

5-2007

THE IMPACT OF A PHYSICAL ACTIVITY INTERVENTION ON THE PHYSICAL ACTIVITY SELF-EFFICACY OF PREADOLESCENT FEMALES

Katherine Hommel

Clemson University, khommel@clemson.edu

Follow this and additional works at: https://tigerprints.clemson.edu/all_theses

 Part of the [Recreation, Parks and Tourism Administration Commons](#)

Recommended Citation

Hommel, Katherine, "THE IMPACT OF A PHYSICAL ACTIVITY INTERVENTION ON THE PHYSICAL ACTIVITY SELF-EFFICACY OF PREADOLESCENT FEMALES" (2007). *All Theses*. 104.

https://tigerprints.clemson.edu/all_theses/104

This Thesis is brought to you for free and open access by the Theses at TigerPrints. It has been accepted for inclusion in All Theses by an authorized administrator of TigerPrints. For more information, please contact kokeefe@clemson.edu.

THE IMPACT OF A PHYSICAL ACTIVITY INTERVENTION
ON THE PHYSICAL ACTIVITY SELF-EFFICACY
OF PREADOLESCENT FEMALES

A Thesis
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
Parks, Recreation, and Tourism Management

by
Katherine E. Hommel
May 2007

Accepted by:
Dr. Denise M. Anderson, Committee Chair
Dr. Francis A. McGuire
Dr. Dorothy L. Schmalz

ABSTRACT

Pre-adolescent females often do not participate in the recommended level of physical activity on a regular basis and are also likely to cease participation as they move through adolescence. This lack of physical activity can lead to a wide range of both physical and psychological problems. Reasons for lack of participation include lack of self-confidence, lack of opportunity, lack of knowledge about available opportunities for a variety of activities, and a lack of self-efficacy. Self-efficacy theory proposes that an individual's self-efficacy is a key determinant in maintenance, adoption, and perseverance in difficult tasks (e.g., participating in physical activity). Recent literature has supported this relationship between an individual's self-efficacy for physical activity and his/her actual behaviors relating to physical activity.

Clemson University's Finding Your Voice program is aimed at, among other outcomes, increasing pre-adolescent female's self-efficacy for physical activity through education and the introduction of practical experience in a variety of physically active recreation activities. The purpose of this study was to determine the impact of the Finding Your Voice program on the perceived physical activity self-efficacy of its participants as well as the impact race can have on an individual's self-efficacy. Forty participants attended the program and each completed a self-efficacy measure prior to and following completion of the program. Data analysis found that a significant difference existed between pre-

program and post-program self-efficacy scores for the participants, and that race did not significantly impact the participants' self-efficacy scores.

DEDICATION

This thesis is dedicated to the one person who always pushes me to be my best, my mother. “What do you want it to be, perfect?”

ACKNOWLEDGMENTS

I would, first and foremost, like thank my committee. I truly appreciate you letting me be such a big part of such an amazing project.

I also would like to thank the two most important men in my life, my father and my husband. I could not have accomplished this goal without your love and support.

TABLE OF CONTENTS

	Page
TITLE PAGE	i
ABSTRACT	iii
DEDICATION	v
ACKNOWLEDGMENTS	vii
LIST OF TABLES	xi
CHAPTER	
1. INTRODUCTION	1
Background	2
Purpose Statement	6
Significance	6
Research Questions	7
Hypotheses and Objectives	8
Definition of Terms	8
Delimitations	9
Outline of Chapters	9
2. REVIEW OF LITERATURE	11
Physical Activity	11
Nontraditional Activities	18
Self-efficacy Theory	28
Self-efficacy and Physical Activity	36
Self-efficacy Interventions	40
3. METHODOLOGY	47
Introduction	47
Treatment	47
Participants	49
Instructor Training	50

Table of Contents (Continued)

	Page
Procedures.....	52
Data Collection	52
Instrument	52
Data Analysis.....	54
4. RESULTS	57
Description of Participants.....	57
Research Questions and Hypotheses	61
Physical Activity Self-efficacy	61
Change in Self-efficacy by Race.....	62
5. DISCUSSION.....	63
Summary of Findings.....	63
Discussion	64
Implications.....	69
Limitations	71
Future Study.....	72
APPENDICES	75
A: IRB Approval.....	77
B: Parental Consent Form	79
C: Participant Assent Form.....	83
REFERENCES	85

LIST OF TABLES

Table	Page
I. Demographics	57
II. Race.....	58
III. Family	59
IV. Interest in Sport and Physical Activity	60
V. Comparison of Pre-program Self-efficacy and Post-program Self-efficacy Scores	61
VI. Comparison of Change in Self-efficacy by Race	62
VII. Summary of Findings	62

CHAPTER I

INTRODUCTION

Americans are more physically inactive today than ever before. This creates not only physical and psychological health problems for the inactive members of society, but also has far-reaching economical consequences for society itself. This problem exists among not only adults, but also children. Among the high risk groups are female preadolescents because they are not only less likely to participate in physical activities than males, but are also more likely to cease participation as they move through adolescence. Increasing physical activity is a key component in reducing the current overweight and obesity epidemic in America as well as reducing the many other physical and psychological problems that can arise from inactivity. One step in the process of helping individuals to increase their physical activity levels is focusing on increasing their self-efficacy for physical activity. Self-efficacy has been shown to be an effective psychological factor that can be affected to help increase the likelihood that individuals will participate in physical activity. This concept has been implemented through physical activity interventions focused on increasing self-efficacy. One such program, Finding Your Voice, was created with the intention of impacting the physical activity self-efficacy of 10-13 year old females

through education and experiences with new physical activities. The primary purpose of this study was to examine whether participation in the Finding Your Voice program would successfully impact the participants' physical activity self-efficacy.

Background

Only 28 percent of adolescents are participating in the recommended amount of physical activity on a daily basis (CDC, 2006b). Females are especially at risk. Pre-adolescent females are not only less likely to participate in physical activity, but are also more likely to cease participation (Kimm et al., 2002; Women's Sports Foundation, 2004). The Centers for Disease Control and Prevention (CDC) listed physical activity as a key step in reducing the number of individuals who are overweight and, in turn, health problems associated with being overweight. Because activity levels are so low among adolescents, associated health problems are visible within the population. According to the CDC (2006c), over 17 percent of children and adolescents are overweight. Research has long shown that by being inactive and overweight, individuals are at an increased risk for such physical and psychological health problems as cardiovascular disease, heart disease, anxiety, and depression (CDC, 2006a; CDC, 2006b; Women's Sports Foundation, 2004).

Attrition in physical activity among preadolescent females has been attributed to several factors. First, females are often limited in the types of activities in which they can take part simply because they have been taught that certain activities are appropriate only for male participation. While research on

the gender typing of physical activity and sport began by focusing on the gender appropriateness of sports among college-age women, it is clear that children are taught the gender appropriateness of many types of activities very early on (Landers & Fine, 1996; Lever, 1976; Metheny, 1965). These stereotypes extend not only to sports, but also to the realm of outdoor recreation. Females are often absent in the outdoors because of social pressure, a lack of female role models, and even fear (Bialeschki & Henderson, 1993; Culp, 1998; Powch, 1994). These social pressures are detrimental not only because they may limit the types of activities in which females feel it is socially acceptable to participate, but also because females can benefit by taking part in traditionally masculine physical activities. By participating in traditionally male activities, females can achieve an improved self-esteem, improved physical self-concept, and are more likely to participate in structured physical activity later in life (Giuliano, Popp, & Knight, 2000; Pohl, Borrie, & Patterson, 2000; Schmalz & Davison, 2006).

Bandura (1977, 1994) postulated that self-efficacy, or one's belief in his/her competency at a given task, is a main determinant of an individual's willingness to take on challenges (e.g., physical activity) and persevere in those challenges through difficulty. An individual's self-efficacy is determined by the information he/she obtains from four main sources: performance accomplishments, vicarious experience, verbal persuasion, and physiological/emotional arousal (Bandura, 1977). Self-efficacy can be

manipulated primarily through ensuring that the individual is receiving positive feedback from each of the four sources of efficacy expectations (Bandura, 1977, 1986, 1994).

Recent research has shown self-efficacy to play an important role, specifically, in physical activity choices (Norman, Schmid, Sallis, Calfas, & Patrick, 2005; Sniehotta, Scholz, & Schwarzer, 2005). Self-efficacy plays a role not only in adoption, but also maintenance of physical activity. Self-efficacy has been shown, in pre-adolescent females, to mediate between intention to be involved in physical activity and actual involvement (Annesi, 2006; Motl et al., 2002). Self-efficacy also plays a major role in helping individuals to overcome barriers to physical activity (e.g., socioeconomic status, negative attitudes) (Hagger, Chatzisarantis, & Biddle, 2001; Kloek, van Lenthe, van Nierop, Schrijvers, & Mackenbach, 2006). Perseverance in physical activity can be impacted by the individual's self-efficacy in both structured and freely chosen physical activity (Annesi, 2006; Dawson & Brawley, 2000). Because self-efficacy is a modifiable belief that can lead directly to actual behavioral changes, it has been the focus of interventions aimed specifically at increasing physical activity levels (Bandura, 1994).

Scholars agree that self-efficacy is an important factor that should be targeted in attempting to increase physical activity levels (Norman et al., 2007; Sniehotta et al., 2005; Trost, et al., 1999). Both long-term and short-term physical activity interventions have been found to be successful (Brown & Malouff, 2005; Saksvig et al., 2005; Trost et al., 1999). Specifically, much research has shown

the effectiveness of such interventions in both preadolescent and adolescent females' self-efficacy beliefs (Dishman, et al., 2004; Motl et al., 2002; Simon et al., 2004). These self-efficacy interventions have ranged from five minutes to one year and proved effective across the varying lengths of time.

The Finding Your Voice program was an intervention focused on, among other outcomes, increasing the physical activity self-efficacy of the participants. Over the course of the two-day camp, the female participants were introduced to “nontraditional” physical activities (i.e., those seen as traditionally appropriate only for males, or those not traditionally available to preadolescent females in Upstate South Carolina) in an environment conducive to building physical activity self-efficacy beliefs. This environment was created through the education of the session instructors on the four sources of efficacy expectations Bandura (1977) discusses. Over the course of the two-day camp, the 40 11-12 year old participants chose three physical activity sessions (e.g., rock climbing, rugby, field hockey) and two educational sessions (e.g., Internet safety, nutrition, body image) in which to participate. Through these sessions, the intention of Finding Your Voice was to increase the participants' belief in their ability to take on new physically active pursuits that they may, prior to the program, have known little about. Through this education and participation, the program was intended to increase the participants' physical activity self-efficacy. Based on the findings of previous research, an increase in physical self-efficacy gained from the intervention should have an impact on the actual physical activity behaviors of the participants.

Purpose Statement

Largely, females do not participate in the recommended amount of daily physical activity. This inactivity leads to a variety of physical and psychological problems that can have negative short and long-term effects on the individual. Research has shown that self-efficacy for physical activity is a factor that can be manipulated through targeted interventions and can lead to actual physical activity behavior change. The Finding Your Voice program was just such an intervention targeting preadolescent females. Therefore, the primary purpose of this study was to examine whether participation in the Finding Your Voice program successfully impacted the participants' physical activity self-efficacy. A secondary purpose of this study was to explore the participants' race and the impact it may have on physical activity self-efficacy.

Significance

One major risk of inactivity that can lead to many negative health effects is overweight/obesity. Limiting the likelihood that preadolescent females will become inactive and possibly overweight or obese is significant much beyond the health safeguards physical activity can provide to the individual females. The CDC (2006d) estimated that the costs associated with overweight and obesity total to approximately 9.1% of all United States medical expenditures, or \$92.6 billion each year. Individuals who are overweight as children are more likely to be overweight adults (American Heart Association, 2006). As such, if preadolescents are pushed into physical activity and a healthier lifestyle, the possibility exists that the problem of adult obesity can be impacted. One key factor in this problem is

that neither adults nor children are participating in the appropriate amount of physical activity on a daily basis. It is the responsibility of professionals in the recreation field to help in identifying viable solutions to the epidemic of childhood and adult overweight/obesity.

Research has indicated that self-efficacy is a key factor in an individual's decision to take on regular physical activity and stay with it over the long term. Influencing individuals to become or continue being physically active is important as regular physical activity can stave off overweight/obesity and help individuals improve or maintain their health. Studies have also found that self-efficacy can be targeted and successfully impacted as a catalyst for change in the physical activity routines of both children and adults. Thus, such programs (e.g., Finding Your Voice) need to be implemented and studied to identify if they are indeed effective in specific situations (e.g., among rural South Carolina preadolescent females). By offering females the opportunity to build self-efficacy for physical activity, the individual females are likely to see real behavioral changes and reap the physical and psychological benefits of living a healthier, more physically active life. Along with these benefits to the individual, society can also profit. Healthier individuals lead to a healthier society, which can potentially lessen the economic consequences overweight and obesity currently cost the United States.

Research Questions

1. Does the Finding Your Voice program positively impact the immediate post-program physical activity self-efficacy of its participants?

2. Does the race of the participant influence the impact of the Finding Your Voice program on physical activity self-efficacy?

Hypotheses & Objectives

1. The Finding Your Voice program will have no significant impact on the immediate post-program physical activity self-efficacy of the participants.

Corresponding Objectives:

- To determine the participants' pre-program physical activity self-efficacy.
- To determine the participants' immediate post-program physical activity self-efficacy.
- To determine the difference between the participants' pre- and post-test self-efficacy scores

2. The participants' race will have no significant impact on the change in physical activity self-efficacy following the completion of the Finding Your Voice program.

Corresponding Objective:

- To determine if the change in the participants' physical activity self-efficacy from pre- to post-program differs among races.

Definition of Terms

Finding Your Voice program: A female empowerment program intended to educate participants on nontraditional leisure and career choices as well as female health and nutrition.

Nontraditional activities: Activities traditionally viewed as appropriate only for males, or those not traditionally available to preadolescent females in Upstate South Carolina (e.g., BOSU, Yoga, field hockey).

Participants: Individuals between the ages of 10 and 13 who took part in the Finding Your Voice program

Physical activity self-efficacy: An individual's belief in his/her competency for performing physical activity regularly

Self-efficacy: One's belief in his/her own competency at a given task (Bandura, 1994)

Delimitations

The focus of this study is to determine if the Finding Your Voice program impacted the self-efficacy of its participants.

The study population was delimited to:

1. Those living in Pickens, Oconee, and Anderson counties in Upstate South Carolina
2. 10-13 year-old females
3. Participants of the Finding Your Voice program

Outline of Chapters

This thesis is organized into five chapters. Chapter one is an introduction and includes background information, a discussion of the significance of the

study, the research questions, the definitions of important terms relative to the study, and delimitations. Chapter two is a review of relevant literature and focuses on the current problem of overweight and obesity, the importance of physical activity, nontraditional physical activities, self-efficacy theory (the theoretical framework for the study), self-efficacy's role in physical activity, and self-efficacy interventions. Chapter three focuses on the methods and procedures of this study including a description of the study participants, a description of the implemented treatment, data collection procedures, data collection instrument, and data analysis procedures. Chapter four highlights the results of the statistical analysis of the collected data. Chapter five includes a discussion of the findings, the implications of the results, limitations to the study, and ideas for future research.

CHAPTER II

REVIEW OF LITERATURE

Physical Activity

Physical activity can have an impact not only on the physical, but also the psychological health of individuals. One of the most poignant problems associated with low levels of physical activity is overweight and obesity. According to the Centers for Disease Control and Prevention (CDC, 2006c), 18.8% of children and 17.4% of adolescents are overweight or obese. This is more than double the number of children and adolescents considered overweight in 1980. For African American females, this rate is even higher as over 25% of adolescent African American females are considered overweight today (CDC, 2006c). These high rates of childhood overweight/obesity are important to note because children and adolescents who are overweight as youth are more likely to grow up to be overweight or obese adults (American Heart Association, 2006). Among scholars there is little debate that physical activity is very important at reducing an individual's risk for overweight and the ill health effects it could bring on.

Research first began on the health effects of regular physical activity in the 1950's with studies of London transport workers and British civil servants (Morris & Crawford, 1958). These studies demonstrated that individuals who had greater amounts of sedentary time were more likely to have coronary heart disease

(Morris, Clayton, Everitt, Semmence, & Burgess, 1990; Morris, Pollard, Everitt, & Chave, 1980). Beginning in the late 1970's, several reports emerged that reiterated the Morris study findings (Paffenbarger, Hyde, Wing, & Hsieh, 1986; Paffenbarger et al., 1993; Paffenbarger, Hyde, Wing, & Steinmetz, 1984; Paffenbarger, Wing, & Hyde, 1978). Since this time, the negative health effects of low physical activity levels have been well documented in the literature.

Physical activity is a key determinant in an individual's physical health, namely at reducing his/her risk for overweight or obesity. Not only can participation in physical activity prevent many of the chronic diseases related to obesity (e.g., diabetes, cardiovascular disease), but it can also set the individual up for a healthier life by impacting the ability to control one's weight, lowering blood pressure, and improving cardiorespiratory function (CDC, 2006b; CDC, 2003). Physical activity also has a positive impact on psychological factors such as depression, anxiety, and stress (CDC, 2006b; Sothorn, Loftin, Suskind, Udall, & Blecker, 1999).

Preadolescent females are especially at risk for inactivity, which could lead to a myriad of health problems. Over 34% of adolescent females are considered to have a "low cardiorespiratory fitness" level (Carnethon, Gulati, & Greenland, 2005). This low level of fitness increases an individual's chance for cardiovascular disease (CVD) risk factors such as hypertension, heightened cholesterol levels, and weight gain possibly leading to overweight or obesity. CVD risk factors may emerge among children and adolescents as they gain

weight because as individuals gain weight, “their total cholesterol and triglycerides increase [and]...their HDL (good) cholesterol decrease[s]” (Childhood obesity, 2005, p. 4). In fact, children and adolescents who are overweight/obese are at 10 times greater probability of their normal weight peers of developing hypertension (CDC, 2005). The CDC reported in 2006 that in a study of 5 to 17 year-olds, 60% of those who were overweight exhibited at least one CVD risk factor and 25% exhibited two or more of these risk factors (CDC, 2006a). While the presence of these risk factors does not necessarily put the adolescent in immediate danger for CVD, “young adulthood sets the stage for heart disease in the middle and older ages” (Carnethon et al., 2006, p. 2986). Metabolic syndrome is another problem that can arise when a child is either at a low cardiorespiratory fitness level or is overweight/obese (Carnethon et al., 2006; Childhood obesity, 2005). Metabolic syndrome results when an individual suffers from three or more risk factors (e.g., high blood pressure, high waist circumference, low HDL cholesterol) that can result in the development of “type 2 diabetes, coronary artery disease, and premature mortality” (Childhood obesity, 2005, p. 4). Adolescent females who have low physical activity levels are more likely to have a higher percent body fat and BMI (Lohman, et al., 2006). Beyond CVD and metabolic syndrome risk factors, individuals who are overweight/obese are also more likely to suffer from asthma, hepatic steatosis (the “fatty degeneration” of the liver), and sleep apnea (CDC, 2006a).

Physical activity has psychological benefits for children/adolescents as well. Children who are overweight/obese are much more likely to be targets of

negative attention by their peers. Those who are overweight/obese are often stigmatized by their peers and discriminated against because of their extra weight. This can severely impact a child's social and academic performance (CDC, 2006a). Physical activity has also demonstrated an ability to lower the incidence of depression. Increased levels of physical activity have been correlated with a lower rate of depression among females (Women's Sports Foundation, 2004). This lowered incidence of depression can begin to occur with as little as 30 minutes of exercise per day, five days a week (Taylor, Pietrobon, Pan, Huff, & Higgins, 2004). Physical activity has also been associated with enhanced energy levels, concentration, mental performance, mood, and lowered levels of tension, anxiety, depression and hostility (Sothorn et al., 1999). Other psychological factors including body image, self-esteem, and eating disorders can also be positively impacted through physical activity participation (Women's Sports Foundation, 2004).

The CDC (2003) reported that almost 62% of children (age 9-13) do not participate in organized physical activity beyond that required during school, and almost 23% do not participate in any physical activity during their free time. In fact, only 28% of high school students are getting the recommended amount of physical activity per day (CDC, 2006b). Obese adolescent females spend much less time participating in physical activity than their non-obese peers and, in order

to alter this, programs must focus on reducing the levels of inactivity and increasing the levels of physical activity among young females (Gordon-Larse, 2001).

Many children and adolescents are losing one of the most traditional sources of physical activity: physical education (PE) class (CDC, 2006b). While 42% of adolescents were participating in PE regularly in 1991, that number had dropped to 28% by 2003 (CDC, 2006b). Of those who are participating in PE class, many do not actually participate in physical activity during class time. Over half of the time spent in PE classes is dedicated to non-physically active activity (i.e., management, organization), and most students in PE classes “stand passively” and watch the physically gifted students (those likely to be involved in structured sports) participate (Luepker, 1999). This loss of required physical activity is especially detrimental to the health of females, as research has demonstrated that females are likely to cease physical activity participation.

Kimm et al. (2002) found that among 1100 white girls and 1200 African American girls over a period of 10 years, each group demonstrated a significant decline in “habitual physical activity” participation defined as “any leisure-time activities that required energy above that required for activities of daily living” (p. 710). The results indicated that over the 10-year span of the study, the participation rate of the white girls declined by 64% while the participation rates of the African American girls declined by 100% (p. 711). Kimm et al. concluded by emphasizing that “these findings should sound an alarm, given the current

epidemic of obesity” (p. 714). This lack of physical activity participation is exacerbated by the types of activities children and adolescents are choosing instead.

Sedentary behaviors such as television watching have also had a detrimental impact on the physical activity levels of children and adolescents. Time spent viewing the television has taken the place of time once spent being physically active while the sedentary behavior also directly lowers the metabolic rate of the individual watching television. Physically active children are more likely to make physical activity a part of their daily lives through both adolescence and adulthood (CDC, 2006b). Though the importance of physical activity is well documented, the question of how much physical activity is enough has been widely debated in the literature.

Research first began focusing on the appropriate amount of physical activity in which an individual should participate to avoid unhealthy consequences in the 1950's. One of the first major studies, conducted by Karvonen, Kentala, and Mustala (1957), investigated the health effects of differing levels of intensity during exercise. This study led to Karvonen's development of a method of determining the ideal heart rate for individuals to reach during exercise to ensure specific levels of exercise intensity. This method is still the gold standard today among cardiac rehabilitation programs (Strzelczyk, Quigg, Pfeifer, Parker, & Greenland, 2001). The first notable publication of physical activity recommendations came when the American College of Sports Medicine (ACSM) released its recommendations in 1975. This report indicated

that individuals should participate in 20 to 45 minutes of exercise three to five days per week to improve or maintain cardiorespiratory fitness. These early recommendations were, however, primarily designed for use in cardiac rehabilitation settings (Blair et al., 2004). More general recommendations focused on the cardiorespiratory fitness and healthy weight of individuals were released by ACSM in the 1990's to focus on the general population. In 1998, for instance, ACSM recommended individuals participate in more than 20 minutes of exercise 3 to 5 days per week (Blair et al., 2004). Other agencies, including the CDC, US Surgeon General, National Institutes of Health, and the World Health Organization have all released recommendations since the mid-1990s that look very similar: 30 minutes or more of exercise everyday. The recommendation these agencies have made of achieving at least 30 minutes of exercise per day is focused on sedentary individuals, and a report released by CDC/ACSM notes that "additional health benefits" can be gained by increasing the frequency and intensity of exercise bouts (Blair et al., 2004, p. 916S). The Institute of Medicine (IOM) released in its 2002 report that 60 minutes of exercise daily was the minimum necessary for the average individual. However, Blair et al. (2004) indicated several flaws in the IOM report (e.g., its cross-sectional design, faulty use of available data) and noted the appropriateness of the current public health recommendations.

While this research is focused primarily on adult health needs, it has clear implications for children/adolescents. The current recommendations for the physical activity needs of children and adolescents do differ from the

recommendations offered for adults. The CDC, following the guidelines of the Department of Health and Human Services (HHS) and Department of Agriculture (USDA), recommended that children and adolescents participate in a cumulative total of a minimum of 60 minutes of exercise everyday (HHS & USDA, 2005).

Physical activity positively impacts the health of children and adolescents in a number of ways. From helping to prevent cardiovascular disease to improving psychological health, physical activity is a necessary component in all children and adolescents' lives. Although the amount of time necessary to provide the best health outcomes has been widely debated, every scholar agrees on one thing: physical activity is crucial. Simply educating young people on the positive outcomes that can be obtained by adding or increasing physical activity in daily life can have an impact on their physical and psychological health. Females, however, often have to overcome more than a lack of knowledge to be able to participate in physical activity, including gender stereotypes.

Nontraditional Activities

Gender has long been assigned to the activities in which males and females participate. The passage of time and legislation (i.e., Title IX) has done much to improve the opportunities females have for participating equally with males in sports and recreation. The most difficult barrier for many females to overcome, however, is the belief that is engrained in most individuals that certain sports and activities are only appropriate for a specific gender. Research focusing on the gender typing of sports and recreation activities is prevalent in the literature.

Metheny (1965) was among the first to thoroughly characterize sports through gender. Following data collection regarding the perceived gender appropriateness of sports, Metheny created a classification system that identified sports as either “acceptable” or “unacceptable” for each gender based upon the types of movement within an activity. For instance, activities that require physical contact were classified as unacceptable for women. The more aesthetic sports such as swimming, diving, and figure skating were seen as acceptable for women. Over 40 years later, these classifications still form the baseline for the gender-appropriateness of physical activity and sport. While Metheny’s focus was on college-age women, much research has shown that the gender appropriateness of activities is engrained in individuals long before the college years.

In early childhood, the types of games children play have long been shown to be reinforced based on gender. Lever (1976) found males to be more likely to play team sports, “war” or fantasy games in the outdoors while females were more likely to play indoors with dolls and small groups of peers. In addition, males were found to be more likely to participate in competitive games with a larger number of people while females stayed away from competition and felt most comfortable participating in pairs. These differences were thought to exist because the types of play in which children were involved appropriately prepared them for the adult roles they would be assuming. For males, this was the competitive professional world where they would be interacting with a wide range of people. Lever (1976) contended that, for females, play helps prepare them for their role in the home by nurturing their maternal instincts, and preparing them for

married life by working in pairs rather than larger groups. Surprisingly little, in terms of gender appropriateness, has changed in the last thirty years.

Even with the passage of time and crucial legislation such as Title IX to provide equal opportunities for females in sport and physical activity, many gender differences still exist. In line with Metheny's classification, sports such as football, rugby, and wrestling are still considered by children today as "male" sports while sports such as dance, aerobics, and gymnastics are still considered to be "female" sports (Colley, Griffiths, Hugh, Landers, & Jaggli, 1996; Lee, Fredenburg, Belcher & Cleveland, 1999; Riemer & Visio, 2003). Lever's distinctions have also held true over time. Males are still more likely to participate in competitive games involving a large number of participants while females are also still more likely to participate in noncompetitive games, play with dolls, and act out "domestic roles" in their play (Colley et al., 1996).

Much of this stereotyping comes from the perception of the types of skills necessary to perform certain activities. Traditionally, masculine skills are perceived to include strength, power, and competition while graceful movement defines feminine skill (Lee, et al., 1999). While some sports are beginning to become more acceptable for participation by both females and males, perceptions still differ across gender lines. Females are more likely than males to believe that certain sports are appropriate for both genders to play. For instance, females are more likely to perceive sports such as tennis, basketball, and swimming as gender neutral (Riemer & Visio, 2003). Further, while females are participating more in some traditionally "male" sports, the reverse is not true; males are not becoming

any more likely to participate in sports perceived to be feminine. Additionally, even while females are moving into more traditionally male sports, they are not necessarily being socially accepted in those domains (Riemer & Visio, 2003). This lack of social acceptance can drive some girls to assume they should not put forth effort in masculine sports because other activities are more appropriate for their effort. A number of girls will not even try because of a “fear of being unsuccessful and [the] embarrassment” that is born out of the gender typing of sport (Lee et al., 1999, p. 172). Females are often not encouraged to overcome these gender stereotypes. Landers and Fine (1996) found that the attitude of adults towards children’s participation in sports does much to reinforce gender stereotypes. For example, when interviewed, a tee ball coach noted that, “None of the girls want to be there. Not one. If I put a coloring station in the corner, every girl would be there.” This coach blames the parents for the female participants lack of enthusiasm noting, “Dads take their sons outside to throw with. Girls stay inside and play dolls” (p. 90). Landers and Fine (1996) also found coaches, in their interactions with the children, to blatantly reinforce negative stereotypes of the female athlete. One coach, after dropping the ball while trying to throw it commented to the children, “Look, I throw like a girl”; another coach, dropping a thrown ball, commented, “I’m a little girl. I can’t catch the ball” (p. 91). The attitudes of adults towards the gender appropriateness of sports helps to reinforce the gender roles they learned as children into the children of today. In order to affect the gendered sport phenomenon, the expectations adults place on children must be gender equal and start at a very early age (Landers & Fine, 1996).

Beyond the realm of sport lies another large activity area in which females' participation is lower than males': outdoor recreation. As Lever (1976) pointed out, males are more likely, as children, to participate in play outdoors. This may be a factor in why females are not participating as frequently in outdoor pursuits as males. The Outdoor Industry Foundation (2006) released a report detailing the number of females participating in outdoor sports. The results showed that only 3.1% of all females 16 and older participate in backpacking (26% of total number of backpackers), 2.2% in rock climbing (including natural, artificial, and ice-27% of total number of climbers), and only 3.7% in recreational kayaking (45% of total number of kayakers) (Outdoor Industry Foundation, 2006).

Many reasons exist for the low participation rates of females in outdoor activities. For females, low participation in outdoor activities may be as simple as females' willingness to conform to gender expectations (Bialeschki & Henderson, 1993). The outdoors has traditionally been viewed as a male domain, one in which females should not be present (Bialeschki & Henderson, 1993; Culp, 1998; McDermott, 2004). Gender roles can play an important role in deterring females from participating in outdoor pursuits (Culp, 1998). Such gender role stereotypes include such beliefs as the belief that females do not have the ability to succeed in outdoor pursuits and the belief that women should not get dirty. While women are often not discriminated against in outdoor recreation, "gender roles function as a 'subtle undermining'" of females' intentions to participate in outdoor recreation (Culp 1998, p. 366). Even when a female overcomes the gender role barriers to

participating in outdoor activities, she will often conform to the “female” role within the activity. A woman may, if canoeing with a man, automatically go to the bow of the canoe and allow their male partner to go to the stern to be in control of the boat. Thus, even while overcoming the barrier to outdoor recreation, women are still likely to take on a submissive feminine role within the activity (Bialeschki & Henderson, 1993).

Females also lack female role models in outdoor pursuits. In both the media and within social groups, females are rarely depicted participating in outdoor recreation (Culp, 1998). Compounding this lack of role models even further is the fact females are also less likely than males to be introduced to outdoor activities at a young age. Within the family, the skills necessary for outdoor recreation are often passed down from father to son while the female members of the family are left out (Culp, 1998). If these skills are not learned early on, females will be less likely to begin participation in these activities at an older age (Culp, 1998). If a female is not learning to participate in outdoor recreation at home, she must look elsewhere; however, opportunities for females are not as prevalent as those for males. While Boy Scout troops learn outdoor skills and activities, Girl Scout troops often focus more heavily on sewing and art projects (Culp, 1998). Because of a lack of role models and opportunity, females are less likely than males to participate in outdoor activities. Without participation, females are unable to build the skills, self-esteem, and self-efficacy

necessary for participation in outdoor activities. Thus, females often fear embarrassment and rejection in participating in outdoor activities around men (Culp, 1998).

This lack of opportunities leads to other problems as well. Even if a female is able to overcome the many constraints to outdoor pursuits, she often has difficulty finding other females with whom they can participate in outdoor recreation (Bialeschki & Henderson, 1993). Female peer groups in adolescence can be a large factor in helping females overcome gender stereotypes and peers may choose to pursue outdoor recreation together. However, a female's peers are just as likely to have a negative impact on her pursuit of outdoor recreation (Culp, 1998). The male peers of adolescent females often reinforce gender stereotypes (i.e., females should not participate in outdoor recreation), and females often place pressure on each other to conform to gender stereotypes. Because of these conflicting messages females receive from their female peers (overcoming gender stereotypes vs. trying to please males by conforming to gender stereotypes), females' peers play a confusing role in their decision to participate in outdoor pursuits, and oftentimes, become a constraint themselves.

Personal safety (both physical and psychological) is another constraint often noted by females when discussing outdoor recreation. Women fear for their physical safety in the outdoors. This may be directly linked to the ways in which females are socialized to believe that the outdoors is not an appropriate realm for them to be; their domain, rather, is the home (Wesely & Gaarder, 2004). Individuals often participate in outdoor recreation in secluded areas away from

both other people and potential help. For females who are already uncomfortable in the outdoors, this threat of a potential lack of safety further distances them from participation in outdoor recreation (Bialeschki & Henderson, 1993; Culp, 1998). Even the stories females are told as children, such as “Little Red Riding Hood” can play a role in socializing females to believe that the wilderness is a scary place for girls to be and that by going there, they will get hurt (Powch, 1994, p. 23).

Helping females overcome the gender typing of outdoor recreation and sport is an important task. Participation in outdoor recreation has been shown to play an important role in the empowerment of females (McDermott, 2004; Mitten, 1992; Pohl et al., 2000). Pohl et al. (2000) noted that “participating in wilderness recreation may play a great part in deconstructing gender roles and improving the status of women in society in general” (p. 428). One suggestion made by many scholars is to provide females with all-female outdoor recreation opportunities (McDermott, 2004; Mitten, 1992). Doing so can help females “live in a stereotype-free environment” and feel empowered and relaxed without the presence of men (Mitten 1992, p. 56). McDermott (2004) asserts that all-female outdoor recreation experiences allow women to take control rather than the more submissive role they are likely to play when participating in outdoor recreation with males. This allows the females to have a positive experience with their success in the activities rather than comparing their success to that of men and diminishing the quality of their experience. This experience leads females to increased self-esteem and, ultimately, a sense of empowerment (Mitten, 1992).

All-female experiences allow women to escape the “macho and sexual stuff” during outdoor recreation and allow them to focus on the activity itself (Mitten, 1992, p. 57). Females also tend to believe that in all-female groups they are able to get “unconditional support, attention, acceptance for who they are, and personal time more readily” (Mitten, 1992, p. 57). Hence, all-female experiences allow women to break free from stereotypes and freely participate in outdoor recreation.

Participation in gender-typed activities including outdoor recreation can have a considerable impact on females. Participation in outdoor recreation, specifically, has demonstrated an ability to provide females with many positive outcomes. Participation in outdoor recreation can lead females to heightened self-esteem, self-sufficiency, independence, self-trust, and confidence as well as a greater sense of authority for not only themselves, but all females (Pohl et al., 2000). Pohl et al. also postulated that participation in outdoor recreation offers females “freedom of body, freedom of mind, freedom of movement, and freedom *from* societal constraints” (p. 430). This freedom of body, the ability to divert focus “to an ideal of body function over body fashion” is reflected elsewhere in the literature as well (p. 430). Schmalz and Davison (2006) asserted that females who participate in both traditionally feminine and traditionally masculine sports have a “higher physical self-concept” than females who limit participation to traditionally feminine sports (p. 350). Each of these outcomes may be key in empowering females to make personal choices related to traditionally male activities rather than simply allowing the lasting gender stereotypes to drive their decisions related to physical activity and sport.

In addition, helping females to break gender stereotypes in activity choices as children can have an impact on the decisions they make related to physical activity later in life. Females who, as children, play games and with toys stereotypically viewed as masculine are more likely to go on to play varsity athletics in college (Giuliano et al., 2000). Even when these females do not go on to play varsity athletics in college, females who played masculine games and with masculine toys as children are much more likely to be involved with recreational college sports (Giuliano et al., 2000). Among females who participate in college athletics, as a whole they are more likely to have been involved in masculine play as children, but even within this group, variations exist. That is, females who participated as children in “particularly masculine play patterns” are more likely to participate in what Giuliano et al. (2000) define as more masculine college athletics (e.g., soccer, basketball) versus more feminine college athletics (e.g., swimming, volleyball).

Positive outcomes clearly exist when females overcome the barrier of gender stereotyping to participate in physical activity and sport. Unfortunately, American society holds females back by clearly defining sports/activities that are and are not appropriate for female participation. Even parents and athletic coaches play a role in reinforcing the gender stereotypes that exist within recreation and sport. Allowing females to experience traditionally male pursuits in a physically and emotionally safe environment among female role models can increase their physical self-concept, self-esteem, and empower them to overcome the gender typing of physical activity and sport.

Self-efficacy Theory

Bandura (1994) defined self-efficacy as one's belief in his/her own competency at a given task. Self-efficacy is based on one's efficacy expectations (the expectations of how well he/she will perform in a task) which "are a major determinant of people's choice of activities, how much effort they will expend, and of how long they will sustain effort in dealing with stressful situations" (p. 194). Bandura outlined four ways in which self-efficacy impacts human functioning.

First, Bandura (1994) discussed cognitive processes, or the processes used in the "acquisition, organization, and use of information" (p. 3). Cognitive processes include taking on and committing to challenges based upon the scenarios an individual predicts for him/herself because of his/her self-efficacy beliefs. Bandura noted that one's self-efficacy expectations directly affect the types of challenges one takes on. For instance, if a person has a strong sense of self-efficacy for a certain task, he/she will challenge him/herself more, visualize positive results, and remain committed to the challenge in a given task at a higher level than one with low self-efficacy expectations for the same task. Next, self-efficacy impacts motivational processes such as goal setting, developing strategies, and evaluating and adjusting set goals. Just as self-efficacy beliefs impact cognitive processes, they also affect the types of goals one sets, the amount of effort the individual will put into successfully achieving the goals, how long he/she will be willing to persist, and how he/she will deal with obstacles and unsuccessful performance (Bandura, 1977, 1986, 1994, 1997). The third

psychological process impacted by self-efficacy is affective process or, the process that regulates emotions such as anxiety and depression (Bandura, 1994).

Self-efficacy helps to regulate one's perception of his/her ability to deal with stressful situations (that is, how well he/she can cope) and, in turn, how threatened he/she feels in stressful situations. With high self-efficacy, a person is more likely to believe in his/her ability to cope with stress, is more likely to possess the ability to create a less-threatening environment, and is more likely to effectively control stressful thoughts (Bandura, 1997).

The final process Bandura noted is the selection process. Bandura discussed the influence self-efficacy has upon the selections a person makes in his/her life. Bandura asserted that a person will choose activities he/she believes suit his/her abilities while also avoiding situations that are beyond his/her coping abilities. These choices, rooted in self-efficacy, ultimately result in the course a person's life takes from social groups and employment to values and interests (Bandura, 1994). With an understanding of the ways in which self-efficacy affects people, the theory begins to take shape.

One major distinction Bandura made within his theory is that of the difference between efficacy expectations and response-outcome expectations. A response-outcome expectation as defined by Bandura (1977) is a person's belief that a certain behavior will result in a specific outcome. An efficacy expectation, on the other hand, is one's belief that he/she has the ability to perform a certain behavior that will then lead to a specific outcome. Bandura discussed the importance of the differentiation, as a person could understand the behavior that

would result in a desired outcome, but if he/she does not believe in his/her ability to perform the necessary behavior, this outcome expectancy will not have an effect on his/her behavior.

Bandura detailed three dimensions of efficacy expectations that impact eventual performance. First, efficacy expectations vary in magnitude. That is, each individual's efficacy expectations differ based on the level of task difficulty. While one person may possess efficacy expectations in tasks ranging from simplistic to extremely difficult, another person may only possess efficacy expectations for the simple tasks. Next, efficacy expectations vary in generality. That is, some tasks result in feelings of efficacy over very specific skills while other tasks result in general feelings of efficacy that can be applied beyond a specific situation. Finally, Bandura posited that efficacy expectations vary in strength. Weak efficacy expectations, for instance, can easily be diminished by one or two negative experiences while strong efficacy expectations will persist beyond failure (Bandura, 1977). Bandura suggested several sources through which people form these efficacy expectations.

Bandura (1977, 1986) listed four main sources through which people obtain information regarding efficacy expectations. These sources include: performance accomplishments, vicarious experience, verbal persuasion, and emotional/physiological arousal. Although not all sources are as effective in building or diminishing efficacy expectations, each does impact these expectations in some way.

Performance accomplishments provide the most significant feedback regarding efficacy expectations. Performance accomplishments are based upon a person's own successful experiences. Successes in performance increase one's efficacy expectations while failures decrease them. Failure that occurs before a person has set efficacy expectations is especially damaging to that person's sense of self-efficacy (Bandura, 1994). On the other hand, early failure, if later overcome by persistent attempts at success can increase one's belief in his/her ability to overcome obstacles and his/her efficacy expectations. Moreover, if a person always succeeds effortlessly, his/her efficacy expectations can be diminished more easily through failure (Bandura, 1977, 1986, 1994, 1997). Also characteristic of efficacy expectations increased through performance accomplishments is that these expectations can generalize to tasks and situations beyond those in which originally gained. This is due in large part to the fact that through performance accomplishments one may not only learn that he/she can be successful, but also learn effective coping strategies. That is, he/she learns how to better deal with difficult, stressful situations (Bandura, 1977). Vicarious experience can also impact efficacy expectations.

Vicarious experience is the second source of self-efficacy Bandura discussed. Vicarious experience is when one observes people similar to one's self who succeed in an activity. Observing this success builds a person's belief that he/she too can succeed at the activity (thereby, building his/her efficacy expectations). Beyond merely instilling this belief in individuals, vicarious experience also offers individuals the chance to gain real coping skills and

strategies for succeeding in activities. Vicarious experience builds a weaker sense of efficacy than performance accomplishments, as vicarious experience provides indirect evidence of one's own ability to succeed. This makes efficacy expectations gained through vicarious experience not only fragile, but also more susceptible to change (Bandura, 1977, 1986, 1994, 1997). Bandura (1977, 1986) clarified this concept further by noting that a few conditions exist that must be met to optimize the effectiveness of vicarious experience. First, vicarious experience is more effective if a person observes another, with equal skills, succeed by persevering through failure. For instance, if one were learning how to play golf, it would be more effective in building one's self-efficacy to watch a person with similar skill sets learn how to drive a ball than to watch Tiger Woods drive a ball. Additionally, it is more effective to watch a person with similar characteristics to one's self (for instance age, gender, skills) succeed as it makes the success more personally relevant. Next, Bandura noted that the behavior being observed must have clear, definable outcomes. If the outcomes are unclear, the impact of vicarious experience is likely to be lost. Finally, Bandura discussed the value of what he dubs "diversified modeling" (Bandura, 1986, p. 197). If one observes a number of individuals succeeding at a task rather than the same individual succeeding over and over, he/she will conclude that if such a wide range of people can succeed he/she can too. Verbal persuasion is the third way Bandura explained efficacy expectations could be impacted.

Simply put, verbal persuasion consists of one being told that he/she can be successful at a given activity or task. Verbal persuasion, like vicarious experience,

is a less reliable source for efficacy expectations than performance accomplishments. One reason for this is that if a person is encouraged unrealistically through verbal persuasion and then fails in action, any efficacy derived from the verbal persuasion is quickly lost. Also, it is hard to convince people who have consistently failed at tasks that they can be successful purely through the power of suggestion (Bandura, 1977, 1994). Thus, Bandura suggested that a key element in raising efficacy expectations through verbal persuasion is creating a situation in which the individual can succeed. The partnership of verbal persuasion and performance accomplishments yields a better result than verbal persuasion or performance accomplishments alone. The fourth and final source of self-efficacy that Bandura introduced is emotional and physiological arousal.

Bandura (1977, 1986, 1994) described that the emotional and physiological arousal a person experiences in a given situation gives him/her feedback on whether or not he/she should anticipate success. For instance, if a person enters a situation and experiences anxiety and stress, he/she will interpret these emotional signals as signs of low efficacy for the task and, in turn, his/her belief in his/her ability to succeed will be negatively impacted. Also, if a person always experiences a specific negative emotional response to a situation, he/she will begin to fear that situation because of the expectation of the response.

Bandura (1994, 1997) later described that this response can extend to areas such as physical activity. That is, when a person begins to feel tired while taking part in a physical activity, the fatigue is a cue that his/her physical efficacy is low. By simply changing the way an individual interprets these emotional or even physical

responses efficacy expectations can be impacted (Bandura, 1977, 1994).

Performance accomplishments, vicarious experience, verbal persuasion, and emotional and physiological arousal are the four main sources through which Bandura suggests efficacy expectations are derived. One final aspect of self-efficacy theory that Bandura detailed is the way in which individuals process the information received from these four sources.

Bandura (1977, 1986) noted that the contexts in which these sources occur affect what efficacy beliefs or expectations the individual takes from the situation. Each of the four sources can occur in contexts in which an individual will be more or less likely to gain self-efficacy. Performance accomplishments, for instance may occur within a context that could prevent the success from automatically translating into increased efficacy expectations. If an individual, for example, has been attempting to run a seven minute mile and he/she finally succeeds, the individual may recognize outside factors such as wind at his/her back, the time of day, or the elevation of the route as the reason he/she found success rather than recognizing that it is his/her skill that led to success. On the other hand, if a person fails at a task because of outside factors, but blames his/her failure on his/her own ability, the failure will be especially damaging to his/her efficacy expectations. Further, the difficulty of a task can impact the efficacy expectations that arise from success. For instance, if a person succeeds at a very trying and challenging task, he/she may take his/her difficulty in achieving success to mean that he/she has low skill thereby affecting efficacy to a lesser extent than if the person succeeded more easily in a task. Bandura suggested that to most

effectively enhance self-efficacy through performance accomplishments individuals should be placed into situations where success is virtually guaranteed. Next, the factors assisting the individual in success must be removed so the individual can feel a true sense of success. To finish, the individual must successfully seek out the activity or task on his/her own to solidify his/her efficacy expectations.

Context also has a bearing on efficacy derived from vicarious experience, verbal persuasion, and emotional arousal. As discussed previously, contextual factors influence the effectiveness of vicarious experience in impacting self-efficacy. These factors include such things as the individual's similarity to the person he/she is observing or the diversity of individuals he/she is observing. For verbal persuasion to positively impact efficacy, the individual must believe that the person offering verbal persuasion is reliable and knowledgeable. Emotional arousal can be, as Bandura described, ambiguous. In a situation with others present, an individual may react emotionally based not on the actual circumstances, but in the way those around him/her respond. Also, if an individual credits his/her emotional response to his/her shortcomings rather than to outside factors, his/her efficacy will be more detrimentally affected (Bandura, 1977). Since its introduction, scholars have utilized Bandura's concept of self-efficacy as a means of explaining why individuals do or do not take on physical activity, and as a modifiable factor to be focused on in physical activity interventions.

Self-Efficacy and Physical Activity

Self-efficacy plays an important role in physical activity choices. Self-efficacy has been shown to be a strong predictor of physical activity or exercise adoption, maintenance, and perseverance as Bandura's self-efficacy theory proposes. First, self-efficacy impacts the likelihood of an individual becoming involved in physical activity.

An individual's self-efficacy is directly related to his/her participation (or lack of participation) in physical activity (Norman et al., 2005). This basic concept has been widely investigated and supported particularly with both black and white children and adolescents. In a study of both black and white adolescent girls Motl et al. (2002) found that "self-efficacy [i]s independently related to moderate and vigorous physical activity, and it account[s] for the effect of intention on physical activity among...adolescent girls" (p. 464). That is, self-efficacy is the mediator between intention to be involved in physical activity and actually becoming involved in physical activity. This has been supported elsewhere in the literature as Sniehotta et al. (2005) found that although an individual may have the intention to act, without strong perceived self-efficacy the individual would not do so. Self-efficacy is one key factor in determining the leap from intentions to actual behavior in adopting and maintaining an exercise routine. Similar results have been found among preadolescents (Annesi, 2006). Following completion of a 12-week intervention program, self-efficacy was found to be "significantly related to changes in voluntary physical activity" (p. 519). Trost et al. (1999) noted similar results in studying black youth with low activity

levels. Among minorities between the ages of 11 and 12 attending public schools in South Carolina, physical activity self-efficacy varied significantly between female children determined to be “active” and those determined to be “low-active.” That is, “active” females demonstrated significantly higher scores in perceived physical activity self-efficacy. Active participants were “more confident in their ability to overcome barriers to physical activity, ask parents to provide opportunities for physical activity, and choose physically active pursuits over sedentary ones” (Trost et al., 1999). This relates directly to Bandura’s (1977, 1994) notion that individuals with high self-efficacy are better equipped to cope with difficult situations (e.g., overcoming barriers, asking parents for physical activity opportunities), and taking on challenges (choosing physical activity versus sedentary activity) to become involved in physical activity. Trost et al. (1999) also offered an important recommendation: it is vital that efforts be focused on “boost[ing] self-efficacy perceptions of low-active African-American youth” in order to effectively increase their physical activity levels (p. 35).

Hagger et al. (2001), examining the relationship self-efficacy plays with physical activity among “young people”, also found that self-efficacy was positively related to actual physical activity participation. Not only was self-efficacy found to have a strong influence on physical activity intentions, but it was also found to have a larger effect on actual participation. That is, self-efficacy effectively reduced the impact that an individual’s negative attitudes have on his/her intentions to take part in physical activity. Thus, not only does self-efficacy simply increase the likelihood an individual will take on physical

activity, but it also reduces the likelihood that other forces (i.e., negative attitudes towards physical activity) will deter his/her participation in physical activity. In keeping with Bandura's (1997) hypothesis that self-efficacy is effective in helping an individual overcome external factors (i.e., barriers) to physical activity, an individual's self-efficacy can effectively allow him/her to overcome the "salient external constraints" he/she may face (Hagger et al., 2001, p. 721). Specific external constraints, such as the socioeconomic status of individuals, have been investigated to determine how individuals can overcome such constraints in order to participate in physical activity (Kloek et al., 2006). Among factors determined to allow individuals who were "lower educated, had a low health locus of control, had less knowledge of physical activity issues, and presented other risky health behaviors" to overcome these constraints to physical activity was his/her self-efficacy expectations (p. 325). The higher these self-efficacy expectations, the more intensely the individual will be involved in physical activity. That is, self-efficacy expectations are key in helping low-income individuals from "deprived neighborhoods" overcome the endless constraints to physical activity and make physical activity a part of daily life (p. 329).

In further support of self-efficacy's role aiding an individual in overcoming barriers to physical activity, Motl et al. (2005) noted that self-efficacy plays an important role in getting an individual initially involved in physical activity. Self-efficacy is related to an increase in the initial levels of both moderate and vigorous physical activity among adolescent girls. This increase

occurs because of the role self-efficacy plays in helping the individual overcome barriers to adoption of physical activity (Motl et al., 2005).

Bandura's notion that self-efficacy has an impact on the amount of effort an individual will exert, and how long he/she will persevere in a task has also found empirical support. Dawson and Brawley (2000) found self-efficacy to be the mediator between goals and exercise behavior by influencing "choice behavior, effort expenditure, and perseverance" (p. 317). That is, without high-perceived exercise self-efficacy, individuals will be less likely to not only set goals, but also stick to them and persevere through difficulty. Not only did Dawson and Brawley find self-efficacy to significantly predict exercise attendance at the beginning of a program, but also, by mid-program the authors note, self-efficacy "significantly predicted post-class exercise intensity" (p. 326). Among preadolescents, self-efficacy is significantly correlated with long-term exercise maintenance (Annesi, 2006). Specifically, self-efficacy is related to the maintenance of "freely chosen physical activity" (p. 519). This is important as Annesi (2006) contended, because maintenance of freely chosen physical activity "may be an important factor for overall health improvement in children" (p. 520). When comparing individuals who persevere in physical activity and those who do not, self-efficacy offers an important window into why some individuals cease participation while others do not. After an initial adoption of physical activity, individuals who persevere in the activity demonstrate significant increases in self-efficacy. Conversely, individuals who cease participation in physical activity

demonstrate a significant decrease in self-efficacy from the point of adoption to the point of drop-out (Jones, Harris, Waller, & Coggins, 2005).

Self-efficacy plays an important role in both the adoption and maintenance of physical activity. Attempting to affect the self-efficacy of an individual may have a significant impact on his/her participation in physical activity. One avenue that can be utilized to impact physical activity participation is a physical activity intervention focused specifically on increasing the individual's physical activity self-efficacy. Much support for the effectiveness of focusing physical activity interventions on self-efficacy exists within the literature.

Self-Efficacy Interventions

A large base of support exists within the literature for the importance and effectiveness of physical activity interventions focused on improving the self-efficacy of participants. Interventions lasting from a few hours to one-year have been effective in positively influencing the self-efficacy of individuals. This is important because, as the literature has demonstrated, self-efficacy is a key factor in the physical activity levels of individuals.

Many scholars have discussed the importance of modifying the self-efficacy of individuals in order to increase physical activity behaviors. Norman et al. (2007) asserted that self-efficacy is an "important modifiable factor that can be targeted in health-promotion interventions" (p. 914). Specific types of self-efficacy have emerged in the literature as being highly effective in influencing different aspects of physical activity (e.g., adoption versus maintenance of physical activity). Motl et al. (2005) emphasized that barriers self-efficacy should

be a focus of physical activity interventions. This focus, they discuss, will allow individuals to overcome the initial barriers to beginning participation in physical activity. In comparison, more “global” physical activity self-efficacy should be targeted in order to influence the individual’s long-term behavior related to physical activity (p. 110). Sniehotta et al. (2005) offered the recommendation that physical activity “interventions should focus on...heightening [participant’s] self-efficacy” and that doing so will “facilitate long-term behaviour changes” (pg. 157).

Research supports the effectiveness of focusing on self-efficacy in interventions aimed at increasing the physical activity of preadolescent and adolescent females. Trost, et al. (1999) stressed the importance of “cultivat[ing] positive beliefs about physical activity” (i.e., physical activity self-efficacy) in interventions directed specifically at adolescent African American females (p. 35). Motl et al. (2002) indicated that self-efficacy should be a “target of interventions designed to increase vigorous physical activity in Black and White adolescent girls” (p. 466). In order to increase physical activity levels among African American sixth-graders, Trost et al. (1999) emphasized that a “positive relationship between physical activity self-efficacy and objectively measured physical activity status” exists and, thus, self-efficacy should be targeted in physical activity interventions (p. 33). Not only do physical activity interventions focusing on self-efficacy find support among scholars, such interventions also find empirical support within the literature for their effectiveness.

Interventions of all types have shown positive results in increasing physical activity levels of participants. These interventions range in length from five minutes to one year. Saksvig et al. (2005) examined how a yearlong intervention targeting healthy eating habits and physical activity impacted the self-efficacy of its participants. Participation in the intervention for both healthy eating and exercise significantly increased the participant's self-efficacy scores. The authors also found that self-efficacy was important in moderating between knowledge gained in the intervention and actual changes in behavior. That is, as supported in the literature, self-efficacy provided the link between intentions and behavior. A school based intervention spanning one year aimed specifically at increasing the physical activity self-efficacy of adolescent females to impact their physical activity levels showed promising results (Dishman, et al., 2004). The authors determined that the intervention "had a direct effect on self-efficacy" and that "increased self-efficacy directly results in increased physical activity among adolescent girls" (p. 634). In addition, the findings of this study along with other existing empirical support "encourages the use of self-efficacy as a mediator variable in interventions designed to increase physical activity among adolescent black and white girls" (p. 634). Physical activity interventions focusing on increasing self-efficacy do not, however, have to last for a full year in order to be successful.

A six-month physical activity intervention resulted in both increased physical activity levels and physical activity self-efficacy levels among the adolescent female participants (Simon et al., 2004). The scholars posit the

importance of “addressing knowledge, behaviour changes, and offering new opportunities to be active in everyday life” as necessary aspects of interventions aimed at increasing the physical activity level among adolescents (p. S102). In a 24-week physical activity intervention, participants showed “significant increases in energy expenditure and cardiorespiratory fitness” both mid-program and long-term (Dallow & Anderson, 2003, p. 380). In turn, the participants also demonstrated a significant increase in self-efficacy scores, specifically those related to barriers to physical activity (e.g., being physically active in poor weather, on vacation, etc.). The authors conclude by indicating that self-efficacy theory is a key factor in “enhanc[ing] the likelihood for increasing physical activity in sedentary individuals” and should be used as part of “successful interventions” (p. 380).

Shorter interventions have also been found to successfully impact self-efficacy changes in children. A 12-week program run by a YMCA was studied to determine significant changes in self-efficacy following the completion of an intervention that focused primarily on introducing children to a regular physical activity routine (Annesi, Westcott, Faigenbaum, & Unruh, 2005). This study examined exercise barriers self-efficacy and found that significant increases in exercise barriers self-efficacy were found in nine to ten and eleven to twelve year old females. Annesi (2006) also found a 12-week program to be successful in increasing the physical activity levels of preadolescents by significantly increasing task self-efficacy (e.g., self-efficacy for soccer) and exercise-related self-efficacy. The combination of a focus on task self-efficacy and exercise-

related self-efficacy accounted for a greater change in actual physical activity behaviors than either did alone. This suggests that interventions should be focused on both helping an individual increase his/her self-efficacy to initiate participation in physical activity, and then nurture his/her self-efficacy for maintaining his/her physical activity (Annesi, 2006).

Interventions involving only one one-time treatment have also found success in positively influencing the self-efficacy expectations of participants. For example, individuals who took part in a one-time strength-training program demonstrated increased levels of self-efficacy for the task (Latimer & Ginis, 2005). The participants in the intervention saw significant increases in self-efficacy, and this increase was a “determinant of motivation to become more physically active” (p. 137). A single day, one-time intervention can effectively increase an individual’s self-efficacy and his/her likelihood of becoming physically active.

Self-efficacy interventions lasting only a few minutes have also shown encouraging results. Brown and Malouff (2005) focused on children who had suffered a sport-competition defeat and the effectiveness of a self-efficacy intervention on lessening the blow of that defeat on their self-efficacy. Children who spent less than five minutes in a self-efficacy intervention showed significantly higher self-efficacy post-competition loss than participants who did not receive the intervention. Interventions focusing on self-efficacy can be effective in positively influencing the self-efficacy of those involved. Such interventions focused on increasing physical activity levels have also

demonstrated an ability to increase the likelihood that individuals who take part will exhibit real behavioral changes in physical activity levels.

Overweight and the related health effects are closely connected with low levels of physical activity. In order to attempt to ward off such health problems, it may be necessary to help individuals initiate or increase physical activity levels. For females specifically, one step in this process is to introduce activities traditionally viewed as appropriate for males only. Doing so increases the number of choices for physical activity females feel are appropriate for participation. Next, self-efficacy should be a focus in attempting to change individuals' physical activity habits. Self-efficacy is an important mediator between the intention to be physically active and actually becoming involved in physical activity. Because of this, in attempting to increase an individual's physical activity levels, it is important to focus interventions on the individual's physical activity self-efficacy. Such interventions lasting in lengths ranging from one year to a few minutes have shown positive results in increasing the physical activity self-efficacy of individuals. This evidence indicates that such interventions should be put into place in order to effectively increase the physical activity levels of sedentary or low active individuals and help prevent the possible complications that may arise from low levels of physical activity.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to examine whether participation in the Finding Your Voice program would help increase the participants' physical activity self-efficacy. Participants took part in a two-day camp at Clemson University's Outdoor Lab. During this time, the participants interacted with a wide range of mentors and instructors who were trained in the theoretical framework surrounding the study: self-efficacy theory. Both prior to and following participation in the camp, the participants completed questionnaires to allow for measurement of their physical activity self-efficacy. This data was statistically analyzed to determine what impact, if any, the Finding Your Voice program had on the participants' physical activity self-efficacy scores. The following sections describe this process in further detail.

Treatment

The Finding Your Voice program was a partnership between Clemson University's Department of Parks, Recreation, and Tourism Management, Women in Science and Engineering program (WISE), Leisure Skills program, and Outdoor Lab. The program was aimed at increasing the knowledge of 10 to 13 year old females in the areas of female health and nutrition, body image, Internet safety, nontraditional physical activities (i.e., those traditionally viewed as

appropriate for only males, or those not traditionally available to preadolescent females in Upstate South Carolina), and nontraditional career opportunities.

Target outcomes of the program included increased self-efficacy, self-esteem, and perceived competence, and the positive self-development and self-empowerment of the participants. A major goal of the program was to equip these females with both the abilities and the self-efficacy needed to make healthy choices related to physical activity (i.e., choosing to take part in physical activity because of an enhanced understanding of the mental and physical health benefits while also having an increased self-efficacy to try new physical activities). These goals were met through educational sessions aimed at informing the participants about each of these topics. The sessions were held during a two-day residential camp at Clemson University's Outdoor Lab. Participants arrived on Friday afternoon and chose three leisure skills sessions and two educational sessions to attend. Each session had a cap for the number of participants who could choose to participate in the activity. The leisure skills sessions that the participants were able to choose from included such sessions as rock climbing, backpacking, yoga, BOSU, rugby, and field hockey. The educational sessions from which the participants were able to choose were nutrition, body image, self-esteem, and college life. All participants also took part in educational sessions on journaling, nontraditional careers (such as those in science, math, and engineering), and Internet safety. Females led all of the leisure skills and educational sessions throughout the weekend providing the participants with female role models in every session.

Participants were also provided with information on each of the activities offered during the camp. This information was compiled into a binder that each participant received when she arrived at the camp. Session leaders were then able to refer to the information included in the binder while teaching/working with the participants. The binder included not only factual information on the topics/activities covered, but also provided information on how to continue participation in the physical activities after camp ended. The information included alternative options for participating in each activity by offering ideas for participation not requiring large monetary expenditures or extensive travel. For instance, the backpacking section included a map of local trails within Anderson, Pickens, and Oconee counties in Upstate South Carolina.

Participants

Study participants were registered participants of the Finding Your Voice program run by the Department of Parks, Recreation, and Tourism Management at Clemson University. The participants for the program itself were drawn from Anderson, Oconee, and Pickens counties in South Carolina. Guidance counselors from 18 middle schools were contacted and given information about the Finding Your Voice program. After being given a description of Finding Your Voice, the counselors were asked to identify 10 to 13-year-old girls who they felt could benefit from such a program. The counselors were charged with defining in what ways a child may “benefit” from the program. When the counselors responded with interest, registration packets were mailed out and the counselors were asked to distribute the registration packets to the potential participants. The only

requirements for participation were that the student had to be female, between the ages of 10 and 13, and a resident of Oconee, Anderson, or Pickens counties in South Carolina.

The registration packet consisted of consent forms for the activities from which the participants could choose, parental consent and child assent forms for participation in the research portion of the camp (see Appendices B and C), medical background forms, and informational forms about the program itself. Parents/guardians were made aware that denying consent for their child's participation in the research study would, in no way, impact the ability of their child to fully participate in the camp. Forty participants took part in the Finding Your Voice camp.

Instructor Training

In an attempt to make sure that self-efficacy was a focus in the leisure skills sessions, all instructors took part in a self-efficacy training. This training focused on self-efficacy theory and how to best cultivate self-efficacy in the Finding Your Voice participants. Specifically, the focus was on the four main sources through which efficacy expectations are built: performance accomplishments, vicarious experience, verbal persuasion, and physiological/psychological arousal. The instructors were given ideas for integrating these four self-efficacy sources into the activities they were teaching. By doing this, instructors were able to provide an environment conducive to providing feedback for efficacy expectations for the participants. For example, in reference to performance accomplishments, instructors were told to create an

experience in which every participant could find success. Instructors then brainstormed ways to include varying levels of difficulty within their activity in order to allow all of the participants to succeed. The importance of positive verbal feedback was also impressed upon the instructors as well as the self-efficacy boost that positive verbal feedback, when coupled with a successful performance, could provide. The importance of using the participants as the models for their peers was also emphasized. The instructors learned how important it is for an individual to see many like individuals succeed in a task and that such models could potentially provide increased levels of self-efficacy to the participants (Bandura, 1986). Instructors were also told to watch for any signs that participants were either physically or emotionally struggling. That is, if during rugby, an instructor saw that a participant looked tired, the instructor could approach her and let her know that it is ok to be tired, and that everyone gets tired playing rugby. By impressing the importance of each of the four sources of self-efficacy while providing program related examples, it was hoped that each instructor and counselor would be better prepared to focus on self-efficacy within the Finding Your Voice program.

During the program itself, several members of the camp staff, also trained in self-efficacy, observed the instructors as they taught the leisure skills sessions. The observers' role was to note the uses of the four sources of efficacy expectations (performance accomplishments, vicarious experience, verbal persuasion, and physiological/emotional arousal) by the instructors.

Procedures

The study followed a pre-experimental design, as there was no control group and the study included only a pre-test, treatment, and post-test. Data was collected twice over the course of Finding Your Voice using a single measure. The study participants completed a pre-test physical activity self-efficacy questionnaire prior to the start of the two-day Finding Your Voice Program. This provided the baseline measure of self-efficacy for the participants. Immediately following the conclusion of the program, the participants completed a post-test physical activity self-efficacy questionnaire.

Data Collection

A physical activity self-efficacy measure was used as the data collection instrument. The survey took approximately five to ten minutes for the participants to complete. The participants completed both surveys in an indoor conference room at Clemson University's Outdoor Lab. The Principal Investigator (PI) and Co-Investigators (Co-I) personally administered the instrument for the pre-test and post-test. The PI and Co-I were on hand throughout the duration of the survey to answer any questions the participants had. Before the data collection began, the PI and Co-I reviewed the rights of the participant with each study participant. Each participant was reminded that participation in the study was completely voluntary and they could cease participation at any time.

Instrument

The instrument was a self-administered on-site survey. The participants' were first asked demographic questions including their age, race, and family

status. A task-specific self-efficacy scale was used to measure the participants' physical activity self-efficacy. The scale was developed by Saunders et al. (1997) specifically to measure the physical activity self-efficacy beliefs of children. The scale, on statistical analysis, was determined to have significant validity, internal consistency reliability, and test-retest reliability (Saunders et al., 1997).

The scale consisted of questions addressing three topics: support seeking, barriers, and positive alternatives. The support seeking factor included questions such as, "I think I can ask my parent or other adult to sign me up for a sport, dance or other physical activity" and "I think I can ask my best friend to be physically active with me." The barriers factor included such questions as, "I think I can be physically active no matter how tired I may feel" and "I think I can be physically active, even if I have homework." The positive alternatives factor included questions such as, "I think I can be physically active after school even if I could watch TV or play video games instead" and "I think I can be physically active after school even if my friends want me to do something else" (Saunders et al., 1997).

Bandura discussed the importance of "multifaceted" self-efficacy scales as being better predictors of behavior than scales focusing on a single factor within self-efficacy beliefs (Bandura, 2006). That is, if only questions regarding barriers were asked of a child to determine his/her physical activity self-efficacy, he/she may score very high. However, this score would not provide a good predictive tool because though the child may believe he/she can be physically active even if tired, he/she may not believe he/she could ask for a ride to an activity. Thus,

he/she may not actually participate, and a scale focused solely on barriers would not predict this lack of participation. If, however, the scale were multifaceted as Bandura advised, it would better predict the participant's lack of participation. This is important as Bandura (2006) asserted because "multifaceted scales not only have predictive utility but provide insights into the dynamics of self-management of behavior" (p. 310). Hence, not only can such a scale predict behavior, but it can also help to uncover the reasons why an individual may not be participating, for example, in physical activity.

The participants answered each question with an answer ranging from zero to one hundred indicating how confident she was that she could follow a regular physical activity routine in a given situation. To calculate the self-efficacy scores of the participants, all of the given answers were summed and divided by the total number of questions answered. The pre-test and post-test scores were then compared statistically to look for any significant differences.

Data Analysis

Data analysis was completed using SPSS statistical software. To test hypothesis one (the Finding Your Voice program will have no significant positive impact on the immediate post-program physical activity self-efficacy of the participants) a paired t-test was used to compare the pre- and post-test self-efficacy scores of the participants.

Hypothesis two (the participants' race will have no significant impact on the change in physical activity self-efficacy following the completion of the Finding Your Voice program) was tested through the use of a one-way ANOVA.

Because the Asian and Hispanic/Latina categories only contained one participant each, all of the non-white race categories (African American, Asian, and Latina) were combined to create two separate race categories: white and non-white. The difference in pre- and post-test self-efficacy scores were then determined by subtracting the pre-test self-efficacy score from the post-test self-efficacy score. This difference was then used in determining differences in change by race. The range of possible scores was 0 to 100.

CHAPTER IV

RESULTS

The purpose of this study was to determine if the Finding Your Voice program influenced the physical activity self-efficacy of the participants. In addition, this study attempted to determine if any differences existed between the participants of different races and the impact the program had on their physical activity self-efficacy. The following is a synopsis of the demographics of the participants, the research questions, hypotheses, and results of the statistical analysis of this study.

Description of Participants

All 40 participants in the study were 10 to 13 year-old females with 38 (95%) being either 11 or 12 years old (Table I). Most participants (75%) were in the sixth grade, while 15% were in seventh, and 7.5% were in the fifth grade at the time of the Finding Your Voice program (Table I).

Table I. *Demographics*

	Possible Answers	Frequency	Percent	Mean	Std. Deviation
Age				11.28	0.55
	10	1	2.5%		
	11	28	70.0%		
	12	10	25.0%		
	13	1	2.5%		
Grade Level				6.08	0.48
	5 th	3	7.5%		

Table I. Continued *Demographics*

	6 th	30	75.0%		
	7 th	6	15.0%		
	Missing	1	2.5%		

The participants reported as white (non-hispanic) (55%), African American (37.5%), Asian (2.5%), and Hispanic/Latina (2.5%) (Table II).

Table II. *Race*

	Possible Answers	Frequency	Percent	Mean	Std. Deviation
				N/A	N/A
	African American	15	37.5%		
	Asian	1	2.5%		
	White (Non-Hispanic)	22	55.0%		
	Hispanic/Latina	1	2.5%		
	Missing	1	2.5%		

Sixty-seven percent reported having at least one sister and 60% reported having at least one brother. Of these, however, only 50% live with their brother(s) and 48% with their sister(s) full time (Table III). Just less than half of the participants (47.5%) reported living with both parents and 52.5% reported living with only one or no parent (Table III).

Table III. *Family*

	Possible Answers	Frequency	Percent	Mean	Std. Deviation
Brothers				1.67	0.48
	0	12	30.00%		
	1	15	37.50%		
	2	4	10.00%		
	3	4	10.00%		
	4	1	2.50%		
	Missing	4	10.00%		
	Possible Answers	Frequency	Percent	Mean	Std. Deviation
Live w/ Brothers?				N/A	N/A
	Yes	14	58.30%		
	No	6	25.00%		
	Sometimes	4	16.70%		
Sisters				1.68	0.47
	0	13	32.50%		
	1	18	45.00%		
	2	5	23.50%		
	3	2	5.00%		
	Missing	2	5.00%		
Live w/Sisters?				N/A	N/A
	Yes	11	48.00%		
	No	8	34.80%		
	Sometimes	4	17.40%		
Live w/Parent?				N/A	N/A
	Yes, both	19	47.50%		
	No, neither	2	5.00%		
	Only One	19	47.50%		

Additionally, 92.5% reported that they “like to try new sports,” 95% indicated that they “like to try new physical activities,” and 100% reported that they “enjoy sports and physical activities” (Table IV).

Table IV. *Interest in Sport and Physical Activity*

		Frequency	Percent	Mean	Std. Deviation
Like to try new sports?				N/A	N/A
	Yes	37	92.5%		
	No	2	5.0%		
	Missing	1	2.5%		
		Frequency	Percent	Mean	Std. Deviation
Like to try new physical activities?				N/A	N/A
	Yes	38	95.0%		
	No	2	5.0%		
Enjoy sports and physical activities?				N/A	N/A
	Yes	40	100.0%		
	No	0	0.0%		

The data from the physical self-efficacy survey were entered and analyzed using SPSS statistical software. All 40 participants completed both the pre- and post-program self-efficacy survey. The self-efficacy scores were determined by summing the given answers and dividing by the total by the number of questions

answered. The range of possible scores was 0 to 100. All participants answered all 18 questions on the physical activity self-efficacy instrument.

Research Questions and Hypotheses

Physical Activity Self-efficacy

Research Question 1: Does the Finding Your Voice program positively impact the physical activity self-efficacy of its participants?

Hypothesis 1: The Finding Your Voice program will have no significant impact on the immediate post-program physical activity self-efficacy of the participants.

A paired t-test was run comparing the pre- and post-test self-efficacy scores of the participants to determine any statistically significant differences. A statistically significant difference was determined to exist between the pre- and post-test self-efficacy scores of the participants ($t = 3.912, df = 39, p = .000$) in a positive direction (Table V). The mean self-efficacy score rose from 86.1736 at pre-test to 91.8194 at post-test. Therefore, hypothesis one was rejected.

Table V. *Comparison of Pre-program Self-efficacy and Post-program Self-efficacy Scores*

	Pre-test Mean	Post-test Mean	N	df	t	p
Physical Activity Self-efficacy	86.1736	91.8194	40	39	3.912	.000

Change in Self-efficacy by Race

Research Question 2: Does the race of the participant influence the impact of the Finding Your Voice program on physical activity self-efficacy?

Hypothesis 2: The participants' race will have no significant impact on the change in physical activity self-efficacy following the completion of the Finding Your Voice program.

A one-way ANOVA was run to determine if a relationship existed between the participant's race and her overall change in self-efficacy from pre- to post-program. Due to small sample sizes, all of the non-white race categories (African American, Asian, and Latina) were combined to create two tested race categories: white and non-white. The analysis determined no significant difference in change in self-efficacy based on race ($F = .100, p = .754$) (Table VI). Therefore, we failed to reject the null hypothesis.

Table VI. *Comparison of Change in Self-efficacy by Race*

	<i>df</i>	F	<i>p</i>
Between Groups	1	.100	.754

Table VII. *Summary of Findings*

Objective	Findings
1. To determine the difference between the participants' pre- and post-test self-efficacy scores	There was a statistically significant increase in the self-efficacy scores of the participants from pre- to post-program
2. To determine if the participants' race impacts physical activity self-efficacy from pre- to post-program.	Race did not significantly impact the change in physical activity self-efficacy from pre- to post-program

CHAPTER V

DISCUSSION

The primary purpose of this study was to examine whether participation in the Finding Your Voice program would help to increase the participants' physical activity self-efficacy. The secondary purpose of this study was to explore the participants' race and the impact it may have on the change in physical activity self-efficacy from pre- to post-program. The results indicate that a physical activity intervention can have a positive impact on the physical activity self-efficacy of the participants immediately following the intervention. Further, this study attempted to determine if the participant's race had an influence on her change in physical activity self-efficacy from pre- to post-program. Race was found to have no significant influence on the participants' self-efficacy score change. The findings of this study would suggest that participation in a physical activity intervention can have a significant positive impact on the physical activity self-efficacy beliefs of the participants regardless of race.

Summary of Findings

The three main hypotheses of this study were tested using univariate statistical analysis. A paired t-test was used to determine that there was a significant difference between the participants' pre-program physical activity self-efficacy scores and their post-program physical activity self-efficacy scores. A

one-way ANOVA was used to examine the relationship between race and mean change in self-efficacy from pre- to post-program. Through the analysis it was determined that race did not significantly impact the change in the participants' self-efficacy from pre- to post-program.

Discussion

In line with current research, this study supports the notion that self-efficacy is a modifiable factor that can be targeted and positively impacted in interventions (Annesi et al., 2005; Annesi, 2006; Brown and Malouff, 2005; Latimer and Ginis, 2005; Saksvig et al., 2005). Specifically, this study indicates that the Finding Your Voice program, as carried out, had a positive influence on the participants' self-efficacy scores. These results are promising as according to self-efficacy theory, an individual's self-efficacy for a specific task (i.e. physical activity), weighs heavily on his/her "choice of activities, how much effort they will expend, and of how long they will sustain effort in dealing with stressful situations" (Bandura, 1994, p. 194). Thus, according to self-efficacy theory, the significant change in the participants' self-efficacy scores indicates that actual behavioral changes should follow.

Further, the research found that the participants' race did not have an impact on the effects of the program on self-efficacy. That is, there was not a significant difference in the mean change in physical activity self-efficacy scores from pre- to post-program between white and non-white participants. This supports research by Trost, et al. (1999) that self-efficacy interventions are important and effective among adolescent African American females (p. 35). This

finding is also supported by Motl et al. (2002) who noted that self-efficacy should be a “target of interventions designed to increase vigorous physical activity in Black and White adolescent girls” (p. 466).

Although statistical analysis was not completed in regard to the specific influence certain aspects of the Finding Your Voice program may have had on the participants’ physical activity self-efficacy, there are built-in features of the camp that may have influenced the significant change in self-efficacy scores from pre- to post-program demonstrated by the participants. To create an atmosphere during Finding Your Voice most conducive to generating positive self-efficacy beliefs in the participants, most Finding Your Voice instructors and counselors took part in a training on the theoretical framework of self-efficacy theory with particular focus on the four sources of self-efficacy Bandura (1977) discussed. Thus, throughout the Finding Your Voice weekend, performance accomplishments, vicarious experience, verbal persuasion, and physiological/emotional arousal were the focus of the instructors during the activity sessions.

Performance accomplishments are, as stated by Bandura (1977), the most effective of the four sources from which individuals obtain efficacy expectations. In order to create a setting in which all participants could find actual physical success (i.e., performance accomplishments) in the activities in which they chose to participate, instructors were given the freedom to adjust the difficulty of the activity in order to ensure success. Naturally, not all participants succeeded on every skill or at each new activity. As such, the instructors focused on finding ways to allow the participants to be successful. For instance, if during rock

climbing a participant was struggling with one of the climbing routes, she was given the opportunity to climb a different route until she found success. As Bandura (1977) noted, such a situation, in which failures are overcome by success (e.g., failing to climb a route successfully, but then finding success on a different route), can lead to a heightened sense of self-efficacy for that task as the individual learns she can overcome failure in the task. The participants' vicarious experience was also influenced by the instructors and the design of the program.

In order to focus on creating positive vicarious experiences, session instructors followed Bandura's proposal that individuals are more likely to believe in their own ability to succeed by watching someone else succeed in an activity based on his/her similarity to the model. Thus, instructors focused on using the participants as models for each other by making the participants aware of the success of others. By using the participants as the main models for each other, the three conditions that Bandura (1977) noted as highly important to effective vicarious experience were met: similar skill sets, similar characteristics, and diversified modeling. The physical activities for the program were largely chosen based on the lack of opportunity for females in Upstate South Carolina; in turn, the likelihood that a participant was skilled because of previous exposure to the activity was, while not eliminated, lowered as much as possible. This allowed for the largest possible number of participants to be equally talented at the physical activities. Thus, as one female (the model) found success, another participant was more likely to believe in her own ability to do well as the model (someone who was participating in the activity for the first time) had been successful. Next,

Bandura (1977, 1986) discussed the importance of the models having similar characteristics (i.e. age, gender) in providing positive vicarious experience feedback. These similarities were built into the program, as all participants were females age 10-13, from one of three counties in South Carolina. Furthermore, because the instructors were the first models that each participant viewed, all instructors chosen to run the program were female. This was done in an attempt to provide the participants with a like model from whom they could learn. In addition, each session had at least 10 participants with most having 15 or more. This allowed for an environment in which participants would have the opportunity to see many of their peers succeed. Bandura (1986) noted the importance of this “diversified modeling” as allowing individuals to observe a wide range of people succeed, thereby increasing his/her own ability to infer that the success of others may translate in his/her own ability to be successful. Verbal persuasion was also a focus during the physical activity sessions

In order to create a positive environment of verbal persuasion, the importance of positive verbal reinforcement was conveyed to the instructors. Instructors were also warned that unrealistic verbal reinforcement could be more detrimental to the self-efficacy of participants than no verbal feedback at all (Bandura, 1977, 1994). Additionally, on many occasions during Finding Your Voice, both in large group and small group settings, the instructors conferred upon the participants how important it was to provide verbal encouragement to their peers. As a result, the participants not only received positive verbal persuasion from the instructors and counselors, but also from other participants.

Physiological/emotional arousal was the final source of efficacy expectations concentrated on by the instructors.

Instructors also focused on the final source of self-efficacy expectations, physiological/emotional arousal, throughout the duration of the program. If during the program participants expressed such feelings as stress, fear, or physical fatigue, they were encouraged that it was normal to feel that way. For instance, during the rock climbing session, several participants articulated a fear of heights. In response, the instructor conveyed to the girls her own fear of heights and noted that most people feel that way when they rock climb. In addition, the instructor noted that overcoming such a feeling and getting to the top of the climb can be part of what makes rock climbing so fun and rewarding. By highlighting how natural such feelings are, participants were allowed the best chance at identifying this physiological/emotional arousal as nothing more than a natural reaction rather than an emotional or physical shortcoming (Bandura, 1977, 1994). In designing the program, one other specific consideration was made relating to creating an environment as positive and supportive of growth as possible.

In line with Mitten's (1992) recommendations, one final aspect of the program that may have led to the success of boosting the participants' self-efficacy is the fact that every individual involved in the program, from participants to instructors to counselors, were female. All-female experiences can create a more positive setting for females by providing a stereotype-free environment and can lead females to increased self-esteem and a sense of empowerment (McDermott, 2004; Mitten, 1992). Moreover, such experiences can

allow females to feel as though they have unconditional support, attention, and acceptance for who they are (Mitten, 1992). Although no analysis was conducted to statistically analyze the effect each of these factors may have had on the physical activity self-efficacy of the participants, these factors were a primary focus of the program. In view of this, it is hypothesized that these focus points may, specifically, have helped in creating the significant increase in the participants' physical activity self-efficacy scores.

Implications

Research has demonstrated that the attrition rate for physical activity is high among preadolescent and adolescent females (Kimm et al., 2002). This is important because physical activity is one component of a healthier lifestyle that experts agree on as necessary for success in losing weight and improving health in individuals of all ages. The overweight and obesity problem in the United States today is clear. The implications of overweight and obesity reach much beyond the individual dangers and into society as a whole. Without intervention, it seems that the problem of overweight and obesity will only continue on its current upward trend. Recreation professionals can, and often should be the individuals on the frontline of this battle against overweight and obesity by promoting not only physical activity, but also the strategies individuals need to stay committed to physical activity. The findings of this study reveal that a simple, two-day program, with emphasis on increasing the self-efficacy of the participants may have a significant impact on immediate post-program changes in physical activity self-efficacy. As Bandura and fellow scholars (Annesi, 2006; Motl et al., 2002;

Saksvig et al., 2005) have agreed upon, self-efficacy is not only a key factor in individuals' willingness to adopt and maintain exercise, but is also one that can be influenced and heightened. If programs such as Finding Your Voice continue to show promising results, they can be replicated (particularly the heavy focus on Bandura's four sources of efficacy) and integrated within a framework of other healthy lifestyle programs in an attempt to affect real behavioral change from not only the physical, behavioral level, but even the psychological level.

Other promising results from this study reveal that programs such as Finding Your Voice can influence individuals equally across racial lines. Finding Your Voice demonstrated equal influence over the participants' immediate post-program self-efficacy beliefs regardless of their race. This proves promising as, while communities are becoming more and more overweight, they are also becoming more and more racially diverse. Thus, solutions to the overweight and obesity epidemic can only be deemed successful if they have the ability to impact individuals regardless of race.

While this study is only a small step in identifying a viable piece of the solution to the obesity epidemic, its results are promising. Preadolescent females' belief in their own ability to participate in physical activity can be influenced (regardless of race) if placed in the appropriate setting. While the data from Finding Your Voice is very short-term and includes a very small participant pool, its results still indicate that changes in the immediate post-program physical activity self-efficacy can occur. As such, these results do not indicate a solution to the inactivity and corresponding overweight/obesity crisis facing the United

States today. The results of this study do, however, offer hope that recreation professionals can find effective ways of influencing individuals and creating real, behavioral change. If this change can be extended beyond a short-term effect, recreation professionals can help impact not only the health of the individuals within our society, but also society as a whole.

Limitations

Because this research was a cross-sectional study focused on the outcomes of a one-time program, limitations did exist. First, the sample size was small at only 40 participants, thereby reducing the generalizability of the results. Next, because the study was conducted over two days during a residential camp program, there was no viable option for a control group. This lack of control group could have masked changes that may have occurred in the participants' physical activity self-efficacy naturally. That is, simply being away from home in a new environment, or being surrounded by peers may have been the factor that influenced the participants to feel an increased belief in their ability to participate in physical activity rather than the treatment itself. Threats to internal validity (e.g., maturation) were lessened, however, because the program was conducted over such a short period of time. Another possible limitation of this study is that several groups of the participants knew each other prior to the start of camp. This could have presented a limitation by influencing the group dynamics, and in turn, the environment of the camp.

Future Study

Although analysis revealed that a change occurred in the participants' physical activity self-efficacy during the two-day period of the intervention, it remains unclear what specifically caused the change. Future research should be conducted on the Finding Your Voice program to attempt to determine which aspects of the program influenced the participants' physical activity self-efficacy. Specifically, future research should focus on the aspects of the program that have been hypothesized to have a large influence on the participants' increased self-efficacy: Bandura's four sources of efficacy expectations and the all-female experience.

Future studies should also incorporate a long-term follow-up component along with a behavioral component in an effort to determine if the change in self-efficacy is accompanied with actual behavioral changes as Bandura's (1977) self-efficacy theory postulated. Bandura (2006) noted that change measured in self-efficacy should be accompanied by actual behavioral changes. Thus, future studies should focus not only on self-efficacy, but also on pre- and post-program physical activity behavior. This would allow the researcher to determine if the measurable psychological change was accompanied by a measurable behavioral change. In addition to the behavioral component, future studies should also include a physiological component that includes measurement of such things as BMI and cardiovascular health, and CVD risk factors. Over a long-term study such components could be compared with both changes in physical activity self-efficacy and actual physical activity participation.

Future research should also include a control group who attends the program during the same period of time, and participates in equivalent activities, but does not receive the specialized focus on self-efficacy. This could highlight how well self-efficacy can specifically be targeted and if such targeting has a significant effect on the participants' changes in self-efficacy.

APPENDICES

Appendix A

IRB Approval



August 17, 2006

Dr. Denise Anderson
PRTM
263 Lehotsky
Clemson University
Clemson, SC 29634

SUBJECT: Human Subjects Proposal # 06-IRB-206 entitled "Finding Your Voice: Using Nontraditional Opportunities to Foster Identity Development".

Dear Dr. Anderson:

The Institutional Review Board (IRB) of Clemson University reviewed the above-mentioned study using Expedited review procedures and has recommended approval. **Approval for this study has been granted as of August 16, 2006.**

Your approval period is **August 16, 2006 to August 15, 2007**. Your next continuing review is scheduled for June 2007. Please refer to the IRB number and title in communication regarding this study. Attached is handout regarding Principal Investigator's responsibilities in the conduct of human research.

No change in this approved research protocol can be initiated without the IRB's approval. This includes any proposed revisions or amendments to the protocol or consent form. Any unanticipated problems involving risk to subjects, any complications, and/or any adverse events must be reported to the Office of Research Compliance immediately. Please contact the office if your study has terminated or been completed before the identified review date.

We appreciate your assistance in complying with federal regulations and institutional policies. You may contact the Office of Research Compliance at 656-6460 if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Laura A. Moll".

Laura A. Moll, M.A., CIP
IRB Coordinator
Institutional Review Board



OFFICE OF RESEARCH COMPLIANCE

211A Brummett Hall, Box 34304, Clemson, SC 29634-5724 FAX 864-656-4475 www.clemson.edu/olrc/research
Institutional Review Board: 864-656-6460 Institutional Policy Committee: 864-656-2118 Animal Research Committee: 864-656-4338

Appendix B

Parental Consent Form

Parental Permission Form for Participation of a Child in a Research Study Clemson University

Finding Your Voice: Using Nontraditional Opportunities to Foster Identity Development

Description of the research and your child's participation

Your child has been invited to participate in a research study conducted by Dr. Denise Anderson, Dr. Dorothy Schmalz, and Kate Hommel. The purpose of this research is to identify how participating in the Finding Your Voice program impacts your child. The study will focus on specific outcomes including self-efficacy (self-confidence to complete tasks), self-esteem, eating habits and body perceptions.

If you agree to allow your child to participate in the study, she will be asked to complete three surveys designed to measure each of the outcomes previously mentioned. These surveys will be completed at three separate points throughout the study. The first set will be completed immediately prior to the start of the Finding Your Voice program. This measurement will provide a baseline measurement of your child's self-efficacy, self-esteem, eating habits, and body perception. The second set of instruments will be completed immediately following the conclusion of the program, while the third set will be completed approximately three months following the conclusion of the program. These two sets of data will be compared with the first measurement to determine if any significant changes have occurred in your child's self-efficacy, self-esteem, or body perception following the completion of the Finding Your Voice program.

Each survey will take your child approximately twenty minutes to complete. Overall your child will spend no more than one and a half hours completing all three surveys. Approximately 50 girls ages 11-12 will be asked to participate in the research study.

Risks and discomforts

There are minimal risks associated with this research although some of the survey questions could engender mild psychological reactions to the topic area (e.g., a measurement of self-esteem).

Potential benefits

Your child may receive minimal benefits from participating in the research study that is a component of the Finding Your Voice program. Benefits from taking part in the *research* portion of the program may include a greater awareness of their

own attitudes and behaviors tied to self-efficacy (perceptions of abilities/confidence), self-esteem, and body perception. This *program* is an outcome-based program intended to improve your child's self-efficacy, self-esteem, and body perception. Potentially, by being involved in the program your child may receive any or all of these outcomes. The program is also intended to increase your child's knowledge about such subjects as healthy eating, physical activity, and nontraditional leisure and career pursuits. This increased knowledge is also a potential benefit your child may receive. The research tied to the program may help us to understand the outcomes participants receive by taking part in the Finding Your Voice program. Because this is the first year the Finding Your Voice program is being offered by Clemson University, any feedback we receive will help us to improve the program for the future as well as adding to the body of literature addressing outcome-based programming.

Protection of confidentiality

We will do everything we can to protect your child's privacy. All forms with your child's information will be stored in Dr. Anderson's office. Each participant will be assigned an identification number to verify a parent or guardian has completed a consent form and the participant has completed an assent form. This identification number will ensure that your child's name is removed from the data collected during the study. Your child's identity will not be revealed in any publication that might result from this study.

In rare cases, a research study will be evaluated by an oversight agency, such as the Clemson University Institutional Review Board or the federal Office for Human Research Protections, that would require that we share the information we collect from your child. If this happens, the information would only be used to determine if we conducted this study properly and adequately protected your child's rights as a participant.

Voluntary participation

Participation in this research study is voluntary. You may refuse to allow your child to participate or withdraw your child from the study at any time. Your child will not be penalized in any way should you decide to withdraw her from this study or not allow her to participate. Your child will also be required to sign an assent form indicating her willingness to participate in the study. Her participation in the Finding Your Voice program will not be affected at all if either of you choose for her not to participate in the data collection.

Contact information

If you have any questions or concerns about this study or if any problems arise, please contact Dr. Denise Anderson at Clemson University at 864.656.5679. If you have any questions or concerns about your child's rights as a research

participant, please contact the Clemson University Institutional Review Board at 864.656.6460.

Consent

I have read this parental permission form and have been given the opportunity to ask questions. I give my permission for my child to participate in this study.

Parent's signature: _____ Date: _____

Child's Name: _____

A copy of this parental permission form should be given to you.

Appendix C

Participant Assent Form

MINOR ASSENT TO PARTICIPATE IN A RESEARCH STUDY

Finding Your Voice: Using Nontraditional Opportunities to Foster Identity Development

You are being invited to participate in a research study. Below you will find answers to some of the questions that you may have.

What is it for?

- This study is being conducted to determine how your participation in the Finding Your Voice program impacts you. We hope that you have fun participating in this program, but we also hope that the program is beneficial to you in other ways as well. The study will specifically focus on questions about whether you think you can achieve different goals, how you feel about yourself, your confidence levels, your eating habits, and how you feel about your body.

Why me?

- You are participating in the Finding Your Voice program at Clemson University's Outdoor Lab. Because we want to know how the Finding Your Voice program impacts those who participate in it, we would like you to be a part of our research study.

What Will I Have to Do?

- If you participate in this research, we will ask you to fill out the same survey three different times. The survey will have questions about how you feel about your abilities in different activities, your confidence levels, your eating habits and your body. The first will be right before you participate in the Finding Your Voice program. The second will be right after the program ends, and the third time will be three months after the program ends. It should take you around twenty minutes to complete the survey each time.

Did My Parents Say It Was Okay?

- Yes. Your parents have already signed a consent form saying it is okay for you to participate in this study.

Who Will Be Helped By This Research?

- By completing this research, we will learn about the ways in which your participation in the Finding Your Voice program impacted you. Understanding the outcomes you received from participating in the

program will allow us to work on improving the program for future participants, particularly girls just like you.

What If I Want to Stop? Will I Get In Trouble?

- Your participation in this study is completely voluntary. You may choose to stop participating in the study at any point without getting in trouble.
- This research will not be used in any way to positively or negatively impact your grades at school or your continued participation in the Finding Your Voice program.

By signing below, I am saying that I have read this form and have asked any questions that I may have. All of my questions have been answered so that I understand what I am being asked to do. By signing, I am saying that I am willing and would like to participate in this study. I also have received a copy of this form to keep.

Signature of Child/Minor

Date

REFERENCES

- American Heart Association. (2006). Overweight and children. Retrieved March 7, 2007, from <http://www.americanheart.org/presenter.jhtml?identifier=4670>
- Centers for Disease Control and Prevention. (2006a). Childhood overweight: Consequences. Retrieved November 18, 2006, from <http://www.cdc.gov/nccdphp/dnpa/obesity/childhood/consequences.htm>
- Annesi, J. J. (2006). Relations of physical self-concept and self-efficacy with frequency of voluntary physical activity in preadolescents: Implications for after-school care programming. *Journal of Psychosomatic Research, 61*, 515-520.
- Annesi, J. J., Westcott, W. L., Faigenbaum, A. D., & Unruh, J. L. (2005). Effects of a 12-week physical activity protocol delivered by YMCA after-school counselors (youth fit for life) on fitness and self-efficacy changes in 5-12-year-old boys and girls. *Research Quarterly for Exercise & Sport, 76*(4), 468-476.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.
- Bandura, A. (1986). *Social foundations of thought and action: a social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1994). Self-efficacy. In V.S. Ramachaudran, *Encyclopedia of human behavior* (Vol. 4, pp.71-81). New York: Academic Press.
- Bandura, A. (1997). Self-efficacy. *Harvard Mental Health Letter, 13*(9), 4-6.
- Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (pp. 307-337). Greenwich, CT: Information Age.
- Bialeschki, M. D., & Henderson, K. A. (1993). Expanding outdoor opportunities for women. *Parks and Recreation, 28*(8), 36-40.
- Blair, S. N., LaMonte, M. J., & Nichaman M. Z. (2004). The evolution of physical activity recommendations: How much is enough? *American Journal of Clinical Nutrition, 79*(suppl): 913S-20S.

- Brown, L. J., & Malouff, J. M. (2005). The effectiveness of a self-efficacy intervention for helping adolescents cope with sport-competition loss. *Journal of Sport Behavior*, 28(2), 136-150.
- Carnethon, M. R., Gulati, M., & Greenland, P. (2005). Prevalence and cardiovascular disease correlates of low cardiorespiratory fitness in adolescents and adults. *JAMA*, 294(23), 2981-2988.
- Centers for Disease Control and Prevention. (2006a). Childhood overweight: Consequences. Retrieved November 18, 2006, from <http://www.cdc.gov/nccdphp/dnpa/obesity/childhood/consequences.htm>
- Centers for Disease Control and Prevention. (2006b). Childhood overweight: Contributing factors. Retrieved November 18, 2006, from http://www.cdc.gov/nccdphp/dnpa/obesity/childhood/contributing_factors.htm
- Centers for Disease Control and Prevention. (2006c). Childhood overweight: Overweight prevalence. Retrieved November 18, 2006, from <http://www.cdc.gov/nccdphp/dnpa/obesity/childhood/prevalence.htm>
- Centers for Disease Control and Prevention. (2005). Children and teens told by doctors that they were overweight-United States, 1999-2002. *Morbidity and Mortality Weekly Report*, 54(34), 848-849.
- Centers for Disease Control and Prevention. (2006d). Overweight and obesity: Economic consequences. Retrieved March 6, 2007, from http://www.cdc.gov/nccdphp/dnpa/obesity/economic_consequences.htm
- Centers for Disease Control and Prevention (2003). Physical activity levels among children aged 9-13 years-United states, 2002. *Morbidity and Mortality Weekly Report*, 52(33), 785-788.
- Childhood obesity and early onset of adult diseases (News). (2005). *Journal of Physical Education, Recreation, and Dance*, 76(7), 4-6.
- Colley, A., Griffiths, D., Hugh, M., Landers, K., & Jaggli, N. (1996). Childhood play and adolescent leisure preferences: Associations with gender typing and the presence of siblings. *Sex Roles*, 35(3/4), 223-245.
- Culp, R. H. (1998). Adolescent girls and outdoor recreation: A case study examining constraints and effective programming. *Journal of Leisure Research*, 30(3), 356-379.
- Dallow, C. B., & Anderson, J. (2003). Using self-efficacy and a transtheoretical model to develop a physical activity intervention for obese women. *American Journal of Health Promotion*, 17(6), 373-381.

- Dawson, K. A., & Brawley, L. R. (2000). Examining the relationship between exercise goals, self-efficacy, and overt behavior with beginning exercisers. *Journal of Applied Social Psychology, 30*(2), 315-329.
- Department of Health and Human Services & United States Department of Agriculture. (2005). *Healthier us-Dietary guidelines*. Retrieved January 3, 2007, from <http://www.healthierus.gov/dietaryguidelines/>
- Dishman, R. K., Saunders, R. P., Felton, G., Ward, D. S., Dowda, M., Pate, R. R., et al. (2006). Goals and intentions mediate efficacy beliefs and declining physical activity in high school girls. *American Journal of Preventive Medicine, 31*(6), 475-483.
- Giuliano, T. A., Popp, K. E., & Knight, J. L. (2000). Footballs versus Barbies: Childhood play activities as predictors of sport participation by women. *Sex Roles: A Journal of Research, 42*(3/4), 159-182.
- Gordon-Larse, P. (2001). Obesity-related knowledge, attitudes and behaviors in obese and nonobese urban Philadelphia female adolescents. *Obesity Research, 9*, 112-118.
- Hagger, M. S., Chatzisarantis, N. L., & Biddle, S. J. (2001). The influence of self-efficacy and past behaviour on the physical activity intentions of young people. *Journal of Sports Sciences, 19*, 711-725.
- Jones, F., Harris, P., Waller, H., & Coggins, A. (2005). Adherence to an exercise prescription scheme: The role of expectations, self-efficacy, stage of change and psychological well-being. *British Journal of Health Psychology, 10*, 359-378.
- Karvonen, M. J., Kentala, J. E., & Mustala, O. (1957). The effects of training on heart rate. *Annales medicinae experimentalis et biologiae Fenniae, 35*, 307-315.
- Kimm, S. Y. S., Glynn, N. W., Kriska, A. M., Barton, B. A., Kronsberg, S. S., Daniels, S. R., Crawford, P. B. et al. (2002). Decline in physical activity in black girls and white girls during adolescence. *The New England Journal of Medicine, 347*(10), 709-715.
- Kloek, G. C., van Lenthe, F. J., van Nierop, P. W. M., Schrijvers, C. T. M., & Mackenbach, J. P. (2006). Stages of change for moderate-intensity physical activity in deprived neighborhoods. *Preventive Medicine, 43*, 325-331.

- Landers, M. A., & Fine, G. A. (1996). Learning life's lessons in tee ball: The reinforcement of gender and status in kindergarten sport. *Sociology of Sport Journal*, 13, 87-93.
- Latimer, A. E., & Ginis, K. A. M. (2005). Change in self-efficacy following a single strength training session predicts sedentary older adults' subsequent motivation to join a strength training program. *American Journal of Health Promotion*, 20(2), 135-138.
- Lee, A. M., Fredenburg, K., Belcher, D., & Cleveland, N. (1999). Gender differences in children's conceptions of competence and motivation in physical education. *Sport, Education, and Society*, 4(2), 161-174.
- Lever, J. (1976). Sex differences in the games children play. *Social Problems*, 23(4), 478-487.
- Lohman, T. G., Ring, K., Schmitz, K. H., Treuth, M. S., Loftin, M., Yang, S., et al. (2006). Associations of body size and composition with physical activity in adolescent girls. *Medicine & Science in Sports & Exercise*, 38(6), 1175-1181.
- Luepker, R. V. (1999). How physically active are American children and what can we do about it? *International Journal of Obesity*, 23(suppl 2), S12-S17.
- McDermott, L. (2004). Exploring intersections of physicality and female-only canoeing experiences. *Leisure Studies*, 23(3), 283-301.
- Metheny, E. (1965). *Connotations of movement in sport and dance* (A. Lockhart, ed.) (pp. 7-27). Dubuque, IA: WM. C. Brown.
- Mitten, D. (1992). Empowering girls and women in the outdoors. *Journal of Physical Education, Recreation, and Dance*, 63(2), 56-60.
- Morris, J. N., & Crawford, M. D. (1958). Coronary heart disease and physical activity of work: Evidence of a national necropsy survey. *British Medical Journal*, 2, 1485-1496.
- Morris, J. N., Pollard, R., Everitt, M. G., & Chave, S. P. W. (1980). Vigorous exercise in leisure-time: Protection against coronary heart disease. *Lancet*, 2, 1207-1210.
- Morris, J. N., Clayto, D. G., Everitt, M. G., Semmence, A. M., & Burgess, E. H. (1990). Exercise in leisure time: Coronary attack and death rates. *British Heart Journal*, 63, 325-334.

- Motl, R. W., Dishman, R. K., Saunders, R. P., Dowda, M., Felton, G., Ward, D. S., et al. (2002). Examining social-cognitive determinants of intention and physical activity among black and white adolescent girls using structural equation modeling. *Health Psychology, 21*(5), 459-467.
- Motl, R. W., Dishman, R. K., Ward, D. S., Saunders, R. P., Dowda, M., Felton, G., et al. (2005). Comparison of barriers self-efficacy and perceived behavioral control for explaining physical activity across 1 year among adolescent girls. *Health Psychology, 24*(1), 106-111.
- Norman, G. J., Schmid, B. A., Sallis, J. F., Calfas, K. J., & Patrick, K. (2005). Psychosocial and environmental correlates of adolescent sedentary behaviors. *Pediatrics, 116*(4), 908-916.
- Outdoor Industry Foundation (2006, June). *Outdoor recreation participation study* (8th Ed.). Boulder, CO.
- Paffenbarger, R. S., Jr., Wing, A. L., & Hyde, R. T. (1978). Physical activity as an index of heart attack risk in college alumni. *American Journal of Epidemiology, 108*, 161-175.
- Paffenbarger, R. S., Jr., Hyde, R. T., Wing, A. L., & Steinmetz, C. H. (1984). A natural history of athleticism and cardiovascular health. *JAMA, 252*, 491-495.
- Paffenbarger, R. S., Jr., Hyde, R. T., Wing, A. L., & Hsieh, C. (1993). Physical activity, all-cause mortality, and longevity of college alumni. *New England Journal of Medicine, 314*, 605-613.
- Paffenbarger, R. S., Jr., Hyde, R. T., Wing, A. L., Lee, I-M., Jung, D. L., & Kampert, J. B. (1993). The association of changes in physical-activity level and other life-style characteristics with mortality among men. *New England Journal of Medicine, 314*, 538-545.
- Pohl, S. L., Borrie, W. T., & Patterson, M. E. (2000). Women, wilderness, and everyday life: A documentation of the connection between wilderness recreation and women's everyday lives. *Journal of Leisure Research, 32*, 415-434.
- Powch, I. G. (1994). Wilderness therapy: What makes it empowering for women? *Women and Therapy, 15*, 11-27.
- Riemer, B. A., & Visio, M. E. (2003). Gender typing of sports: An investigation of Metheny's classification. *Research Quarterly for Exercise and Sport, 74*(2), 193-204.

- Saksvig, B. I., Gittelsohn, J., Harris, S. B., Hanley, A. J. G., Valente, T. W., & Zinman, B. (2005). A pilot school-based healthy eating and physical activity intervention improves diet, food knowledge, and self-efficacy for native Canadian children. *Community and International Nutrition, 135*, 2392-2398.
- Saunders, R. P., Pate, R. R., Felton, G., Dowda, M., Weinrich, M. C., Ward, D. S., et al. (1997). Development of questionnaires to measure psychosocial influences on children's physical activity. *Preventive Medicine, 26*, 241-247.
- Schmalz, D. L. & Davison, K. K. (2006). Differences in the physical self-concept among pre-adolescents who participate in gender-typed and cross-gender sports. *Journal of Sport Behavior, 29*(4), 335-352.
- Simon, C., Wagner, A., DiVita, C., Rauscher, E., Klein-Platat, C., Arveiler, D., et al. (2004). Intervention centred on adolescents' physical activity and sedentary behaviour (ICAPS): Concept and 6-month results. *International Journal of Obesity, 28*(suppl), S96-S103.
- Sniehotta, F. F., Scholz, U., & Schwarzer, R. (2005). Bridging the intention-behaviour gap: Planning, self-efficacy, and action control in the adoption and maintenance of physical exercise. *Psychology and Health, 20*(2), 143-160.
- Sothorn, M. S., Loftin, M., Suskind, R. M., Udall, J. N., & Blecker, U. (1999). The health benefits of physical activity in children and adolescents: implications for chronic disease prevention. *European Journal of Pediatrics, 158*, 271-274.
- Strzelczyk, T. A., Quigg, R. J., Pfeifer, P. B., Parker, M. A., & Greenland, P. (2001). Accuracy of estimating exercise prescription intensity in patients with left ventricular systolic dysfunction. *Journal Of Cardiopulmonary Rehabilitation, 21*(3), 158-163.
- Taylor, M. K., Pietrobon, R., Pan, D. Huff, M., & Higgins, L. D. (2004). Healthy people 2010 physical activity guide-lines and psychological symptoms: Evidence form a large nationwide database. *Journal of Physical Activity and Health, 1*, 114-130.
- Trost, S., Pate, R., Ward, D., Saunders, R., & Riner, W. (1999). Determinants of physical activity in active and low-active, sixth grade African American youth. *Journal of School Health, 69*(1), 29.

Wesely, J. K., & Gaarder, E. (2004). The gendered “nature” of the urban outdoors: Women negotiating fear of violence. *Gender & Society, 18*(5), 645-663.

Women’s Sports Foundation. (2004). *The women’s sports foundation report: Her life depends on it: Sport, physical activity and the health and well-being of American girls*. East Meadow, NY: Women’s Sports Foundation.