($n = 24$) belonged to either the intervention group ($n = 11$) or the control group ($n = 13$). The majority of the participants were between the ages of 20 and 26 ($n = 16, 69.3\%$), with a range of 18 years to 56 years, and a median age of 22 years. A majority of participants were women ($n = 21, 87.5\%$). Most participants were black, non-Hispanic ($n = 11, 47.8\%$) or white, non-Hispanic ($n = 9, 39.1\%$), who resided off-campus ($n = 17, 73.9\%$). Of the study sample, a majority were considered obese ($n = 15, 62.5\%$), with one-fourth being overweight ($n = 6, 25\%$), and one-eighth considered to be of a normal weight ($n = 3, 12.5\%$). The median waist circumference for the women ($n = 19$) was 39 inches, with 73.68% ($n = 14$) of these women having a high-risk waist circumference. The median waist

circumference for men was 44 inches ($n = 2$) with 100.0% having a high-risk waist circumference. Demographic characteristics of the sample are displayed in Table 2.

Table 2

Demographic Characteristics of the Sample ($n = 23$)

<i>Demographics</i>	<i>Frequency</i>
Age	$n = 23$
18	1 (4.2%)
19	1 (4.2%)
20	4 (16.7%)
21	3 (12.5%)
22	3 (12.5%)
23	1 (4.2%)
24	1 (4.2%)
25	1 (4.2%)
26	3 (12.5%)
27	1 (4.2%)
29	1 (4.2%)
34	1 (4.2%)
38	1 (4.2%)
56	1 (4.2%)

Table 2 continued

Gender	<i>n</i> = 23
Male	2 (8.3%)
Female	21 (87.5%)

Residence	<i>n</i> = 23
On-Campus	6 (25.0%)
Off-Campus	17 (70.8%)

Race/Ethnicity	<i>n</i> = 23
White, non-Hispanic (includes Middle Eastern)	9 (37.5%)
Black, non-Hispanic	11 (45.8%)
Asian or Pacific Islander	1 (4.2%)
Biracial or Multiracial	1 (4.2%)
Other	1 (4.2%)

Descriptive Facebook Analyses

Descriptive statistics, including frequencies and percentages for whether or not participants had a Facebook account, minutes per day spent on Facebook, and amount of Facebook groups of which participants belong were utilized.

A majority of participants stated that they were Facebook users ($n = 20$, 83.3%). Of the participants that stated they did not have a Facebook ($n = 3$), two reported that they had recently given up the social media website as a Lenten promise due to religious practices. Of the participants using Facebook, 16.7% ($n = 4$) spent less than 10 minutes per day on Facebook, 33.3% ($n = 8$) reported spending 10-30 minutes a day on Facebook, 20.8% ($n = 5$) spent 31-60 minutes a day on Facebook, and 12.5% ($n = 3$) spent 61-120 minutes a day on the site. As for the number of Facebook groups each participant belonged to, 20.8% ($n = 5$) reported that they were unsure, 16.7% ($n = 4$) reported one group, 41.7% ($n = 10$) reported 2-5 groups, and 4.2% ($n = 1$) reported that they belonged to 6-10 groups. Results are displayed in Table 3.

Table 3

Description of Facebook Use (n = 23)

Variable	Frequency
Facebook User (n = 23)	
No	3 (12.5%)
Yes	20 (83.3%)
Minutes Per Day on Facebook (n = 20)	
<10	4 (16.7%)
10-30	8 (33.3%)
31-60	5 (20.8%)
61-120	3 (12.5%)
Number of Facebook Groups (n = 20)	
Not sure	5 (20.8%)
1	4 (16.7%)
2-5	10 (41.7%)
6-10	1 (4.2%)

Summary of Findings

The following table summarizes the responses to the surveys for the intervention and control groups. Tables 4 through 7 are responses to survey questions regarding weight, inches, lifestyle goal and self-efficacy, and satisfaction for the intervention group. Similarly, Tables 8 through 11 contain responses to survey questions regarding weight, inches, lifestyle goal and self-efficacy, and satisfaction for the control group.

Table 4 contains the intervention group participants' height, pre-weight, post-weight, weight loss goal, whether or not the weight loss goal was met, and mean total satisfaction scores for weight loss. From the responses, the weight loss goals ranged from three to ten pounds with only two people meeting their goals.

Table 4

Intervention Group Survey Responses Regarding Weight

Intervention Group Participants	Height	<i>Pre-Weight (lbs.)</i>	<i>Post-Weight (lbs.)</i>	<i>Weight Loss Goal (lbs.)</i>	Weight Loss Goal Met	Mean Total Satisfaction Score for Weight Loss (out of 5)
IG1	5'6"	229.0	225.8	5	No	4
IG2	5'5"	272.2	277.8	5	No	2
IG3	5'5"	156.4	153.2	6	No	4
IG4	5'5"	210.4	203.4	8	No	5
IG5	5'4"	276.6	265.6	10	Yes	5
IG6	5'6"	198.0	196.8	8	No	4
IG7	5'10"	182.4	178.8	8	No	4
IG8	5'6"	191.8	187.0	8	No	4
IG9	5'0"	129.8	129.6	3	No	3
IG10	5'0"	232.4	228.8	10	No	5
IG11	5'7"	213.4	206.6	6	Yes	5

Intervention group responses to inches variables, including pre-waist circumference, post-waist circumference, inches loss goal, and whether or not inches loss goal was met are all contained in Table 5. One participant, IG7, chose not record waist measurements, so n/a was recorded under each category. From the responses, a majority of inches loss goal were one inch loss with a range of one to three inches.

Table 5

Intervention Group Survey Responses Regarding Inches

Intervention Group Participants	Pre-Waist Circumference (in.)	Post-Waist Circumference (in.)	Inches Loss Goal (in.)	Inches Loss Goal Met
IG1	44.5	43.5	1	Yes
IG2	46	47	3	No
IG3	37	35.5	1	Yes
IG4	39	37	1	Yes
IG5	51	49	1	Yes
IG6	37	37	1	No
IG7	n/a	n/a	n/a	n/a
IG8	40.5	38.5	2	Yes
IG9	30.5	129.6	1	No
IG10	50	47	2	Yes
IG11	36.5	35.5	1	Yes

Table 6 contains intervention group survey responses regarding lifestyle goal and self-efficacy, including what their lifestyle goal was, whether or not they met their goal, mean satisfaction scores for lifestyle goal, and mean total self-efficacy scores. The self-efficacy scores ranged from the lowest score of 25 out of 40 and a high score of 36 out of 40 for the intervention group.

Table 6

Intervention Group Survey Responses Regarding Lifestyle Goal and Self-Efficacy Scores

Intervention Group Participants	Lifestyle Goal	Lifestyle Goal Met	Mean Satisfaction Score for Lifestyle Goal (out of 4)	Mean Total Self-Efficacy Score (out of 40)
IG1	Stop eating when full	No	2	25
IG2	Increase physical activity	No	3	33
IG3	Focus on eating for hunger	Yes	4	30
IG4	Eat more vegetables	Yes	5	33
IG5	Increase physical activity	No	4	36
IG6	Increase physical activity	Yes	4	28
IG7	Focus on eating for hunger	No	3	31
IG8	Focus on eating for hunger	Yes	4	31
IG9	Eat every 3-4 hours	No	2	35
IG10	Measure portion sizes	Yes	5	31
IG11	Eat every 3-4 hours	No	4	34

Program satisfaction including, satisfaction with presentation quality of instructor, satisfaction with knowledge of instructor, satisfaction with program materials, and satisfaction with overall quality of the program were all surveyed. Overall, the intervention group had very high satisfaction scores in all categories.

Table 7

Intervention Group Survey Responses Regarding Program Satisfaction

Intervention Group Participants	Satisfied with Presentation Quality of Instructor (out of 5)	Satisfaction with Knowledge of Instructor (out of 5)	Satisfaction with Program Materials (out of 5)	Satisfied with Overall Quality of Program (out of 5)
IG1	5	5	5	5
IG2	5	5	5	5
IG3	5	5	4	5
IG4	5	5	5	5
IG5	5	5	5	5
IG6	4	4	4	4
IG7	5	5	4	4
IG8	5	5	5	5
IG9	5	5	5	5
IG10	5	5	5	5
IG11	5	5	5	5

Table 8 contains the control group participants' height, pre-weight, post-weight, weight loss goal, whether or not the weight loss goal was met, and mean total satisfaction scores for weight loss. From the responses, the weight loss goals ranged from two to twelve pounds with only two people meeting their goals. One participant desired to gain lean muscle and set a goal of adding five pounds.

Table 8

Control Group Survey Responses Regarding Weight

Control Group Participants	Height	Pre-Weight (lbs.)	Post-Weight (lbs.)	Weight Loss Goal (lbs.)	Weight Loss Goal Met	Mean Total Satisfaction Score for Weight Loss (out of 5)
CG1	5'6"	243.2	234.8	10	No	5
CG2	5'1"	148.6	143.6	12	No	4
CG3	5'6"	144.8	143.5	5	No	3
CG4	5'5.5"	188.8	188.0	10	No	3
CG5*	5'5"	190.4	189.2	8	No	2
CG6	5'2"	172.2	167.8	3	Yes	5
CG7*	6'2"	153.2	152.4	+5	No	3
CG8	5'1"	133.6	130.6	2	Yes	4
CG9	5'7.5"	169.6	168.4	5	No	3
CG10	5'3"	222.8	225.8	6	No	3
CG11	5'6.5"	131.4	129.6	4	No	4
CG12	6'0"	277.8	282.0	10	No	3
CG13	5'6.5"	223.8	223.6	10	No	4

*Weight loss goal was to gain five pounds

Control group responses to inches variables, including pre-waist circumference, post-waist circumference, inches loss goal, and whether or not inches loss goal was met are all contained in Table 9. Two participants, CG4 and CG7, chose not record waist measurements, so n/a was recorded under each category. From the responses, a majority of inches loss goal were one inch loss with a range of half an inch to three inches.

Table 9

Control Group Survey Responses Regarding Inches

Control Group Participants	Pre-Waist Circumference (in.)	Post-Waist Circumference (in.)	Inches Loss Goal (in.)	Inches Loss Goal Met
CG1	42	40.5	1	Yes
CG2	37	34.5	1	Yes
CG3	33	32.5	2	No
CG4	n/a	n/a	n/a	n/a
CG5	41	40	2	No
CG6	40	38	2	Yes
CG7	n/a	n/a	n/a	n/a
CG8	31	29.5	1	Yes
CG9	31.25	30.5	1	No
CG10	46.5	47	1	No
CG11	31	29	.5	Yes
CG12	47	47	1	No
CG13	45	44	3	No

Table 10 contains control group survey responses regarding lifestyle goal and self-efficacy, including what their lifestyle goal was, whether or not they met their goal, mean satisfaction scores for lifestyle goal, and mean total self-efficacy scores. The self-efficacy scores ranged from the lowest score of 25 out of 40 and a high score of 40 out of 40 for the control group.

Table 10

Control Group Survey Responses Regarding Lifestyle Goal and Self-Efficacy

Scores

Control Group Participants	Lifestyle Goal	Lifestyle Goal Met	Mean Satisfaction Score for Lifestyle Goal (out of 4)	Mean Total Self-Efficacy Score (out of 40)
CG1	Eat breakfast	Yes	5	39
CG2	Eat every 3-4 hours	No	4	25
CG3	Reduce sugar intake	Yes	4	35
CG4	Increase water intake	Yes	5	40
CG5	Eat every 3-4 hours	No	2	37
CG6	Increase physical activity	Yes	5	33
CG7	Eat breakfast	No	4	27
CG8	Eat every 3-4 hours	Yes	5	29
CG9	Eat every 3-4 hours	Yes	3	38
CG10	Focus on eating for hunger	Yes	5	36
CG11	Eat breakfast	No	4	31
CG12	Increase fruit intake	No	3	29
CG13	Increase vegetable intake	Yes	5	36

Program satisfaction including, satisfaction with presentation quality of instructor, satisfaction with knowledge of instructor, satisfaction with program materials, and satisfaction with overall quality of the program were all surveyed. Overall, the control group had very high satisfaction scores in all categories.

Table 11

Control Group Survey Responses Regarding Program Satisfaction

Control Group Participants	Satisfied with Presentation Quality of Instructor (out of 5)	Satisfaction with Knowledge of Instructor (out of 5)	Satisfaction with Program Materials (out of 5)	Satisfied with Overall Quality of Program (out of 5)
CG1	5	5	5	5
CG2	3	3	3	3
CG3	5	5	3	5
CG4	4	4	4	4
CG5	4	5	5	5
CG6	5	5	5	5
CG7	5	5	5	5
CG8	5	5	5	5
CG9	5	5	4	4
CG10	5	5	5	5
CG11	4	5	5	5
CG12	5	5	4	5
CG13	5	5	5	5

Findings Related to Research Questions

This section presents study findings organized by research question and hypothesis. Research question one is answered qualitatively. Research questions two and three are answered using independent samples *t*-tests, Mann-Whitney *U*, and Pearson product-moment correlation coefficient exploring the effect self-efficacy has on the ability of participants to reach weight and lifestyle goals, respectively. Pearson's chi-square test, Pearson product-moment correlation coefficients, and Mann-Whitney *U* were used to answer hypotheses one and two, exploring whether or not there was an association between the Facebook support group, "Healthy Dawgs," and ability to meet weight and lifestyle goals, respectively. Hypothesis three was answered using independent samples *t*-test, Pearson product-moment correlation coefficients, and Mann-Whitney *U* examining whether or not there was an association between the Facebook support group, "Healthy Dawgs," and satisfaction with students' ability to meet their weight and lifestyle goals.

Research Question 1

Which components of the "Healthy Dawgs" Facebook support group assisted students in meeting their lifestyle and weight loss goals?

Responses to this open-ended question varied between the six responses to the original version of the intervention evaluation tool and four responses to the modified version. The most common answers were, "Recipes" (2), "Daily information/tips" (2), and "Links to articles" (2). The lack of responses to this question is due in part to the wording change of the data collection instrument. Prior to the wording change, this question was interpreted as what aspects of "Eating for

the Health of It” were helpful. All responses for this question can be viewed in Appendix H.

Research Question 2

What are the effects of self-efficacy on the ability of students to meet their weight loss goals?

The independent samples *t*-test was utilized to determine if there were any pre-existing differences between the control group and the intervention group in terms of self-efficacy. There was no significant difference between the control group ($M = 33.46$, $SD = \pm 4.84$) and the intervention group ($M = 31.55$, $SD = \pm 3.17$), $t(22) = 1.12$, $p = .27$. It can be inferred that there were no pre-existing differences between the control group and the intervention group in terms of self-efficacy. Results of this test are presented in Table 12.

Table 12

Assessment of Pre-Existing Differences in Self-Efficacy Between the Control Group ($n = 13$) and Intervention Group ($n = 11$)

Group	Mean Total Score (out of 40)	Standard Deviation	t-score	df	p
Control Group	33.46	4.84	1.12	22	.274
Intervention Group	31.55	3.17			

** Indicates significance at the 0.01 level

An independent samples *t*-test was conducted to determine differences between self-efficacy scores and inches loss goal meeting ability. Mann-Whitney *U* test was utilized to determine differences between self-efficacy scores and weight

loss goal meeting ability. This non-parametric test was utilized due to the low number of students that met their goal. This low number violated the normality of the t -test. Mann-Whitney U ranks variables from least to most in terms of self-efficacy. Those who did not meet their weight loss goal ($M = 32.67$; $SD = \pm 4.41$) had similar self-efficacy total scores to those who met their weight loss goal ($M = 32.00$; $SD = \pm 2.65$), but this finding was not statistically significant. Those who did not meet their inches goal ($M = 33.20$; $SD = 4.37$) had similar self-efficacy total scores to those who met their inches loss goal ($M = 32.00$; $SD = 3.69$), but this finding was not statistically significant. It should be noted that there was a low number of those that met their goal and this is likely the reason for lack of significance in these tests. Results are displayed in Table 13.

Table 13

Differences in Self-Efficacy Between Weight Loss Goal ($n = 24$) and Inches Loss Goal ($n = 21$)

<i>Variable</i>	<i>Mean Total Score (out of 40)</i>	<i>Standard Deviation</i>	<i>Test Score</i>	<i>df</i>	<i>p</i>
Weight goal met	32.00	2.65			
Weight goal not met	32.67	4.41	$U = 27.50$	n/a	.726
Inches goal met	32.00	3.69			
Inches goal not met	33.20	4.37	$t = .683$	19	.503

** Indicates significance at the 0.01 level

Further tests were utilized to evaluate self-efficacy with weight, inches, and BMI differences to determine if those that were making progress towards their goal was associated with having increased or decreased self-efficacy. Pearson product-moment correlation coefficient was utilized to determine associations between self-efficacy and weight loss difference from pre- and post-measurements, inches lost differences from pre- and post-measurements, and BMI difference from pre- and post-measurements. No correlation was found between self-efficacy scores and weight loss differences, $r(22) = -.05, p = .83$; self-efficacy and inches loss difference $r(19) = .20, p = .38$; or self-efficacy and BMI difference $r(22) = -.02, p = .92$. In other words, self-efficacy did not have an association with changes in weight, inches, or BMI. Results are summarized in Table 14.

Table 14

Correlation of Self-Efficacy Total Score and Weight Loss Difference (n = 24), Inches Loss Difference (n = 21), and BMI Difference (n = 24)

<i>Variable</i>	<i>Pearson's r</i>	<i>p</i>	<i>df</i>
Weight Loss Difference	-.05	.825	22
Inches Loss Difference	.206	.379	19
BMI Difference	-.02	.922	22

** Indicates significance at the 0.01 level

Results suggest that self-efficacy did not have an effect on the ability of students to meet their weight loss goals.

Research Question 3

What are the effects of self-efficacy on the ability of students to meet their pre-determined lifestyle goal?

An independent samples *t*-test was conducted to determine any differences in self-efficacy for those who met their lifestyle goal ($M = 33.77$; $SD = \pm 3.90$) and those who did not meet their lifestyle goal ($M = 31.18$; $SD = \pm 4.26$); $t(22) = -1.55$, $p = .135$. Self-efficacy scores between the two groups did not differ significantly indicating that those who met their lifestyle goal were not more likely to have higher or lower self-efficacy scores than those who did not meet their lifestyle goal. Results are displayed in Table 15.

Table 15

Differences in Self-Efficacy for Lifestyle Goal (n = 24)

<i>Variable</i>	<i>Mean Total Score (out of 40)</i>	<i>Standard Deviation</i>	<i>t</i>	<i>df</i>	<i>p</i>
Lifestyle goal met	33.77	3.90			
Lifestyle goal not met	31.18	4.26	-1.55	22	.135

** Indicates significance at the 0.01 level

Results suggest that self-efficacy did not have an effect on the ability of students to meet their pre-determined lifestyle goal.

Hypothesis 1

The Facebook support group, “Healthy Dawgs,” will significantly increase the likelihood that students will reach their weight loss goals.

The independent samples *t*-test was utilized to determine if there was a difference between the control group and the intervention group in terms of pre-post weight loss and inches lost differences. The means are displayed as a negative number indicating that there was a mean loss of weight, inches, and BMI. A positive mean score would indicate that there was a weight gain or increase in BMI. However, there was no significant difference between the control group ($M = -1.61$, $SD = \pm 3.24$) and the intervention group ($M = -3.55$, $SD = \pm 4.25$) for weight loss difference $t(22) = 1.27$, $p = .22$. For inches loss difference, there was also no significant difference between the control group ($M = -1.09$, $SD = \pm .92$) and the intervention group ($M = -1.15$, $SD = \pm 1.20$); $t(19) = .13$, $p = .90$. There was no significant difference in BMI change between the control group ($M = -.29$, $SD = \pm .54$) and intervention group ($M = -.59$, $SD = \pm .71$); $t(22) = 1.18$, $p = .25$. Although the “Healthy Dawgs” intervention group did not significantly lose more weight and inches, or significantly decrease BMI, the intervention group did have a higher mean weight loss and higher mean BMI loss than the control group, indicating that the effect was in the right direction. Results of this test are presented in Table 16.

Table 16

Difference Between Control Group (n = 13) and Intervention Group (n = 11) for Weight Loss Difference, Inches Loss Difference, and BMI Difference

<i>Variable</i>	<i>Means</i>	<i>Standard Deviation</i>	<i>t-score</i>	<i>df</i>	<i>p</i>
Weight Loss Difference					
Control Group	-1.61	3.24	1.27	22	.218
Intervention Group	-3.55	4.26			
Inches Loss Difference					
Control Group	-1.09	.92	0.13	19	.900
Intervention Group	-1.15	1.20			
BMI Difference					
Control Group	-.29	.54	1.18	22	.249
Intervention Group	-.59	.71			

** Indicates significance at the 0.01 level

The Mann-Whitney U test was performed to further evaluate the differences between the control group and intervention group in terms of weight loss difference due to the distributions for the control and intervention groups being skewed in opposite directions for the independent samples t -test. From these data, it can also be concluded that there was no statistically significant difference between the control group ($M = -1.61$, $SD = \pm 3.24$) and intervention group's ($M = -3.55$, $SD = \pm 4.25$) median weight loss between the pre- and post-measurements ($U = 46.50$, $p = .15$). Here again, this test indicated that the intervention group lost more weight than the control group, although it was not a statistically significant difference.

Pearson's chi-square tests were utilized to determine if there were significant differences between the ability of students in the control group and the intervention group to meet their weight loss and inches loss goals. The chi-square ($df = 1$) for

whether participants' met their weight loss goal was .22, $p = .64$; and, the chi-square ($df = 1$) for whether participants' met their inches loss goal was .44, $p = .51$. These results suggest that the "Healthy Dawgs" Facebook page did not make participants more likely to meet their weight loss or inches loss goals than the control group.

Results are displayed in Table 17.

Table 17

Pearson's Chi-Squared Analysis of the Proportion of Students in the Control Group ($n = 13$) and Intervention Group ($n = 11$) Who Met Their Weight Loss and Inches Loss Goals

<i>Goals</i>	<i>Control Group</i>	<i>Intervention Group</i>	χ^2	<i>p-value (2-tailed)</i>	<i>df</i>
Weight Goal Met	2	1	0.22	.642	1
Weight Goal Not Met	11	10			
Inches Goal Met	5	6	0.44	.505	1
Inches Goal Not Met	6	4			

** Indicates significance at the 0.01 level

The following section evaluates whether the perceived benefit of "Healthy Dawgs" impacted weight, inches, and BMI difference in students as well as weight loss goal and inches loss goal. These variables were evaluated to determine if those who thought "Healthy Dawgs" was helpful lost more weight.

Pearson product-moment correlation coefficients were utilized to determine possible associations between the perceived benefit of Facebook support group,

“Healthy Dawgs,” and whether or not the participants had a difference between pre- and post-weight and inches measurements. There was no correlation between perceived benefit of “Healthy Dawgs” group and weight loss $r(9) = .14, p = .68$, inches lost $r(8) = .39, p = .26$, and BMI difference $r(9) = .13, p = .70$. Results suggest that students’ perceiving “Healthy Dawgs” as beneficial was not associated with losing weight, losing inches, or decreasing BMI. Results are displayed in Table 18.

Table 18

Correlations Between the Perceived Benefit of “Healthy Dawgs” and Weight Loss Difference (n = 11), Inches Loss Difference (n = 10), and BMI Difference (n = 11)

<i>Variable</i>	<i>Pearson’s r</i>	<i>p</i>	<i>df</i>
Weight Loss Difference	.141	.679	9
Inches Loss Difference	.392	.263	8
BMI Difference	.130	.703	9

** Indicates significance at the 0.01 level

Mann-Whitney U test was conducted to determine differences between perceived benefit of “Healthy Dawgs” and ability to meet weight loss goals and inches loss goals. Those who met their weight loss goal ($M = 3.00$; $SD = n/a$) perceived “Healthy Dawgs” as being less beneficial than those who did not meet their weight loss goal ($M = 3.70$; $SD = \pm .48$), but this finding was not statistically significant ($U = 1.50, p = .186$). Those who did not meet their inches loss goal ($M = 4.00$; $SD = \pm .00$) perceived “Healthy Dawgs” as being more helpful than those who met their inches loss goal ($M = 3.50$; $SD = \pm .55$), but this finding was not statistically significant ($U = 6.00, p = .109$). Results indicated that the perceived benefit of

“Healthy Dawgs” did not have an effect on students meeting weight loss goals or inches loss goal. Results are summarized in Table 19.

Table 19

Differences in Perceived Benefit of “Healthy Dawgs” and Weight Loss Goal (n = 11) and Inches Loss Goal (n = 10)

<i>Variable</i>	<i>n</i>	<i>Mean Score (out of 5)</i>	<i>Standard Deviation</i>	<i>U</i>	<i>p</i>
Weight goal met	1	3.0	n/a		
Weight goal not met	10	3.7	.48	1.50	.186
Inches goal met	6	3.5	.55		
Inches goal not met	4	4.0	.00	6.00	.109

** Indicates significance at the 0.01 level

Results suggest that “Healthy Dawgs” did not significantly increase the likelihood that students will reach their weight loss goals, indicating hypothesis one was not supported.

Hypothesis 2

The Facebook support group, "Healthy Dawgs," will significantly increase the likelihood that students will reach a pre-determined lifestyle goal.

Pearson's chi-square test was utilized to examine if there were any differences between the control group and intervention group as far as ability to meet a pre-determined lifestyle goal. The chi-square ($df = 2$) for whether a greater proportion of intervention group students met their lifestyle goals than control group students was 3.55, $p = .17$. Results showed that the intervention group was not more likely to meet their lifestyle goals than the control group. Results are displayed in Table 20.

Table 20

Pearson's Chi-Squared Analysis of Control Group ($n = 13$) and Intervention Group ($n = 11$) for Lifestyle Goal

<i>Goals</i>	<i>Control Group</i>	<i>Intervention Group</i>	χ^2	<i>p-value (2-tailed)</i>	<i>df</i>
Lifestyle Goal Met	8	5			
Lifestyle Goal Not Met	2	0	3.550	.169	2
Lifestyle Goal Not Yet, But Making Progress	3	6			

** Indicates significance at the 0.01 level

Mann-Whitney U test was conducted to determine differences between perceived benefit of “Healthy Dawgs” and ability to meet lifestyle goals. Those who met their lifestyle goal ($M = 3.60$; $SD = \pm.52$) perceived “Healthy Dawgs” as being approximately equally as beneficial as those who did not meet their weight loss goal ($M = 3.67$; $SD = \pm.55$), but this finding was not statistically significant ($U = 14.00$, $p = .827$). Results indicated perception of “Healthy Dawgs” did not have an impact on whether or not students reached their lifestyle goal. Results are summarized in Table 21.

Table 21

Differences in Perceived Benefit of “Healthy Dawgs” and Lifestyle Goal (n = 11)

<i>Variable</i>	<i>n</i>	<i>Mean Score (out of 5)</i>	<i>Standard Deviation</i>	<i>U</i>	<i>p</i>
Lifestyle goal met	5	3.60	.52	14.00	.827
Lifestyle goal not met	6	3.67	.55		

** Indicates significance at the 0.01 level

Results suggest that “Healthy Dawgs” did not significantly increase the likelihood that students will reach a pre-determined lifestyle goal, indicating that hypothesis two was not supported.

Hypothesis 3

The Facebook support group, "Healthy Dawgs," will significantly increase students' satisfaction with their ability to meet weight and lifestyle goals.

Independent samples *t*-test was conducted to evaluate differences between the control group and intervention group in terms of satisfaction with weight loss goal effort and satisfaction with lifestyle goal effort. For satisfaction with weight loss goal efforts, those in the control group ($M = 3.54$; $SD = \pm.88$) were less satisfied with their efforts than those in the intervention group ($M = 4.09$; $SD = \pm.94$), although these results were not statistically significant $t(22) = -1.49$, $p = .152$. For satisfaction with lifestyle goal efforts, the control group ($M = 4.15$; $SD = \pm.99$) was more satisfied with their efforts than the intervention group ($M = 3.64$; $SD = \pm 1.03$), although these results were not statistically significant $t(22) = 1.26$, $p = .222$). Results suggest that there were no differences between the control group and the intervention group in terms of satisfaction with weight loss efforts or satisfaction with lifestyle goal meeting ability. Results are displayed in Table 22.

Table 22

Difference Between Control Group (n = 13) and Intervention Group (n = 11) for Satisfaction with Weight Loss Goal Efforts and Satisfaction with Lifestyle Goal Efforts

<i>Variable</i>	<i>Mean Score (out of 5)</i>	<i>Standard Deviation</i>	<i>t-score</i>	<i>df</i>	<i>p</i>
Satisfaction with Weight Loss Efforts					
Control Group	3.54	.88	-1.49	22	.152
Intervention Group	4.09	.94			
Satisfaction with Lifestyle Goal Efforts					
Control Group	4.15	.99	1.26	22	.222
Intervention Group	3.64	1.03			

** Indicates significance at the 0.01 level

Results suggest that “Healthy Dawgs” did not significantly increase students’ satisfaction with their ability to meet weight and lifestyle goals, indicating that hypothesis three was not supported.

The following section further evaluates the relationship between satisfaction, goal meeting ability, and weight loss differences in pounds and inches. These tests evaluate both groups’ satisfaction as a whole with weight goal meeting ability and satisfaction with lifestyle goal meeting ability with whether or not goals were met.

Mann-Whitney U was utilized to determine associations between satisfaction with weight loss goal meeting ability and whether or not students met their weight loss goal. Those who did not meet their weight loss goal ($M = 3.67$; $SD = \pm .91$) were less satisfied with their weight loss efforts than those who met their weight loss goal ($M = 4.67$; $SD = \pm .58$). Results of this test ($U = 12.00$, $p = .074$) were not statistically

significant. Results indicated that satisfaction with weight loss efforts did not have an effect on whether or not students met their weight loss goals.

Independent samples *t*-test was utilized to determine association between satisfaction with weight loss and whether or not students met their inches loss goal. Those that met their inches loss goal ($M = 4.55$; $SD = \pm.52$) were more satisfied with their weight loss efforts than those who did not meet their inches loss goal ($M = 3.10$; $SD = \pm.74$). Results of this test $t(19) = -5.22$, $p = .00$ were statistically significant indicating that those who met their inches loss goal were more likely to be satisfied with weight loss efforts.

Independent samples *t*-test was also utilized to determine associations between satisfaction with lifestyle goal meeting ability and whether or not students met their lifestyle goal. Those who did not meet their lifestyle goal ($M = 3.18$; $SD = \pm.88$) were less satisfied than those who met their lifestyle goal ($M = 4.54$; $SD = \pm.18$) Results of this test $t(22) = -4.33$, $p = .00$ were statistically significant indicating that those who met their lifestyle goal were more likely to be satisfied with their lifestyle goal meeting ability. Results are displayed in Table 23.

Table 23

Differences Between Satisfaction with Weight Loss Efforts and Weight Loss Goal (n = 24), Inches Loss Goal (n = 21); Satisfaction with Lifestyle Goal Efforts and Lifestyle Goal (n = 24)

<i>Variable</i>	<i>Mean Score (out of 5)</i>	<i>Standard Deviation</i>	<i>Test Score</i>	<i>df</i>	<i>p</i>
Weight goal met	3.67	.91			
Weight goal not met	4.67	.58	$U = 12.00$	22	.074
Inches goal met	3.50	.00			
Inches goal not met	4.00	.48	$t = -5.22$	19	.000**
Lifestyle goal met	4.54	.66			
Lifestyle goal not met	3.18	.87	$t = -4.33$	22	.000**

** Indicates significance at the 0.01 level

Pearson product-moment correlations were utilized to determine possible associations between students' satisfaction scores and weight loss difference between pre- and post-measurements as well as inches lost between pre- and post-measurements.

There was a statistically significant correlation between students' satisfaction with weight loss efforts and weight loss differences between pre- and post-measurements, $r(22) = -.81, p < .01$. There was also statistical significance between students' satisfaction correlations with weight loss efforts and inches lost between pre- and post-measurements, $r(22) = -.72, p < .01$. There was a statistically

significant correlation between satisfaction with weight loss and BMI pre-post differences $r(22) = -.82, p < .01$. Results suggest that students who lost more weight, inches, or decreased BMI are more likely to have higher satisfaction with weight loss efforts. Results are summarized in Table 24.

Table 24

Correlations Between Satisfaction with Weight Loss Efforts and Weight Loss Difference (n = 24), Inches Lost Difference (n = 21)

<i>Variable</i>	<i>Pearson's r</i>	<i>p</i>	<i>df</i>
Weight Loss Difference	-.807	.000**	22
Inches Lost Difference	-.717	.000**	19
BMI Difference	-.818	.000**	22

** Correlation is significant at the 0.01 level

Results suggest that satisfaction did impact losing weight, losing inches, decreasing BMI, reaching inches loss goal, and reaching lifestyle goal in students, but these results did not support the hypothesis that “Healthy Dawgs” would increase students’ satisfaction.

In addition to measuring students’ satisfaction with efforts, the evaluation tool measured students’ satisfaction with presentation quality of instructor, knowledge of instructor, program materials, and overall quality of the program on a five point Likert scale to determine how satisfied the students were with the program and instructor. For the control group, presentation quality of instructor had a mean score of $M =$

4.62, knowledge of instructor had a mean score of $M = 4.77$, program materials had a mean score of $M = 4.46$, and overall quality of the program had a mean score of $M = 4.69$. These results suggest that the control group had high satisfaction for the program and instructor. For the intervention group, presentation quality of instructor had a mean score of $M = 4.91$, knowledge of instructor had a mean score of $M = 4.91$, program materials had a mean score of $M = 4.73$, and overall quality of the program had a mean score of $M = 4.82$. These results suggest that the intervention group had high satisfaction for the program and instructor. It is also important to note that the intervention group had slightly higher satisfaction for the program than the control group.

CHAPTER 5

CONCLUSIONS, DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

This chapter presents the discussion, conclusions, implications, and recommendations based on the results. The first section provides a summary of the study. Conclusions are next followed by a discussion of the key findings including their strengths, limitations, and consistency with previous research. In addition, relevant interpretations and possible explanations are presented. Recommendations for future research are offered in the fourth section, implications for dietetics practice are presented in the fifth section, and a summary is presented in the final section.

Summary of the Study

Obesity rates are on the rise and it is apparent that college-aged individuals are no exception with 32% of U.S. college students estimated as overweight or obese (American College Health Association, 2006). One approach to weight loss that has previously proved successful is the use of online support through feedback, support, and motivational aspects (Krukowski et al., 2008; Wing & Jeffery, 1999). A venue that proves suitable for use by college-aged individuals is Facebook as several studies have found a high percentage of college students using the site (DeAndrea et al., 2012; Reynol, 2012; Valenzuela et al., 2009).

Few previous studies have evaluated the effects of the use of a Facebook support group to aid in the weight loss of college students. This study was

conducted to evaluate the effect a Facebook support group had on weight loss, satisfaction with weight loss, and self-efficacy of college students. An experimental research design was utilized to explore the associations among Facebook support group and weight loss efforts.

Between February and April 2012, 24 college students in the “Eating for the Health of It” weight control class enrolled at SIU were surveyed to assess body composition data pre- and post-intervention, goal meeting ability, Facebook usage, and demographic data. The data collection instrument utilized in this study was compiled and included questions from two previously published studies. The Generalized Self-Efficacy scale was utilized in addition to two questions regarding satisfaction with weight loss efforts from a study conducted on weight loss participants’ satisfaction (Schwarzer & Jerusalem, 1995; Finch et al., 2005). There were two similar versions of the data collection instrument developed for the control group and the intervention group. The control group survey differed in that it did not contain questions regarding whether or not the group “Healthy Dawgs” affected weight loss goals.

The first section of the compiled survey consisted of information pertaining to lifestyle, weight, and inches loss goals. The second section assessed Facebook usage as well as satisfaction with the program and instructor and an open-ended question for comments or concerns about the class evaluated for quality control purposes of the class housed by the Wellness Center. The third section evaluated self-efficacy of participants. The following section assessed satisfaction of participants’ goal meeting ability given the amount of effort. The fourth section, which

was not offered on the control group instrument, assessed the impact the group “Healthy Dawgs” had on weight loss efforts. The final section assessed demographic information. The control group and the intervention group data collection instruments are located in Appendix F and G.

This study intended to answer the following research questions and hypotheses:

RQ1. Which components of the “Healthy Dawgs” Facebook support group assist students in meeting their lifestyle and weight loss goals?

RQ2. What are the effects of self-efficacy on the ability of students to meet their weight loss goals?

RQ3. What are the effects of self-efficacy on the ability of students to meet their pre-determined lifestyle goal?

H1. The Facebook support group “Healthy Dawgs,” will significantly increase the likelihood that students will reach their weight loss goals.

H2. The Facebook support group, “Healthy Dawgs,” will significantly increase the likelihood that students will reach a pre-determined lifestyle goal.

H3. The Facebook support group, “Healthy Dawgs,” will significantly increase students’ satisfaction with their ability to meet weight and lifestyle goals.

Data was analyzed using the Statistical Package for Social Sciences (SPSS), version 18.0 (SPSS Inc., Chicago, IL). Findings were interpreted as significant at a level of .01. Face validity was achieved through scrutiny of the instrument by a panel of experts.

Descriptive statistics including frequency and percentages were calculated to describe the study sample. Qualitative statistics were utilized for research question one. This question assessed which components of the “Healthy Dawgs” Facebook support group assisted participants in reaching their goals and thus was an open-ended question in the survey. Independent samples *t*-test, Mann-Whitney *U*, and Pearson product-moment correlation coefficient were utilized to answer research question two, which assessed the effects of self-efficacy on the ability to meet weight loss goals. Research question three was answered using Pearson product-moment correlation coefficient and independent samples *t*-test, which assessed the effect of self-efficacy on the ability to meet lifestyle goals. Independent samples *t*-test, Mann-Whitney *U*, Pearson’s chi-squared, and Pearson product-moment correlation coefficient were utilized to answer hypothesis one, determining if “Healthy Dawgs” significantly increased the likelihood of college students reaching their weight loss goals. Pearson’s chi-squared and Pearson product-moment correlation coefficient and Mann-Whitney *U* were used to answer hypothesis two determining if “Healthy Dawgs” significantly increased the likelihood of reaching their pre-determined lifestyle goal. Hypothesis three was answered using independent samples *t*-test, Mann-Whitney *U*, and Pearson product-moment correlation coefficient to determine if “Healthy Dawgs” significantly increased students’ satisfaction with their ability to meet weight and lifestyle goals.

Conclusions

An increasing number of college-aged individuals are overweight and obese. As these numbers rise, it is imperative to prevent or reduce prevalence with relevant means of intervention practices. Facebook, with its high usage among this population provides a viable means by which this can be accomplished.

Based on the findings of this study, the following conclusions were determined:

1. Participants using the “Healthy Dawgs” Facebook page had a higher mean BMI difference, lost more weight, and slightly more inches as the control group.
2. Self-efficacy was not statistically significantly associated with weight loss, inches lost, or lifestyle goals as well as weight, inches, or BMI differences between pre- and post-measurements.
3. “Healthy Dawgs” did not significantly improve students’ satisfaction with weight loss efforts or lifestyle goal efforts. Both groups had high mean satisfaction scores for the program and instructor, but the intervention group had slightly higher mean scores.
4. “Healthy Dawgs” did not make participants more likely to reach weight loss goals, inches loss goals, or lifestyle goals.

Discussion

This section compares study results with previous research, as well as discussing implications of these findings. Discussion includes overweight and obesity prevalence among study participants and Facebook support group “Healthy Dawgs” as an aid in weight loss.

Obesity and Overweight

Self-Efficacy and Weight Loss Outcomes

Previous research suggests that high self-efficacy may lead to greater weight loss outcomes (Warziski et al., 2008; Linde et al., 2006). Although, some studies suggest that self-efficacy may not have a positive effect on weight loss outcomes (Tomoaki et al., 2010). This implies inconsistencies in research and may suggest that self-efficacy is not predictive of weight loss outcomes. This study found no associations between self-efficacy and weight loss outcomes in either the control or intervention groups. This may suggest that self-efficacy did not have an impact on participants' goal meeting ability or this may have been due to the small sample size.

Prevalence in College Students

Over one-third of U.S. college students are estimated to be overweight or obese (American College Health Association, 2006). Participants in this study, were mostly obese ($n = 15$, 62.5%), overweight ($n = 6$, 25%), and of normal weight ($n = 3$, 12.5%). This finding is not surprising, since the participants registered for a weight loss class. It was assumed that participants were enrolling in the class to learn how to properly lose weight. The presence of obesity and overweight throughout college years can lead to comorbid conditions, such as coronary heart disease, T2DM, hypertension, dyslipidemia, stroke, liver disease, gallbladder disease, sleep apnea, gynecological problems, and certain forms of cancer, including endometrial, breast, and colon (Nelson, et al., 2009; Morrell et al., 2012). This is especially alarming among this age group as elevated BMI at a young age is associated with increased

mortality (Van Itallie, 1985).

BMI & Waist Circumference

Waist circumference measurements were taken to account for the shortcomings of the BMI scale. BMI is an important measure of health risk, but it does not take into account muscle mass or where people carry fat. Women with a waist circumference of 35 inches or higher and men with a waist circumference of 40 inches or higher, suggesting central adiposity, are at greater risk for obesity-related conditions (Centers for Disease Control, 2011b). The median waist circumference for the women in this study was 39 inches and 44 inches for the men in the study. Of the participants in this study, 73.68% of the women had a waist circumference that was considered high risk and 66.67% of the men had a high-risk waist circumference. These findings suggest that the high BMIs were not related to high muscle mass, but are related to abdominal adiposity.

Satisfaction

Satisfaction with Weight Loss and Lifestyle Goal Efforts

Previous research has found positive associations between satisfaction and weight loss outcomes (Finch et al., 2005; Baldwin et al., 2009; Van Wormer et al., 2010). This suggests that a weight loss program with highly satisfied participants will have greater weight loss outcomes. “Healthy Dawgs” allowed the intervention group participants to receive more information and social support than the control group, which may have led to greater satisfaction in that group. However, the intervention group and the control group did not differ significantly in terms of their satisfaction with weight loss and lifestyle goal efforts. “Healthy Dawgs” did not increase the

intervention group participants' satisfaction. This finding may have been limited by the small numbers of participants.

Satisfaction with Program and Instructor

Both the intervention and control groups had high satisfaction scores for presentation quality of instructor, knowledge of instructor, program materials, and overall quality of the program. The intervention group had slightly higher scores than the control group on all four variables. These results may suggest that students are more satisfied with a program when there is a social support aspect involved. They also gained extra information and attention from the instructor which in turn may have increased these satisfaction scores.

Facebook Support Group, "Healthy Dawgs," Aid in Weight Loss

Facebook Usage

Numerous studies have evaluated and established the importance of the Internet, specifically social support groups, as a weight loss tool (Wing & Jeffery, 1999; Kubota et al., 2008; Hwang et al., 2010; Thomas et al., 2009). Several studies evaluating Facebook usage among college-aged individuals for various reasons found 97%, 92%, and 94% of respondents, respectively were Facebook users (DeAndrea et al., 2012; Reynol, 2012; Valenzuela et al., 2009). With most college-aged students utilizing Facebook for various purposes, the site proposes a viable venue for a social support group for weight loss among this population. Facebook use among the study participants, 83.3% ($n = 20$) were Facebook users and 12.5% ($n = 3$) were not Facebook users. Of the non-Facebook users ($n = 3$), 66.7% ($n = 2$) admitted to not being Facebook users only temporarily due to a Lenten promise.

These data supports previous research due to the high prevalence of Facebook users among the study participants.

Facebook Group Usage

Facebook groups have been defined as a uniting entity that connects those with similar interests (Facebook, 2011a). Participants for this study reported belonging to one group ($n = 4$, 16.7%), two to five groups ($n = 10$, 41.7%), six to ten groups ($n = 1$, 4.2%), or unsure how many groups of which they belong ($n = 5$, 20.8%). This study utilized a Facebook group to spread information, provided a way for participants to connect with each other and the researcher, and to provide participants with a feeling of unity as many social support groups provide. While it is unclear, how much participants utilized the group, all participants accepted membership into the group and some interacted through posting on the wall and “liking” items posted by the researcher.

“Healthy Dawgs” as an Aid for Weight Loss

This study found no statistically significant results that imply the Facebook group, “Healthy Dawgs,” aided in weight loss of the participants. However, the intervention group did differ from the control group. “Healthy Dawgs” did not statistically significantly reduce weight, but the overall mean weight loss of those in “Healthy Dawgs” ($M = -3.55$, $SD = \pm 4.25$) was more than the control group ($M = -1.61$, $SD = \pm 3.24$). Inches lost among those in “Healthy Dawgs” ($M = -1.15$, $SD = \pm 1.20$) were very similar to that of the control group ($M = -1.09$, $SD = \pm 0.92$). Overall BMI difference from pre- and post-measurement was not statistically significant, but had a higher mean loss in “Healthy Dawgs” ($M = -.59$, $SD = \pm 0.71$) versus the control

group ($M = -.29$, $SD = \pm.54$). The group did not affect weight loss goal, inches loss goal, or lifestyle goal meeting ability of participants. This suggests that “Healthy Dawgs” may prove to aid in weight loss among college students if t

There are limited previous studies utilizing Facebook as a social support group for weight loss, but many studies have utilized online social support groups. Wing and Jeffery (1999) demonstrated incorporation of social support strategies increased total weight loss and improved weight loss maintenance from four to ten months in participants. Similarly, a study on Japanese subjects found that social support enhanced weight loss and decreased waist circumference (Kubota et al., 2008). Commercial online weight loss websites have also been found to aid in weight loss among participants and participants with a high perception of social support lost more weight than those with low perception of social support (Gold et al., 2007). It is apparent through previous studies and data from this study that social support does impact weight loss.

Another study implemented a weight loss program through Facebook to college students. Comparing the three study groups Facebook, Facebook Plus text messages, and wait listed control group, Facebook Plus participants lost significantly more weight than the other two groups (Napolitano et al., 2011). This research indicates that Facebook provides a viable source of reaching college students, but high interaction is necessary to see the most results.

Although there are limited previous studies that specifically evaluate the effectiveness of Facebook support groups for weight loss among the college population, one study gathered data from the Weight Watcher’s Facebook page to

infer how effectively the page offered additional information and emotional support to participants. Researchers found that all participants varied in the way they accrued benefits from the page. Furthermore, participants they deemed “Passive Recipients” were passive communicators, but received a high level of informational and emotional support (Ballantine & Stephenson, 2011). It is unclear if participants in this study were similar to “Passive Recipients” or “Casual Browsers” in the way they receive informational and emotion support.

Limitations

Sample Size

The sample size for this study was small ($n = 24$), identifying as black, non-Hispanic ($n = 11$, 47.8%) or white, non-Hispanic ($n = 9$, 39.1%), which is not representative of the general university population. The small sample size presents a challenge to find significant results because data is easily skewed. If the sample size had been considerably larger, differences between the “Healthy Dawgs” group and control group may have proved statistically significant.

The weight loss class, “Eating for the Health of It,” was marketed on campus and online. The small sample size in this study reflects the low number of students utilizing the weight loss class. Research states that obesity is prevalent in this population, so it can be assumed that these services are necessary. Low utilization of this class suggests other issues such as barriers to seeking help or lack of motivation to adopt healthier lifestyle among overweight or obese college students. These barriers need to be considered before introducing an online social support

group.

Self-Efficacy

There were no associations found between self-efficacy and weight loss outcomes in either the control or intervention groups. It is unclear as to whether this implies that self-efficacy was important in the study or if the small sample size limited this outcome. It should also be noted that a generalized self-efficacy scale was used, whereas a weight loss self-efficacy scale may have proved more appropriate in this study.

Data Collection Instrument Alterations

It was noted that during this study, questions referring to the group, “Healthy Dawgs,” were worded as “Facebook,” which may be misinterpreted by participants taking the survey. This was changed during the study, thus creating two versions of the intervention group version of the instrument.

Prior to the change in wording, the question intended to answer research question one was interpreted as “aspects of the weight loss class that aided in reaching goals,” whereas it was meant to evaluate “aspects of “Healthy Dawgs” that aided in reaching goals. This resulted in the number of responses being limited those after the wording change.

Study Duration

Due to the nature of the study, participants were allowed only four weeks in between pre- and post-measurements. If more time had been allotted between measurements, participants may have been more able to put the lifestyle goal and nutrition education into practice.

“Healthy Dawgs” Usage

There was limited interaction on the “Healthy Dawgs” Facebook group. Often times, there would be no comments or “likes” on the posts offered Monday through Friday. This could imply that the students were not using the page and thus not receiving the additional information. The students could, however, have received the information and chose not to post on the wall or “like” the posts. The Weight Watchers study found three different types of browsers on their similar Facebook page: Active Supporters, Passive Recipients, and Casual Browsers (Ballantine & Stephenson, 2011). Active Supporters received a high level of both informational and emotional support and communicated actively. This study did not have any participants that could be classified as Active Supporters. Passive Recipients received a high level of informational and emotional support, but were passive communicators. Casual Browsers received little informational or emotional support and were passive communicators. It is unclear, due to the lack of formal evaluation of usage, as to whether or not students could be classified as Passive Recipients or Casual Browsers. This implies that it is unclear whether the students received any informational or social support from “Healthy Dawgs.”

Formal Evaluation of Usage of the “Healthy Dawgs” Group

Actual usage of the group and its contents by participants is unknown to the researcher. There was no way to formally evaluate and monitor usage of the group with exception to participants commenting on posts or “liking” content, of which there were few. It would be prudent for future research to evaluate usage to determine if there is an association with its utilization and weight loss. Additionally, it would be

beneficial to evaluate participants' perceived influence of the Facebook support group on weight loss efforts.

Weight Loss Goals

The researcher utilized healthy weight loss goal setting, as described by the Centers for Disease Control throughout the "Eating for the Health of It" weight loss class. Although the guidelines were provided to participants, they did not always follow them. This proved to be a weakness in the study because participants chose lofty, unattainable goals given the four-week time frame. Stipulations on amount of weight or inches loss for goals with consideration of time frame should be implemented to prevent unattainable goals. It may prove more successful to base students' goals on Centers for Disease Control guidelines to further discourage lofty, unattainable goals in the future.

Recommendations for Future Research

1. In future studies, an already highly used weight loss program, such as Weight Watchers, should be utilized to determine Facebook's impact on weight loss with this population.
2. Additional research is needed to identify barriers for seeking help and possible motivators for college-aged overweight or obese individuals to join a weight loss program.
3. A weight loss specific self-efficacy scale should be used in the place of the generalized self-efficacy scale used in this study.
4. In addition, monitoring of Facebook group usage should be evaluated through

additional questions on the data collection instrument to determine amount of time spent on the group, amount of content utilized (i.e. recipes made or physical activities practiced), and perceived effect group had on participant.

5. Additional efforts to make the Facebook group more of a social support provider than information only should be implemented. To make the group more cohesive and to induce more interaction, a weekly online group meeting time could be integrated. At the designated meeting time, the students could get to know each other through interaction and discussion of a given topic online.
6. A similarly structured study with a longer duration may improve goal meeting ability among participants in future research.
7. For the data collection instrument from this study, “Student Health Services Facebook page” should be added as an option for the question asking students how they found out about the program.

Implications for Dietetic Practice

Implications for nutrition education and practice are:

1. Comprehensive nutrition education, such as topics from the “Eating for the Health of It” weight control class, to teach this age group about grocery shopping, choosing healthy foods, cooking healthy foods, and dining out healthfully upon entering college may prevent obesity or reduce weight in those already overweight or obese.
2. While many universities may have nutrition services in place, it is vital that those at nutritional risk are utilizing them. New approaches to promote and enhance

these services should be explored to reach those that need these them.

3. Health promotion programs incorporating proper nutrition at the adolescent age may prove more successful as many students have established unhealthy habits by the time they reach the college age.

Summary

With an increased number of college-aged individuals being overweight and obese, it is imperative to prevent or reduce prevalence with relevant means of intervention practices. Facebook, with its high usage among this population provides a viable means by which this can be accomplished due to this site being already implemented into the social lifestyle of this population.

This study found Facebook to improve weight loss outcomes in participants, although results were not statistically significant. Low participation in the weight loss class “Eating for the Health of It” indicated probable barriers to overweight and obese college students seeking weight loss programs currently available. Interventions at an early age may prove to promote healthier weight status prior to college age. Additionally, incorporation of comprehensive nutrition education upon entering college may prevent overweight or obese status in those at risk and reduce move those already overweight or obese to a healthier weight. These findings should be considered in future studies examining weight loss programs and use of Facebook support group among college populations.

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APPENDICES

APPENDIX A
PERMISSION TO ADAPT QUESTIONNAIRE

September 16, 2011

Use of survey question

Inbox x



Erica Seely eseely@siu.edu

9/15/11 ☆



to linde074 ▾

Dear Jennifer Linde,

I am a graduate student and dietetic intern at Southern Illinois University in Carbondale studying Human Nutrition and Dietetics. As part of my curriculum I am conducting a thesis. I have been researching evaluation tools for weight loss/healthy eating classes for my thesis topic. For my thesis, I am teaching healthy eating classes this semester as my control group and evaluating the effectiveness of the classes. Next semester, I will introduce a variable (Facebook support group) and evaluate the effectiveness for any changes. While researching, I came across the article, "The Effects of Outcome Expectations and Satisfaction on Weight Loss and Maintenance: Correlational and Experimental Analyses – A Randomized Trial" as found in the journal of Health Psychology. One of the aspects I am measuring is satisfaction and I was very impressed with the question used to measure satisfaction in that particular study. I would be very appreciative if I could use the same question in my evaluation tool if I were to be granted permission. Thank you for taking time to read this and helping me with my study.

Please do not hesitate to contact me with any further questions regarding my research topic.

Sincerely,

...

Use of survey question

Inbox x



Erica Seely Dear Jennifer Linde, I am a graduate student and dietetic intern at Southern ...

9/15/11 ☆

Jennifer Linde linde074@umn.edu

9/16/11 ☆



to me ▾

Erica,

Thanks for getting in touch. Yes, you are welcome to use that question, and you can cite that article as its source. The single weight loss satisfaction item appears in its entirety in the paper (under "Measures"), and if you'd like more information on the wording of the additional satisfaction questions we used (explained in the paragraph after the description of the weight loss satisfaction question), please don't hesitate to ask. Good luck with your research!

Best,

Jennifer

APPENDIX B

PARTICIPATION CONSENT FORM: CONTROL GROUP

Eating for the Health of It Class Consent Form

Thank you participating in the study of the *Eating for the Health of It* class, which was developed by Southern Illinois University's Student Health Center Wellness Center. The purpose of this study is to determine the impact of the class and support materials on the following: meeting lifestyle goals, confidence to reach said goals, and satisfaction with progress. To successfully complete this program in the next four weeks, you will be asked to do the following:

- ✓ Participate in the *Eating for the Health of It* class, which promotes healthy eating and weight control practices.
- ✓ Set one goal based off of weight, waist circumference, or both measurements.
- ✓ Set one lifestyle goal based off elements learned in class.
- ✓ Attend a 15 minute follow-up session 4 weeks after the initial class. At this time measurement will be taken again and a brief evaluation survey will be completed.
- ✓ Students who come back for the 15 minute follow-up session will have their name put into a drawing to win a non-monetary prize. Students will be notified individually via email if they won.

All Southern Illinois University students over the age of 18 are eligible to join the study. Participants may drop out of the program at any time.

The Wellness Center will take all reasonable steps to protect your identity. Only the researchers will have access to your identifiable data (name and other personal information, health and lifestyle goals, optional measurements/weight). This information will be coded for your privacy, kept in a locked filing cabinet during the research, and will be shredded after completion of data collection.

Thank you for taking the time and thought to complete this research. Questions regarding this research may be addressed by contacting Erica Seely at 536-4441 or through e-mail at eseely@siu.edu.

Affiliation to SIU:

Erica Seely, BS Human Nutrition & Dietetics
 Graduate Assistant, Dietetic Intern, MS in Food & Nutrition
 Wellness Center – Student Health Center
 Southern Illinois University Carbondale

The Department of Health and Human Services requires that you be advised as to the availability of medical treatment if a physical injury should result from research procedures. The researchers do not have funds specifically dedicated to compensate you for any adverse effects that you may experience by participating in this research. Nevertheless, you retain all your legal rights to seek compensation in the event of injury or other adverse events. If you are a registered student at SIUC, you are eligible to receive medical treatment at SIUC Student Health Center. If you are not a registered student at the university, immediate medical treatment is available at usual and customary fees at Memorial Hospital of Carbondale. In the event you believe you have suffered any injury as a result of participating in the research program, please contact the Chairperson of the Human Subjects Committee, who will review the matter with you. Phone (618) 453-4533.

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, SIUC, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail: siuhsc@siu.edu.

I have read the program information above and agree to the terms outlined to participate in the *Eating for the Health of It* study. Any questions that I have asked have been answered to my satisfaction. I understand a copy of this form will be made available to me for the relevant information and phone numbers. I realize that I may withdraw without prejudice at any time. To the best of my knowledge, I do not have a medical condition that would preclude me from participating in this study.

Signature _____ Date _____

APPENDIX C

PARTICIPATION CONSENT FORM: INTERVENTION GROUP

Eating for the Health of It Class Consent Form

Thank you participating in the study of the *Eating for the Health of It* class, which was developed by Southern Illinois University's Student Health Center Wellness Center. The purpose of this study is to determine the impact of the class and support materials on the following: meeting lifestyle goals, confidence to reach said goals, and satisfaction with progress. To successfully complete this program in the next four weeks, you will be asked to do the following:

- ✓ Participate in the *Eating for the Health of It* class, which promotes healthy eating and weight control practices.
- ✓ Set one goal based off of weight, waist circumference, or both measurements.
- ✓ Set one lifestyle goal based off elements learned in class.
- ✓ Join and participate in a private Facebook group which will serve as a helpful guide to aid in your progress with the use of helpful tips, recipes, and social support.
- ✓ Students who join the Facebook group will have their name put into a drawing to win a non-monetary prize. Students will be notified individually via email if they won.
- ✓ Attend a 15 minute follow-up session 4 weeks after the initial class. At this time measurement will be taken again and a brief evaluation survey will be completed.
- ✓ Students who come back for the 15 minute follow-up session will have their name put into a drawing to win a non-monetary prize. Students will be notified individually via email if they won.

All Southern Illinois University students over the age of 18 are eligible to join the study. Participants may drop out of the program at any time.

The Wellness Center will take all reasonable steps to protect your identity. Only the researchers will have access to your identifiable data (name and other personal information, health and lifestyle goals, optional measurements/weight). This information will be coded for your privacy, kept in a locked filing cabinet during the research, and will be shredded after completion of data collection.

Thank you for taking the time and thought to complete this research. Questions regarding this research may be addressed by contacting Erica Seely at 536-4441 or through e-mail at eseely@siu.edu.

Affiliation to SIU:

Erica Seely, BS Human Nutrition & Dietetics
 Graduate Assistant, Dietetic Intern, MS in Food & Nutrition
 Wellness Center – Student Health Center
 Southern Illinois University Carbondale

The Department of Health and Human Services requires that you be advised as to the availability of medical treatment if a physical injury should result from research procedures. The researchers do not have funds specifically dedicated to compensate you for any adverse effects that you may experience by participating in this research. Nevertheless, you retain all your legal rights to seek compensation in the event of injury or other adverse events. If you are a registered student at SIUC, you are eligible to receive medical treatment at SIUC Student Health Center. If you are not a registered student at the university, immediate medical treatment is available at usual and customary fees at Memorial Hospital of Carbondale. In the event you believe you have suffered any injury as a result of participating in the research program, please contact the Chairperson of the Human Subjects Committee, who will review the matter with you. Phone (618) 453-4533. This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, SIUC, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail: siuhsc@siu.edu.

I have read the program information above and agree to the terms outlined to participate in the *Eating for the Health of It* study. Any questions that I have asked have been answered to my satisfaction. I understand a copy of this form will be made available to me for the relevant information and phone numbers. I realize that I may withdraw without prejudice at any time. To the best of my knowledge, I do not have a medical condition that would preclude me from participating in this study.

Signature _____ Date _____

APPENDIX D
LIFESTYLE GOAL WORKSHEET

Eating for the Health of It

My goal for the next four weeks is to:

- Lose _____ pounds
- Lose _____ inches
- Neither of the above

Lifestyle Goals

Meal Timing

- Eat snacks/meals often throughout the day (every 3-4 hours)
- Eat breakfast/add protein at breakfast
- Prepare snacks/meals in advance

Quality of Food

- Eat more fruit
- Eat more vegetables
- Add additional fiber-rich foods to snacks/meals
 - Switch from “white” pasta/bread to “whole wheat” (or from white rice to brown rice)
- Reduce meals eaten
- Reduce sugar intake (candy, cakes, cereal, pop tarts, etc.)

Fluids

- Increase water intake
- Reduce consumption of sweetened beverages
- Limit alcohol beverages

Conscious Eating

- Remove food triggers (purchase in single portion sizes to eat immediately)
- Measure portion sizes temporarily to become aware of what is being eaten
- Focus on eating for hunger rather than boredom, stress, unconscious grazing
- Slow down when eating
- Listen to body and stop eating when full
- Keep a food journal (i.e. fitday.com)
- Shop from a grocery list

Physical Activity

- Increase physical activity

Which lifestyle goal are you going to focus on? (ex: eat more fruit)

How are you going to meet this goal? (eat two servings four days a week)

APPENDIX E

Marketing Component for “Eating for the Health of It”

Has
College Life
got your diet out of
whack?



Student Health Services,
Wellness Center
offers Weight Control
and Healthy Eating classes
throughout the semester!

**Are you unsure of what foods to eat, how many calories to eat,
or how to eat healthy on the go?**

If you answered yes to any of these questions,
want more information, or are interested in attending a one hour class,
please call the Wellness Center at 618-536-4441.

SIU
Southern
Illinois
University
CARBONDALE

APPENDIX F

DATA COLLECTION INSTRUMENT: CONTROL GROUP ($n = 13$)

Directions: Please fill out this form to the best of your ability by filling in the box or responding appropriately.

1. What was your primary (one) lifestyle goal?

Increase vegetable intake, Eat every 3-4 hours ($n = 3$), Eat breakfast ($n = 3$), Reduce sugar intake, Increase water intake, Increase physical activity, Increase protein intake, Focus on eating for hunger, Eat more fruit

2. Did you meet your lifestyle goal?

- 1 Yes ($n = 8$)
 0 No ($n = 5$)
 0 Not yet, but I am making progress towards my goal

3. What was your weight loss goal in the past 4 weeks?

Weight goals: -5 (gain), 2, 3, 4, 5, 5, 6, 8, 10, 10, 10, 10, 12

Inches goals: 0.5, 1, 1, 1, 1, 1, 1, 1, 2, 2, 3

- Did not have one (**If you don't have one skip to #5**)
 It was to:

- Lose pounds, and my goal was:

- 1-2 pound weight loss
 3-4 pound weight loss
 5-6 pound weight loss
 >7 pound weight loss

and/or

- Lose inches, and my goal was:

- 0.25-0.49 inches lost
 0.50-0.74 inches lost
 0.75-0.99 inches lost
 1.00-1.24 inches lost
 1.25-1.49 inches lost
 > 1.5 inches lost

4. Did you meet your weight loss goal?

Lose pounds

- 1 Yes ($n = 2$)
 0 No ($n = 11$)
 0 Not yet, but I am making progress towards my goal

and/or

Lose inches around my waist

- 1 Yes ($n = 5$)
 0 No ($n = 6$)
 0 Not yet, but I am making progress towards my goal

5.

	Not at all true	Hardly true	Moderately true	Exactly true
I can always manage to solve difficult problems if I try hard enough.	1 (n = 0)	2 (n = 0)	3 (n = 7)	4 (n = 6)
If someone opposes me, I can find the means and ways to get what I want.	1 (n = 0)	2 (n = 0)	3 (n = 9)	4 (n = 4)
It is easy for me to stick to my aims and accomplish my goals.	1 (n = 0)	2 (n = 2)	3 (n = 7)	4 (n = 4)
I am confident that I could deal efficiently with unexpected events.	1 (n = 0)	2 (n = 3)	3 (n = 6)	4 (n = 4)
Thanks to my resourcefulness, I know how to handle unforeseen situations.	1 (n = 0)	2 (n = 1)	3 (n = 5)	4 (n = 7)
I can solve most problems if I invest the necessary effort.	1 (n = 0)	2 (n = 1)	3 (n = 3)	4 (n = 9)
I can remain calm when facing difficulties because I can rely on my coping abilities.	1 (n = 0)	2 (n = 2)	3 (n = 7)	4 (n = 4)
When I am confronted with a problem, I can usually find several solutions.	1 (n = 0)	2 (n = 1)	3 (n = 6)	4 (n = 6)
If I am in trouble, I can usually think of a solution.	1 (n = 0)	2 (n = 1)	3 (n = 5)	4 (n = 7)
I can usually handle whatever comes my way.	1 (n = 0)	2 (n = 1)	3 (n = 6)	4 (n = 6)

6. Given the effort you put into following your weight control plan, how **satisfied** are you with the amount of **weight and/or inches** you have lost during the past four weeks? I am:

- 1 Very dissatisfied (n = 0)
 2 Dissatisfied (n = 1)
 3 Neither satisfied nor dissatisfied (n = 6)
 4 Satisfied (n = 4)
 5 Very satisfied (n = 2)

7. Given the effort you put into following your weight control plan, how **satisfied** are you with achieving your **lifestyle goal** from question #1? I am:

- 1 Very dissatisfied (n = 0)
 2 Dissatisfied (n = 1)
 3 Neither satisfied nor dissatisfied (n = 2)
 4 Satisfied (n = 4)
 5 Very satisfied (n = 6)

Directions: Please mark the appropriate box for each question:

8. How satisfied are you with:

	Very dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very Satisfied
Presentation quality of instructor	1 (n = 0)	2 (n = 0)	3 (n = 1)	4 (n = 3)	5 (n = 9)
Knowledge of instructor	1 (n = 0)	2 (n = 0)	3 (n = 1)	4 (n = 1)	5 (n = 11)
Program materials	1 (n = 0)	2 (n = 0)	3 (n = 2)	4 (n = 3)	5 (n = 8)
Overall quality of the program	1 (n = 0)	2 (n = 0)	3 (n = 1)	4 (n = 2)	5 (n = 10)

9. Do you currently have a Facebook account?

- 1 Yes (n = 9)
- 0 No (If No, skip to question #12) (n = 3)

10. On average, approximately how many minutes *per day* do you spend on Facebook?

- 1 <10 minutes (n = 2)
- 2 10-30 minutes (n = 4)
- 3 31-60 minutes (n = 2)
- 4 1-2 hours (n = 1)
- 5 2-3 hours (n = 0)
- 6 >3 hours (n = 0)

11. How many Facebook Groups do you belong to?

- 1 Not sure (n = 1)
- 2 I do not belong to any Facebook groups (n = 0)
- 3 1 group (n = 2)
- 4 2-5 groups (n = 5)
- 5 6-10 groups (n = 1)
- 6 >10 groups (n = 0)

12. Please provide any feedback, comments, or concerns you had about this program. Is there anything you would like to have seen done differently, anything you particularly liked or disliked about the class?

Directions: Please respond appropriately.

13. What is your gender?

- 0 Male (n = 2)
 1 Female (n = 10)

14. What is your age?

_____ years 19, 20, 20, 21, 21, 23, 25, 26, 26, 26, 29, 38

15. Do you reside on-campus or off-campus?

- 0 On-campus (n = 3)
 1 Off-campus (n = 9)

16. How would you describe your race or ethnicity? (please mark all that apply)

- 1 White, non Hispanic (includes Middle Eastern) (n = 4)
 2 Black, non Hispanic (n = 5)
 3 Hispanic or Latino/a (n = 0)
 4 Asian or Pacific Islander (n = 1)
 5 American Indian, Alaskan Native, or Native Hawaiian (n = 0)
 6 Biracial or Multiracial (n = 1)
 7 Other (n = 1)

17. How did you find out about the class? (please mark all that apply)

- 1 Walk-in (n = 5)
 2 Referred by a friend (n = 3)
 3 Poster on campus (n = 3)
 4 Table tent on campus (n = 0)
 5 Announcement in class (n = 0)
 6 Student Health Services website (n = 0)
 7 Other _____ (n = 1)

OFFICE-USE ONLY

Code:

Pre-Weight:

Post-Weight:

Pre-Waist Circumference:

Post-Waist Circumference:

Weight Goal Met:

Waist Circumference Goal Met:

APPENDIX G

DATA COLLECTION INSTRUMENT: INTERVENTION GROUP

ORIGINAL VERSION ($n = 7$), MODIFIED VERSION ($n = 4$)

Directions: Please fill out this form to the best of your ability by filling in the box or responding appropriately.

1. What was your primary (one) lifestyle goal?

Increase physical activity ($n = 3$), Focus on eating for hunger ($n = 3$), Eat every 3-4 hours ($n = 2$), Increase vegetable intake, Stop eating when full, Measure portion sizes

2. Did you meet your lifestyle goal?

- 1 Yes ($n = 5$)
 0 No ($n = 6$)
 0 Not yet, but I am making progress towards my goal

3. What was your weight loss goal in the past 4 weeks?

Weight goals: 3, 5, 5, 6, 6, 8, 8, 8, 8, 10, 10

Inches goals: 1, 1, 1, 1, 1, 1, 2, 2, 2, 3

Did not have one (**If you don't have one skip to #5**)

It was to:

- Lose pounds, and my goal was:

- 1-2 pound weight loss
 3-4 pound weight loss
 5-6 pound weight loss
 >7 pound weight loss

and/or

- Lose inches, and my goal was:

- 0.25-0.49 inches lost
 0.50-0.74 inches lost
 0.75-0.99 inches lost
 1.00-1.24 inches lost
 1.25-1.49 inches lost
 > 1.5 inches lost

4. Did you meet your weight loss goal?

Lose pounds

- 1 Yes ($n = 1$)
 0 No ($n = 10$)
 0 Not yet, but I am making progress towards my goal

and/or

Lose inches around my waist

- 1 Yes ($n = 6$)
 0 No ($n = 4$)
 0 Not yet, but I am making progress towards my goal

5.

	Not at all true	Hardly true	Moderately true	Exactly true
I can always manage to solve difficult problems if I try hard enough.	1 (n = 0)	2 (n = 0)	3 (n = 6)	4 (n = 5)
If someone opposes me, I can find the means and ways to get what I want.	1 (n = 0)	2 (n = 3)	3 (n = 6)	4 (n = 2)
It is easy for me to stick to my aims and accomplish my goals.	1 (n = 0)	2 (n = 3)	3 (n = 7)	4 (n = 1)
I am confident that I could deal efficiently with unexpected events.	1 (n = 0)	2 (n = 1)	3 (n = 8)	4 (n = 2)
Thanks to my resourcefulness, I know how to handle unforeseen situations.	1 (n = 0)	2 (n = 1)	3 (n = 6)	4 (n = 4)
I can solve most problems if I invest the necessary effort.	1 (n = 0)	2 (n = 0)	3 (n = 7)	4 (n = 4)
I can remain calm when facing difficulties because I can rely on my coping abilities.	1 (n = 0)	2 (n = 0)	3 (n = 10)	4 (n = 1)
When I am confronted with a problem, I can usually find several solutions.	1 (n = 0)	2 (n = 1)	3 (n = 8)	4 (n = 2)
If I am in trouble, I can usually think of a solution.	1 (n = 0)	2 (n = 0)	3 (n = 8)	4 (n = 3)
I can usually handle whatever comes my way.	1 (n = 0)	2 (n = 1)	3 (n = 7)	4 (n = 3)

6. Given the effort you put into following your weight control plan, how satisfied are you with the amount of weight and/or inches you have lost during the past four weeks? I am:

- 1 Very dissatisfied (n = 0)
 2 Dissatisfied (n = 1)
 3 Neither satisfied nor dissatisfied (n = 1)
 4 Satisfied (n = 5)
 5 Very satisfied (n = 4)

7. Given the effort you put into following your weight control plan, how satisfied are you with achieving your lifestyle goal from question #1? I am:

- 1 Very dissatisfied (n = 0)
 2 Dissatisfied (n = 2)
 3 Neither satisfied nor dissatisfied (n = 2)
 4 Satisfied (n = 5)
 5 Very satisfied (n = 2)

Directions: Please mark the appropriate box for each question:

8. How satisfied are you with:

	Very dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very Satisfied
Presentation quality of instructor	1 (n = 0)	2 (n = 0)	3 (n = 0)	4 (n = 1)	5 (n = 10)
Knowledge of instructor	1 (n = 0)	2 (n = 0)	3 (n = 0)	4 (n = 1)	5 (n = 10)
Program materials	1 (n = 0)	2 (n = 0)	3 (n = 0)	4 (n = 3)	5 (n = 8)
Overall quality of the program	1 (n = 0)	2 (n = 0)	3 (n = 0)	4 (n = 2)	5 (n = 9)

9. Do you currently have a Facebook account?

- 1 Yes (n = 11)
 0 No (If No, skip to question #12) (n = 0)

10. On average, approximately how many minutes *per day* do you spend on Facebook?

- 1 <10 minutes (n = 2)
 2 10-30 minutes (n = 4)
 3 31-60 minutes (n = 3)
 4 1-2 hours (n = 2)
 5 2-3 hours (n = 0)
 6 >3 hours (n = 0)

11. How many Facebook Groups do you belong to?

- 1 Not sure (n = 4)
 2 I do not belong to any Facebook groups (n = 0)
 3 1 group (n = 2)
 4 2-5 groups (n = 5)
 5 6-10 groups (n = 0)
 6 >10 groups (n = 0)

Directions: Please answer or mark the appropriate box for each question.

- 12. Please provide any feedback, comments, or concerns you had about this program. Is there anything you would like to have seen done differently, anything you particularly liked or disliked about the class?**

- 13. Facebook group, “Healthy Dawgs,” helped me with my weight loss efforts.**

- | | |
|--|---------|
| <input type="checkbox"/> 1 Strongly disagree | (n = 0) |
| <input type="checkbox"/> 2 Disagree | (n = 0) |
| <input type="checkbox"/> 3 Neutral | (n = 4) |
| <input type="checkbox"/> 4 Agree | (n = 7) |
| <input type="checkbox"/> 5 Strongly agree | (n = 0) |

- 14. Facebook group, “Healthy Dawgs,” helped me to achieve my lifestyle goal.**

- | | |
|--|---------|
| <input type="checkbox"/> 1 Strongly disagree | (n = 0) |
| <input type="checkbox"/> 2 Disagree | (n = 0) |
| <input type="checkbox"/> 3 Neutral | (n = 8) |
| <input type="checkbox"/> 4 Agree | (n = 3) |
| <input type="checkbox"/> 5 Strongly agree | (n = 0) |

- 15. What aspects of Facebook group, “Healthy Dawgs,” helped you work towards your goals?**

Refer to Appendix H

- 16. What aspects of Facebook group, “Healthy Dawgs,” were not helpful?**

“I think they are all helpful; some aspects will benefit others on different levels.”

“Nothing. It was overall very productive.”

Directions: Please mark the appropriate box for each question.

17. What is your gender?

- 0 Male (n = 0)
 1 Female (n = 11)

18. What is your age?

_____ Years 18, 20, 20, 21, 22, 22, 22, 24, 27, 34, 56

19. Do you reside on-campus or off-campus?

- 0 On-campus (n = 3)
 1 Off-campus (n = 8)

20. How would you describe your race or ethnicity? (Please mark all that apply)

- 1 White, non Hispanic (includes Middle Eastern) (n = 5)
 2 Black, non Hispanic (n = 6)
 3 Hispanic or Latino/a (n = 0)
 4 Asian or Pacific Islander (n = 0)
 5 American Indian, Alaskan Native, or Native Hawaiian (n = 0)
 6 Biracial or Multiracial (n = 0)
 7 Other (n = 0)

21. How did you find out about the class? (Please mark all that apply)

- 1 Walk-in (n = 4)
 2 Referred by a friend (n = 0)
 3 Poster on campus (n = 2)
 4 Table tent on campus (n = 0)
 5 Announcement in class (n = 1)
 6 Student Health Services website (n = 2)
 7 Other _____ (n = 2)

OFFICE-USE ONLY

Code:

Pre-Weight:

Post-Weight:

Pre-Waist Circumference:

Post-Waist Circumference:

Weight Goal Met:

Waist Circumference Goal Met:

APPENDIX H

RESPONSES TO OPEN-ENDED QUESTION:

WHAT ASPECTS OF FACEBOOK GROUP, "HEALTHY DAWGS," HELPED
YOU WORK TOWARDS YOUR GOALS?

Responses Pre-Changes:

“This was a great opportunity and definitely helped me stick to my goals. It helped motivate me and held me responsible for my goals. The resources were also great.”

“I enjoyed the presentation given in the class. I also liked the handouts about healthy eating and the recipes. The Facebook page with links to nutrition articles has been helpful as well.”

“I liked the presentation that was done and the fact the instructor emailed us a lot of useful materials we could use while reaching our goals.”

“I believe this program is great and should continue to be offered.”

“I feel like the program really helped me.”

“Great tips and advice given. They were very clear and all accurate to what research has stated as effective. It is great that it is available and free to all students.”

Responses Post-Changes:

“The daily tips Monday through Friday.”

“The different recipes and the workout articles.”

“The recipes.”

“Enjoyed the information.”

APPENDIX I

SCREEN SHOTS OF FACEBOOK GROUP "HEALTHY DAWGS"

The screenshot shows a Facebook interface with a blue header. The search bar contains "Search for people, places and things". The user profile is "GA Erica Seely". The main content area displays three posts from the same user:

- Post 1:** "Tuesday Tips Nuts about nuts? Or are you just curious about how they fit into a healthy lifestyle? Check out this informative article: <http://www.cspinet.org/nah/articles/nuts.html>". It includes an image of nuts and a link to "Going Nuts" on www.cspinet.org.
- Post 2:** "Movin' On Mondays. Want to get some exercise, but don't have the time to go the rec? There's a lot more you can do with a chair then sit in it! Check out these awesome chair exercises: <http://www.health.com/health/gallery/0,,20527056,00.html>". It includes a comment from another user: "I definitely need this! Doing some of these exercises as I study right now! :) April 16 at 9:46pm - Unlike - 1".
- Post 3:** "Are you new to the group? Don't miss all the great information that has been posted! Scroll down and check it out!".

The right sidebar shows a list of group members. The bottom of the page has a search bar and navigation icons.

Figure 2. Screen shot of “Healthy Dawgs” showing a “Movin’ On Monday” post in regards to exercising outside of the gym with feedback from a group member.

The screenshot shows a Facebook interface. At the top, the Facebook logo and navigation links are visible. The main content area displays three posts. The first is a video post titled "Five Tips to Ace Your Finals (VIDEO) - Huffington Post" with a thumbnail showing a person at a desk. The second post is from "GA Erica Seely" and is titled "Tuesday Tips: Eating vegetables is one of the best ways to increase fiber in the diet which helps us feel fuller longer and can aid in weight loss. Sometimes, fitting them in can be difficult. Here is 10 tips to fit more vegetables into your diet: <http://www.choosemyplate.gov/food-groups/downloads/TenTips/DGTipsheet2AddMoreVegetables.pdf>". Below the text is a link to the PDF document and a "Like" button. The third post is also from "GA Erica Seely" and is titled "Movin' on Mondays. Ever thought about taking up yoga, but confused about all the different types? Here is a comprehensive guide to finding a yoga class that suits you! <http://www.health.com/health/article/0,,20568772,00.html>". Below this text is a link to the article and a "Like" button. The right side of the page shows a vertical list of profile pictures of friends or followers. At the bottom right, there is a search bar and navigation icons.

Figure 3. Screen shot of “Healthy Dawgs” showing a “Tuesday Tips” post providing information on increasing vegetable consumption.

The screenshot shows a Facebook interface for a group named "Healthy Dawgs". The top navigation bar includes the Facebook logo, a search bar, and the user's profile "GA Erica Seely". The main content area displays four posts:

- Post 1:** By GA Erica Seely, dated February 16 at 12:34pm. Text: "Rejoice! It's almost the weekend :) Healthy Recipe Thursday: Under Wraps http://www.cspinet.org/nah/healthycook/janfebwraps.html". Includes a link to "Healthy Cook" (cspinet.org) with a description: "Since 1971, the Center for Science in the Public Interest has been a strong advocate for nutrition and health, food safety, alcohol policy, and sound".
- Post 2:** By GA Erica Seely, dated February 15 at 11:50am. Text: "Wellness Wednesday: Positive thinking: Reduce stress by eliminating negative self-talk http://www.mayoclinic.com/health/positive-thinking/SR00009". Includes a link to "Positive thinking: Reduce stress by eliminating negative self-talk - MayoClinic.com" with a description: "Positive thinking — Harness the power of optimism to help with stress management."
- Post 3:** By GA Erica Seely, dated February 14 at 10:53am. Text: "GA Erica Seely added [redacted] to the group."
- Post 4:** By GA Erica Seely. Text: "Happy Valentine's Day! Tuesday Tips: Movie Theater Blunders."

The right sidebar shows a list of group members and a search bar at the bottom.

Figure 4. Screen shot of “Healthy Dawgs” depicting a post for “Wellness Wednesday” about stress and positive thinking in addition to a “Healthy Recipe Thursday” post about making wraps.

facebook Search for people, places and things GA Erica Seely Find Friends Home

GA Erica Seely
Healthy Recipe Thursday
Do you find it difficult to find time to cook a healthy recipe? The end of the semester can be a difficult time to stay healthy, but is an important time to be sure you are getting proper nutrition for optimal brain power and energy. Check out this high fiber, delicious recipe that takes only 15 minutes to prepare!
http://www.eatingwell.com/recipes/black_bean_quesadillas.html

Black Bean Quesadillas
www.eatingwell.com
In a hurry? These satisfying quesadillas take just 15 minutes to make.

Like · Comment · Unfollow Post · Share · May 3 at 9:27am

GA Erica Seely
Wellness Wednesday
Are you a seasonal allergy sufferer? Itchy, watery eyes, runny/stuffy nose, and sneezing are just some of the many annoyances caused by allergies. Check out this guide to the types of seasonal allergies and treatment options!
<http://www.aaaai.org/conditions-and-treatments/library/at-a-glance/outdoor-allergens.aspx>

Outdoor Allergens | AAAAI
www.aaaai.org
AAAAI, the experts in allergy and immunology, provide an overview of outdoor allergens.

Like · Comment · Unfollow Post · Share · May 2 at 10:23am

GA Erica Seely

Search

Figure 5. Screen shot of “Healthy Dawgs” showing a “Healthy Recipe Thursday” post for black bean quesadillas as well as a “Wellness Wednesday” post concerning seasonal allergies.

facebook Search for people, places and things GA Erica Seely Find Friends Home

class that suits you! <http://www.health.com/health/article/0,,20568772,00.html>

Your Essential Guide to Yoga
www.health.com
Confused by all the yoga options from hot yoga to hybrid Vinyasa classes? We'll help you find a great fit and stay safe in that Downward Dog.

Like - Comment - Unfollow Post - Share - May 7 at 10:55am

GA Erica Seely
Free Forum Friday.
Preparing for and taking finals can be syressful. What are some ways you guys can think of to stay healthy during finals week?

Like - Comment - Unfollow Post - May 4 at 11:08pm via mobile

always pack ahead of time, like the night before. Always have a water bottle around, helps alot when you don't have time for a snack to keep your hunger pangs away while in a test.
May 5 at 1:24pm - Like

Drink a lot of water and have snacks handy...like nuts or fruit or carrot sticks!
May 5 at 10:05pm via mobile - Like

Write a comment...

GA Erica Seely
Healthy Recipe Thursday
Do you find it difficult to find time to cook a healthy recipe? The end of the semester can be a difficult time to stay healthy, but is an important time to be sure you are getting proper nutrition for optimal brain power and energy. Check out this high fiber, delicious recipe that takes only 15 minutes to prepare!
http://www.eatingwell.com/recipes/black_bean_quesadillas.html

Search

Figure 6. Screen shot of “Healthy Dawgs” showing a “Free Forum Friday” post about staying healthy during finals week with feedback from two of the participant.

VITA

Graduate School
Southern Illinois University

Erica Seely

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Southern Illinois University Carbondale
Bachelor of Science, Human Nutrition and Dietetics, May 2011

Thesis Title:

Facebook as Social Support For a One-Time Weight Loss Intervention
Among College Students

Major Professor: Dr. Sara Long Roth