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Racial Differences In Self-Efficacy Expectations For Exercise

Selena P. Smith
University of Southern Mississippi

The University of Southern Mississippi

RACIAL DIFFERENCES IN SELF-EFFICACY EXPECTATIONS FOR EXERCISE

by

Selena Smith

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Approved by:

Dr. Scott Piland
Associate Professor
School of Human Performance and Recreation

Dr. Melissa Murray
Assistant Professor
School of Human Performance and Recreation

Dr. Trent Gould, Interim Director
School of Human Performance and Recreation

Dr. David R. Davies, Dean
Honors College

Abstract

This project examined the link between race and self-efficacy. Self-efficacy pertains to an individual's confidence in ability to complete or engage in a particular task or activity (Bandura, 1986). Prior research shows that self-efficacy has a great influence on exercise initiation and adherence (Bandura, 1986; Dishman, 1982; Rodgers and Sullivan, 2001). Research also supports that Caucasians are more likely to participate in exercise than African Americans (Centers for Disease Control and Prevention, 2000).

Participants included 51 females, 31 Caucasians and 20 African Americans, between the ages of 18 and 50 years old. The women were recruited from local fitness gyms, Curves, the YMCA, and Forrest General Wellness. Using a nine question barrier self-efficacy scale, participants were asked to rate their confidence in their ability to exercise under varying conditions. The responses for each participant were then summed to obtain a total. The frequency of survey answers for Caucasians and African Americans was then compared to see if there was a difference between the two races. African American participants had a mean of 55.45. Caucasian participants scored a mean of 58.67. The results showed that there was no significant difference between African Americans and Caucasians. Further research involving a larger population is required to determine whether race has an influence on self-efficacy. In the event of evident differences, this study can serve as a precedent for further research. Interventions to raise self-efficacy levels, subsequently increasing exercise participation, may follow.

Key Terms: race, obesity, self-efficacy, exercise, physical activity, body mass index

Dedication

To every teacher, advisor, family member, and friend who has influenced my education and encouraged me along the way, my sincere thanks. Your guidance and companionship has prepared me for this moment. Thanks be to God.

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Table of Contents

List of Tables

List of Illustrations

List of Abbreviations

ACSM	American College of Sports Medicine
ANOVA	One-Way Analysis of Variance
BMI	Body mass index
CDC	Centers for Disease Control and Prevention
HDL	High density lipoprotein
NHANES	National Health and Nutrition Examination Survey
SCT	Social Cognitive Theory
VO_2 max	Maximal oxygen uptake
YMCA	Young Men's Catholic Association

Chapter 1: The Problem

Obesity is a common epidemic in the present time. According to the Centers for Disease Control and Prevention, 35.7% of adults fall in the obese range, having a BMI of 30 or higher (CDC, 2012). As of 2010, twelve states have an obesity prevalence of 30% or more (CDC, 2012). Even more startling is the fact that no state had a 30% or more obesity prevalence as recently as 2000 (CDC, 2012). The number of obese states can only be expected to rise in the coming years, unless successful efforts to curb obesity are implemented in the near future.

One of the twelve states with an obesity prevalence of 30% or greater is the state of Mississippi (CDC, 2012). The CDC's obesity rankings (2012) revealed that Mississippi was the state with the highest obesity rate for the 7th consecutive year. Consequently, heart disease, stroke, type II diabetes and other obesity related illnesses are also prevalent (CDC, 2012).

Exercise

One way to combat the obesity epidemic is exercise (Davidson et al., 2005). Exercise reduces the amount of fat in the body, leading to weight loss and overall health benefits (Aiken et al., 2005). The CDC and American College of Sports Medicine (ACSM) recommend a minimum of 150 minutes a week of moderate-intensity exercise, along with 2 days of muscle strengthening activity that targets the body's major muscle groups to maintain health (ACSM, 2006; CDC, 2012). In addition, ACSM also recommends incorporating flexibility into exercise regimens (2006).

Unfortunately, many Americans fail to meet the minimum recommendations for exercise. The *State Indicator Report on Physical Activity, 2010* published by the CDC

reports that only 64.5% of the population is physically active. The percentage is even lower in the state of Mississippi with only 57% of the population engaging in physical activity (CDC, 2010). Even more discouraging is the fact that 40% to 65% of all adults who initiate an exercise regimen are predicted to drop out within three to six months (Dishman, 1982; Annesi, 2003).

The percentage of physically active African Americans is lower than that of Caucasians (Centers for Disease Control and Prevention, 2007). Race may also be an indicator of health risk. Statistics from the CDC (2007) reveal that American Indians and Alaska Natives were 2.6 times more likely to become diabetic than non-Hispanic whites. Hispanics and African Americans closely followed with 1.9 and 2.0 times higher risks for diabetes, respectively. African Americans also had a 29% higher death rate from heart-related diseases than Caucasians. The risk of a fatal stroke was 40% higher among African Americans than Caucasians (CDC, 2007). Lower levels of physical activity in the African American population may be one contribution to high disease and mortality rates (Felton, Boyd, Bartoces, and Tavakoli, 2002).

Self-Efficacy

Research by Bandura (1986) implies that self-efficacy, or perceived ability to engage in a specific activity, is highly correlated with physical activity. His Social Cognitive Theory explained that past experience, vicarious experience, verbal persuasion, and physiological and affective states influence self-efficacy. A higher self-efficacy indicates a greater likelihood to achieve a positive outcome in a situation (Kroll et al., 2012; Hasson et al., 2011).

In reality, individuals struggle to engage in physical activity for various reasons such as lack of time and dedication. Uncontrollable demographics such as race can factor in as well. With this knowledge, the question of how race influences self-efficacy for exercise came to mind. Delving into this question provides insight into possible causes of low self-efficacy and lack of physical activity. Implementation of more efficient exercise interventions for various demographics may follow.

Chapter 2: The Literature Review

Physical Activity

Physical activity is an effective tool to combat obesity and related health ailments. The ACSM and CDC recommendation of 150 minutes of moderate intensity aerobic activity or 75 minutes of vigorous activity promotes health and aerobic fitness (ACSM, 2006; CDC, 2012). Numerous studies support these recommendations. Donnelly, Jacobson, Snyder-Heelan, Seip, and Smith (2000) studied the effects of intermittent and continuous exercise on aerobic capacity, body weight and composition. Twenty-two sedentary women with a BMI between 25 and 40 engaged in exercise for 18 months. The women had an oxygen consumption at or below "fair" as classified by the American Heart Association. Participants were divided into a continuous exercise group and intermittent exercise group. The continuous group exercised for 30 minutes three times a week at 60% to 70% of their VO_2 max. The intermittent group took two 15 minute walks five days a week at 50% to 65% VO_2 max. Walks were taken at least two hours apart. Aerobic capacity, body composition, body weight, blood pressure, lipids, glucose, and insulin levels were assessed at baseline, nine months, and 18 months.

Both the intermittent and continuous groups saw a decrease in body weight and composition at nine months. However, the intermittent group saw a return to baseline body weight and composition at 18 months. VO_2 max increased by 8% for the continuous group and by 6% for the intermittent group. Both groups saw a significant improvement in HDL-cholesterol, fasting insulin and systolic blood pressure (Donnelly et al., 2000). The study reinforces that physical activity can facilitate weight loss and improve metabolic health.

Gezer and Cakmakci (2011) conducted a study looking into the effect of an eight-month step aerobics class on body composition. The 70 women who participated in the study were between the ages of 25 and 45. Each aerobics class involved 10-minute warm ups, 45 minutes of aerobic exercise, and 10 minutes of cool down and was performed three days a week. Height, body weight, blood pressure, body fat percentage, waist and hip ratio, flexibility and BMIs were recorded before and after the study. The women in the study saw a decrease in body weight, as well as waist and hip circumference. Body weight was reduced from 68.55 kg (150.81 lbs) to 66.0 kg (145.2 lbs). BMIs decreased from an average of 26.57 to 25.58. Body fat decreased from an average of 36% to 33% thus illustrating that exercise can lead to a reduction in weight and fat.

King, Hopkins, Caudwell, Stubbs, and Blundell (2009) further support that health benefits can be obtained from regular exercise. The study included 58 overweight or obese men and women participating in an aerobics program. The class met five times a week for 12 weeks with each session burning around 500 kcals. Body composition, aerobic capacity, blood pressure, resting heart rate, anthropometric measures and acute affective response were measured at 0 and 12 weeks. The participants were grouped into nonresponders and responders based on whether they met predicted weight loss. Even though the nonresponders failed to meet the weight loss goal, they saw an increase in aerobic capacity. Waist circumference was reduced by 2.66 cm on average, resting heart rate decreased by 8.9 bpm, systolic blood pressure decreased by 11.5 mm Hg and diastolic blood pressure decreased by 5.8 mm Hg. Participants also reported having a more positive mood at the end of the 12 weeks.

While the benefits of physical activity are well documented, many individuals who begin exercising fail to maintain this behavior (Dishman, 1982). In a 2003 study, Annesi examined the drop-out rate in four fitness centers located in the eastern United States. The attendance level of a control group consisting of 148 men and 143 women and a treatment group consisting of 157 men and 150 women was compared. Each individual was classified as a drop-out or non drop-out depending on his or her attendance three times a week. The treatment group participated in individualized meetings with a fitness specialist. Meetings included the development of an exercise plan, identification of goals, self-regulatory techniques, and other forms of support. The control group's individualized meetings only included an overview of the exercise equipment, standard exercise guidelines, and progress tracking. Those who missed four consecutive weeks were classified as drop-outs. Of those who were in the control group that received no intervention, 54% dropped out of the exercise program (Annesi, 2003). Only 24% of individuals in the treatment group dropped out.

A disproportionate amount of those who fail to meet the recommended physical activity levels are women and African Americans. The Centers for Disease Control and Prevention indicate that 60% of women fail to get enough exercise. Furthermore, African Americans are 70% less likely to engage in physical activity than Caucasians (CDC, 2012).

Gender and racial disparities are further illustrated in a study by Trioano et al. (2008). Participants indicated their level of physical activity on the National Health and Nutrition Examination Survey (NHANES) and were then asked to wear an accelerometer for a period of seven days. The mean counts per minute, count thresholds, and adherence

levels of over 6,000 participants revealed that men and Hispanics were the most physically active. On average, adults only participated in 10 minutes of moderate activity a day.

Satisfaction with body image may be a probable cause of the higher obesity rates found in African Americans. In a study conducted by Miller and Gleaves (2000), 120 male and female African American, Caucasian and Asian college students were recruited from a northeastern and southwestern university. All three races had the same age and BMI variance. The participants were asked questions about body image of self and others. While appearance was equally important for all three groups, African American women rated themselves higher on a scale of sexual attractiveness than the Caucasian women did. They also scored higher on a weight concern questionnaire. The Latina women scored in the middle on both the sexual attractiveness and weight concern surveys. Body satisfaction among African American women may influence low physical activity levels that increase the risk of health problems. No racial differences were found among male participants.

Self-Efficacy

Bandura (1986) introduced the concept of social cognitive theory to address the process of "human motivation, thought and action." Two main concepts of Social Cognitive Theory (SCT) are that human cognition and external stimuli influence human behavior (Lox, Ginis, and Petruzzello, 2010). An important construct of SCT is self-efficacy. Self-efficacy is an individual's perception of his or her ability to complete a particular task (Bandura, 1986). The theory of self-efficacy is a critical construct of SCT and a large indicator in the outcome of an activity. In relation to exercise, individuals

with a high self-efficacy will most likely maintain an exercise regimen; whereas, an individual with a low self-efficacy for exercise may not adopt regular exercise.

Numerous studies have supported the correlation between self-efficacy and exercise. Dyrlund and Wininger (2006) looked at exercise self-efficacy rates in college students. Fitness class attendance records were kept of 189 students at a Midwest university for 14 weeks. The class types consisted of abdominal, kickboxing, step aerobics, and yoga. Participants were required to sign-in at the beginning of every weekly class to track attendance. Barrier self-efficacy was assessed by a questionnaire asking six questions concerning ability to exercise when tired, sad, pressed for time, sick, facing bad weather, and consistently throughout the semester. They were also asked questions to assess their level of exercise enjoyment, competency, autonomy and relatedness. An attendance score was obtained based on weeks of attendance, ranging from 0 to 14. The results indicated that self-efficacy, competence, and relatedness were positively linked to enjoyment. There was also a direct correlation between self-efficacy and attendance.

A similar outcome was found in research by Hutchins, Droiet, and Ogletree (2010). A total of 324 male and female college students were recruited from fitness facilities and asked to answer questions concerning self-efficacy, physical activity and demographics. A four point scale was used to determine self-efficacy assessed by five questions. The responses were summed together to obtain a score between five and 20. A score of five was indicative of low self-efficacy and 20 was the highest degree of self-efficacy. Those individuals with a higher self-efficacy score were likely to engage in

physical activity more frequently and for longer amounts of time than participants with a lower self-efficacy score.

Bandura mentions four sources that determine self-efficacy levels. Enactive mastery experience, vicarious experience, verbal persuasion, and physiological and affective states critically influence self-efficacy beliefs (Bandura, 1997).

Enactive mastery experience, or past experience, has the most influence on self-efficacy (Bandura, 1997; Lox et al., 2010). Success or failure at a task can alter self-efficacy. A person who successfully runs a marathon has a high self-efficacy that he can complete another marathon. Someone who dropped out of a 5K may doubt the ability to complete the distance. Success leads to high self-efficacy levels, while failure causes lower self-efficacy. The mindset is that if it has been done once, it can be done again.

Bandura (1997) also mentions that the more difficult the experience, the higher the level of self-efficacy. If succeeding at the goal required hard work and considerable effort, self-efficacy will greatly increase. The higher increase is a result of the person's ability being tested. Resources were challenged, so the individual feels more confident that obstacles and setbacks can be overcome.

When the individual has no past experiences of a particular situation, he or she relies on vicarious experience to assess self-efficacy. It is the individual's belief that modeling another person's behavior or actions will lead to the same result. Comparing oneself to a similar individual can shape self-efficacy (Bandura, 1997). For example, seeing a once sedentary colleague complete an hour step aerobics class will help reassure a middle aged woman that she too can implement a healthier lifestyle. Similarly, the middle aged woman may be discouraged if her colleague does not return to the aerobics

class the following week because of fatigue. Her colleague's inability to continue could cause her to have a low self-efficacy in regards to exercise.

Support for vicarious experience is evident in a study by Fox and Bailenson (2009). Students at a West Coast university, 32 men and 31 women ages 18-24, participated in a virtual study. The participants were randomly assigned to one of three groups, reinforcement, no change, or no virtual human. The reinforcement group saw the virtual model lose weight as the participant exercised and gain weight during inactivity. The virtual self in the no change group remained the same weight throughout the experiment. In the group without a virtual human, participants were just looking into an empty virtual room. Each participant encountered three phases. The first phase required the participant to complete three sets of 12 exercises. The second phase was a two minute rest. During the third phase, participants were given the option to continue exercising or end the experiment. The study found that the reinforcement group responded to the virtual model. Exercise behavior was influenced by the model losing weight during exercise or gaining during inactivity.

The strength of the perceived similarities between the counterpart and model determines the likelihood of self-efficacy being influenced. If the individual views another person as very similar, self-efficacy is greatly influenced by the success or failure of the other person. Impressions of competence affect vicarious experience as well. A competent individual has a high ability to complete a task. Therefore, success is not attributed to luck or chance, but to skill. Competent models are most influential when the individual knows little about the situation. Knowledge on the subject is anticipated to increase performance ability (Bandura, 1997). In other words, a person unfamiliar with

lifting weights may not know how to perform a dead lift. This, however, does not necessarily mean that self-efficacy is low. The individual may have a high self-efficacy for performing a deadlift after watching a fitness fanatic demonstrate the proper technique.

Another determining factor in self-efficacy is verbal persuasion. Reassurance from others can raise confidence levels and consequently lead to an increased effort. The amount of effort and perseverance used to perform a task has greater influence on success, and an increase in self-efficacy that may result, than skill. If the verbal assurance is realistically plausible, positive effects of self-efficacy follow. Lower self-efficacy can occur if verbal persuasion causes an individual to exert high effort and still fail at a task. The influence of verbal persuasion is also reduced in future situations (Bandura, 1997).

Research conducted by Felton et al. (2002) illustrates the influence of verbal persuasion on exercise in African American women. The study asked 152 unemployed women living in South Carolina questions pertaining to physical activity. Personal, behavior, psychosocial, and environmental factors affecting exercise were assessed by questionnaire. Only 18% of those participating in the survey engaged in physical activity for more than a six month period. Of those who stopped engaging in physical activity, 36% attributed their cease in exercise to a lack of encouragement. Furthermore, 45% of those surveyed had never been encouraged to exercise by a health professional.

Physiological and affective states indicate the influence physical responses and feelings have on self-efficacy levels. The physical response the body has to exercise can raise or lower self-efficacy. If the response brings back unpleasant memories, self-

efficacy can be lowered. Little effort will be put into the task because of unwillingness to experience undesirable physiological responses again. Discomfort may also dissuade a novice exerciser because of lack of knowledge about the body's response to exercise. Likewise, pleasant responses can raise self-efficacy.

Barrier Efficacy

Self-efficacy began as a psychological concept that has been adapted to exercise principles. In regards to exercise, efficacy has typically been measured by level and strength (Rodgers, Hall, Blanchard, McAuley and Monroe, 2002; Rodgers and Sullivan, 2001). According to Lox, Ginis, and Petruzzello's *The Psychology of Exercise: Integrating Theory and Practice,* the level of self-efficacy is "an individual's belief that she can perform various elements of a task (e.g. greater distance, duration or intensity)". Strength of self-efficacy is "the individual's degree of conviction for successfully accomplishing each level of the task" (p. 52). Asking an individual to rate their self-efficacy to exercise on a scale of 0 to 10 for 20 minutes a day, 30 minutes a day, 1 hour a day, and 2 hours a day provides information about the level of self-efficacy. The confidence level of each response, ranging from 0 through 10, addresses self-efficacy strength.

Self-efficacy measurement approaches have focused on level and/or strength. The level of self-efficacy has commonly been linked to task self-efficacy, which is the likelihood of an individual to complete a task. Strength is associated with barrier efficacy or the likelihood of an individual overcoming setbacks to an activity (Bandura, 1997).

An important difference between task efficacy and barrier efficacy is the relationship with exercise stages. A study by Rodgers, Hall, Blanchard, McAuley, and

Munroe (2002) examined the role of task and barrier efficacy in exercise behavior. Participants recruited from exercise classes answered questionnaires. The first questionnaire addressed task and barrier efficacy, behavior and intention. The questions concerned confidence in exercise abilities and overcoming obstacles. Four weeks later, participants were asked to answer a questionnaire concerning their behavior after the initial questionnaire. The results indicated that task efficacy was closely linked to intentions to exercise. Barrier efficacy was linked to exercise behavior; therefore, influencing exercise adherence (2002).

Barrier efficacy is a common focus in exercise settings because it addresses factors that prevent people from engaging in regular physical activity. The influence of barrier self-efficacy on adherence was reinforced by Annesi and Whitaker (2009). A total of 148 obese women participated in the six month study tracking their weight loss. At the conclusion of the study, the participants were classified as successful or unsuccessful at losing weight. The successful group saw weight loss of 9.3 kg, while the unsuccessful group gained an average of 1.8 kg. Barrier efficacy was assessed using an exercise self-efficacy scale in which participants rated their confidence on a level of 1 (not at all confident) to 7 (very confident). Findings indicated that the successful weight loss group coped with exercise barriers better than the unsuccessful group. The successful group also had better attendance than the unsuccessful group.

Barrier self-efficacy scales have been adopted for a variety of variables. The format of the scale may vary depending on the item being assessed. McAuley (1992) developed a 13 question exercise specific scale based on common barriers to exercise. Confidence in ability to each response was indicated on the 100 point scale ranging from

0, not at all confident, to 100, highly confident. The scale proved to be an effective measure of efficacy levels when administered to 103 middle-aged adults. Resnick and Jenkins (2000) adopted an abbreviated self-efficacy scale for exercise based on McAuley's scale. The revised exercise scale consisted of 9 questions that assessed confidence in ability to exercise 20 minutes a day three times a week. The validity of the scale was tested on an aging population residing in a nursing home.

Conclusion

There is a vast amount of research on self-efficacy and how it pertains to exercise. However, the relationship between race and self-efficacy has yet to be explored in great depth. Literature supports that African Americans engage in physical activity less frequently than Caucasians (Buchanan and Selmon, 2008; Hasson et al., 2011; Mastin, Campo, and Askelson, 2012). There is also research addressing the difference in physical activity between men and women (CDC, 2007; Trioano, 2008). Further research is needed to address the link between race and self-efficacy, particularly barrier efficacy due to its link to exercise adherence.

Chapter 3: Methodology

Measures

Self-efficacy for exercise was assessed using Resnick and Jenkin's (2000) self-efficacy exercise scale (See Appendix II). The 10 point scale consisted of nine questions pertaining to confidence in exercise ability under varying circumstances. Scaling ranged from 0, not at all confident, to 10, highly confident. All responses were summed to obtain a total score which was indicative of self-efficacy strength.

Sample

Participants included 51 females, 31 Caucasians and 20 African Americans, between the ages of 18 and 50 years old. The women were recruited from local fitness centers: Curves, the YMCA and Forrest General Wellness. All participation was voluntary.

Procedure

A date and time for being on site at the respective fitness gym was scheduled. During the data collection session, participants were familiarized with the study design and the risks and benefits associated with their participation in this study. The Informed Consent document was then read and signed. After Informed Consent was completed, survey questions were explained and administered (See Appendix II). These documents were approved by the Institutional Review Board of The University of Southern Mississippi (See Appendix I). Participants were met with on an individual basis to complete the survey. There were a total of two site visits to the YMCA and Forrest General Wellness. There was one site visit to Curves.

Data Analysis

Data were analyzed using frequencies. An Excel spreadsheet was created containing the fitness gym, race, and responses to all nine survey items for each participant. The responses to each item were then added to obtain a sum total for each participant. Once each participant had a sum, a total was obtained for all Caucasian participants and all African American participants. The two totals were then compared.

Descriptive statistics included mean. Standard deviation, standard error and confidence intervals were calculated. Mean differences were explored using a One-Way Analysis of Variance (ANOVA). The reliability of the Barrier self-efficacy scale was determined using Cronbach's Alpha.

Dependent Variables

The dependent variable in the study is self-efficacy. Self-efficacy ratings for each response vary from 0 to 10. The total self-efficacy value for an individual can range from 0 to 100.

Independent Variables

The independent variable in the study is race. Individuals were asked to select the race they most closely identified with.

Chapter 4: Results

The responses for all nine questions were summed for all 51 participants. Self-efficacy for African American participants was compared to Caucasian participants. The average self-efficacy for African Americans was 55.45. Caucasian participants had an average self-efficacy of 58.68. Table 1 shows the descriptives for all participants, including self-efficacy mean, mean confidence intervals, standard deviation, and standard error.

Table 1 Descriptives for African American and Caucasian participants

Measures	**African American**	**Caucasian**
N= 51	*20*	*31*
Self-efficacy		
Mean	55.45	58.67
Standard Deviation	19.99	14.91
Std. Error	4.47	2.67
95% Confidence Interval for Mean		
Lower Bound	46.09	53.20
Upper Bound	64.80	64.14

Statistical information was obtained for the mean values. ANOVA was used to examine mean differences. The measure of difference was equal to .05. The p value obtained was .51. The sum of squares, degrees of freedom, mean square, frequency, and p value are shown in Table 2.

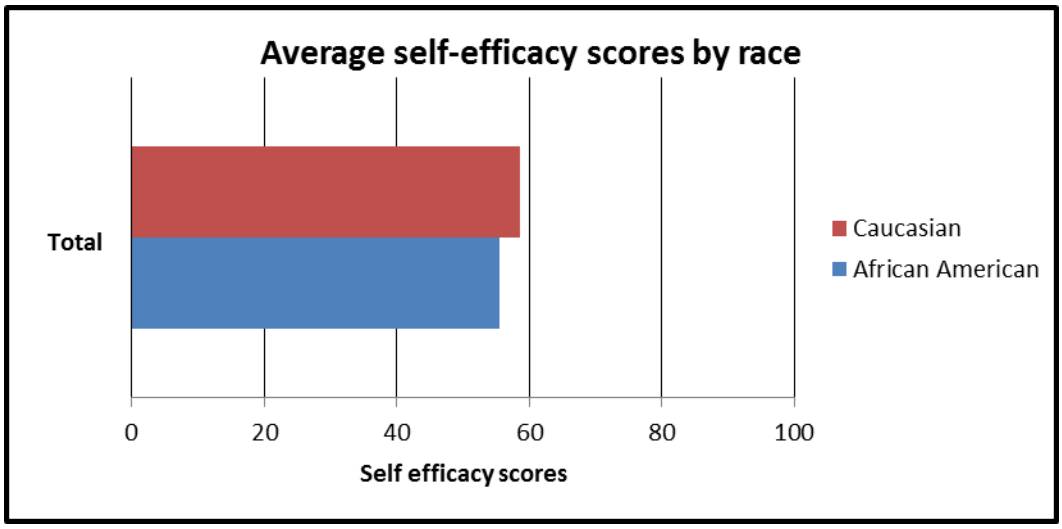
Table 2: Comp. ANOVA scores

ANOVA

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	126.62	1	126.62	.43	.51
Within Groups	14273.72	49	291.30		
Total	**14400.35**	**50**			

Figure 1 illustrates the average self-efficacy scores for both African American and Caucasians. The graph shows how close the self-efficacy values were in comparison to each other and further supports the results from Table 1.

Figure 1: Average self-efficacy scores for African American and Caucasian participants



Cronbach's Alpha was used to determine the reliability of the survey instrument. Internal consistency was found to be .824. Table 3 shows the data for Cronbach's Alpha, Cronbach's Alpha based on standardized items, and the total number of items.

Table 3: Reliability of Barrier Self-Efficacy scale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.824	.824	9

Chapter 5: Discussion

The results showed no significant difference between self-efficacy levels in Caucasian and African American women. Significance is indicated by a value of .05 or less. The value obtained from data collection analysis was .513. It is important to note that participants were recruited from an exercising population. These individuals are already regularly engaging in exercise and thus should be expected to have similar self-efficacy levels.

Findings from this study support previous self-efficacy research, specifically, the reliability of the Barrier Self-Efficacy Scale (Dyrlund and Wininger, 2006; Hutchins et al., 2010; Resnick and Jenkins, 2000; Rodgers et al., 2002). The internal consistency of the survey instrument was in an acceptable range. The Barrier scale can be used as a method to accurately assess self-efficacy levels.

Self-efficacy is only one facet of the disproportionate rates of physically active African American women. Ethnic and cultural differences in weight perception, diet and socioeconomic status can be attributed to such disparities as well. In a nationwide Australian study involving primary and high school students from government funded, private and Catholic schools, O'Dea (2008) explored the relationship among obesity and weight perceptions based on gender, ethnicity, culture, and social class. The students completed a questionnaire regarding demographics and weight perceptions.

There were no substantial gender differences in obesity between primary age students. Students of a lower socioeconomic status were more likely to be obese. Anglo-Caucasian or Asian students were least likely to be obese. Obese females of Middle Eastern, Aboriginal, and Pacific Islander descent were less likely than Caucasian and

Asian girls to view themselves as "too fat". The findings illustrate that there are cultural differences in weight perception. Those of Middle Eastern, Aboriginal, and Pacific Islander descent appeared to be more content with a larger frame than their Caucasian and Asian counterparts.

Similar findings were found in research by Miller and Gleaves (2000) on 120 college students recruited from two universities in the U.S., one northeastern and one southwestern. Males and females of African American, Caucasian, and Latino descent were asked questions about body image of self and others. Each group had the same variation of age and BMI. Appearance was equally important for all groups, and there was no difference among males. African American and Latina women rated themselves higher on sexual attractiveness than the Caucasian women did. They also scored higher on the weight concern questionnaire, meaning that they had less concerns about their current weight. Even with comparable BMIs, the Caucasian women had a lower average attractiveness rating than their African American and Latina counterparts.

The results from the Miller and Gleaves study imply that African American women have a higher perception of body image than Caucasian women. It appears that larger body frames may be more culturally acceptable in the African American community. Such body satisfaction influences the likelihood of engaging in physical activity. If an individual is content with her weight, she is less likely to feel that exercise is necessary.

A study by Blixen, Singh, and Thacker (2006) examined possible reasons for such racial differences in ideal body weight. Twenty women were split into four focus groups, two Caucasian groups and two African American groups. They were recruited from

outpatient clinics throughout the Midwest and were between the ages of 18 and 50 with a BMI of 30 or greater. Over the course of hour and a half sessions, each group discussed attitudes and perceptions of obesity. The sessions were recorded and analyzed by investigators who assessed common patterns in discussion.

Review of the audiotapes identified six common themes: attitudes and perceptions of weight, areas of life affected by weight, knowledge of obesity-related medical problems, previous weight loss, and help from primary care physicians in weight loss efforts. Caucasian women had a more negative view of the term obesity, shopping for clothes, and felt a greater stigma linked to being overweight. Both groups had successfully lost weight in the past, but contributed age and lack of motivation to their weight gain. African American women felt that men viewed a larger frame as more attractive. They were also more comfortable discussing weight issues in a group setting, while Caucasian women preferred to speak privately with their physician.

An interesting find was barriers to successful weight loss. Caucasian women identified lack of commitment as their biggest barrier. The African American participants attributed culture and ethnicity to their unsuccessful weight loss attempts. Specifically, eating and cooking greasy, high salt foods and food preferences of family members. Diet and family influence help shape African American women's views of body image.

These studies demonstrate that self-efficacy is not the only reason African Americans exercise less or have a higher obesity rate. Diet, socioeconomic status, and cultural influences among other factors contribute to the disproportionate rate of obese African American women. It is important to look at all influences for a holistic view.

Addressing all of the barriers that prohibit African American women from exercising is necessary in order to see a decrease in obesity levels.

Further Research

It is important to note that the total average of all participants was a score of 57.41 with the highest possible ranking being 100.00. The survey average is indicative of an exercising population, as all of those surveyed were participants at fitness gyms in the Hattiesburg area. It would prove beneficial to implement the Barrier Scale among a non-exercising population. These individuals are not currently engaging in exercise, therefore, racial difference would be evident if there is a different. Surveying people in the initial weeks of exercise, before they have gained confidence, would also serve helpful. In addition, examining self-efficacy levels among other minorities such as Hispanics and Native Americans or gender differences may lead to important factors.

While the survey was proven to be reliable, modifying one of the questions may make it more accurate. The question regarding pain during exercise could have been misinterpreted by some. During data collection, some participants were unsure of how to interpret "pain". Some viewed pain as typical discomfort that occurs during exercise while others viewed it as a symptom of illness or disease. This affected the way participants answered. Those who interpreted "pain" as a warning sign of (e.g. heart attack or stroke) rated their likely of exercise at a much lower value than those who did not. Changing "pain" to "discomfort" may eliminate any confusion and allow for more accurate results.

Since self-efficacy and exercise patterns are so closely linked, it is imperative that interventions to raise self-efficacy are initiated. Otherwise, the population that is most at

risk for obesity and complications linked to obesity, the non-active, may never take the steps to become physically active and increase their quality of life.

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Appendix I- Smith IRB

Project Title:

"Racial Differences in Self-Efficacy Expectations for Exercise"

1) Brief Statement of Project Goals:

This project aims to study the link between race and perceived ability to exercise among female gym participants. The self-efficacy of participants in an exercise program will be examined to see whether there is a correlation between race and self-efficacy for exercise. If differences are evident, this study can serve as a precedent for further research.

2) Protocol:

All procedures will be conducted at various fitness centers, YMCA, Forrest General Wellness, Anatomies and Curves. Approximately 40 female participants will be recruited for the study. The requirements for participation are as follows:

1) Must be female
2) Between 18 and 50 years of age
3) Current participants at local fitness gyms

Participants will be recruited from local fitness gyms by word-of-mouth and recruitment announcements posted in the Hattiesburg area. Representation from racial and/or ethnic groups will be confined to Caucasians and African Americans. The total sample size for this study will be no less than 40 participants (20 Caucasians and 20 African Americans).

All eligible participants will be asked to provide oral and informed written consent based on university-approved documents, and approval will be granted by the Institutional Review Board for Human Subjects of the University of Southern Mississippi.

Experimental Protocol

Flyers will be posted at participating sites, and individuals will be allowed to sign up. A date and time for being on site at the respective fitness gym will be scheduled once participants sign-up. During the data collection session, participants will be familiarized with the study design and the risks and benefits associated with their participation in this study. The Informed Consent document will then be read and signed. After Informed Consent is completed, survey questions will be explained and administered. These documents will be approved by the Institutional Review Board of The University of Southern Mississippi. Participants will be met with on an individual basis to complete the survey.

Experimental Procedures

Survey

The survey will consist of less than 10 questions related to exercise and motivation. The questions will ask participants to rate their confidence in exercising under varying circumstances. Participants will be asked to answer truthfully and thoroughly.

Data Assessment

Survey answers will be compared and frequencies will be used to assess the results.

Presentation & Publication

Study findings will be presented at an appropriate research symposium (e.g., the Honors College's Senior Spotlight Series and McNair Scholars Symposium, etc) and published to be catalogued in the Joseph A. Cook Library and William D. McCain Library.

The time commitment from the participant will be approximately 10 minutes total for project overview and survey completion.

Disclosure to Participants

Enough information to complete the survey will be disclosed to participants prior to survey completion. The participants will be aware that the study is related to confidence levels.

Researchers

Selena Smith, Exercise Science undergraduate student at the University of Southern Mississippi: Honors College student and McNair Scholar. She is CPR and First Aid certified. **(Principal Investigator)**

Advisors:

Scott Piland, Ph.D., ATC, Associate Professor: Human Performance and Recreation at the University of Southern Mississippi, Certified Athletic Trainer. PhD in Exercise Science/Kinesiology

Melissa Murray, Ph.D., Assistant Professor: Human Performance and Recreation at the University of Southern Mississippi, Certified Sport and Exercise Psychology Consultant (CC-AASP), Certified Strength and Conditioning Specialist (C.S.C.S.).

Responsible Conduct of Research Statement

All Investigators and Co-Investigators have completed the Responsible Conduct of Research (RCR) training for Research Involving Human Subjects and for Biomedical Research provided by the Collaborative Institutional Training Initiative.

Statement of Support

This study is being supported by USM's School of Human Performance and Recreation in conjunction with the Honors College and the McNair Scholars Program. Neither the Principal Investigator nor any Co-Investigators or research assistants have any competing interests.

3) Exclusion Criteria:

The following individuals will be excluded from participation in the study:

1) Males
2) Not between 18 and 50 years of age
3) Individuals not exercising at a fitness gym

4) Benefits:

. The results of this study may provide insight into the potential differences in self-efficacy among women of different races in an exercise program.

5) Risks:

Possible risks to the participant include:

1) Some participants may be self-conscious regarding the responses to the survey questions.

Steps to minimize risk to the participant:

1) Participants will already be enrolled in a supervised exercise program upon entry, so participation in this study will not increase this risk.
2) All sessions with participants and survey responses will be handled with sensitivity.

Termination Criteria:

Participants will be removed from the study if they:

- Request to withdraw from the study
- Do not respond to all survey items

Data confidentiality:

1) Individual participant information will only be released upon written request to the principal investigator by the participant.
2) Only the principal investigator and advisors will be allowed to examine the data collected on the participant.
3) Electronic data will be saved on a password protected computer and will not connect a participant's identity with their data.
4) Only group data will be disclosed upon completion and publication of this investigation.
5) Data will be kept on file in the office of the principal investigator for three years, after which time all data will be destroyed.

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **12081602**
PROJECT TITLE: **Racial Differences in Self-Efficacy for Exercise**
PROJECT TYPE: **Honors Thesis**
RESEARCHER/S: **Selena Smith**
COLLEGE/DIVISION: **College of Health**
DEPARTMENT: **Human Performance & Recreation**
FUNDING AGENCY: **N/A**
IRB COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF PROJECT APPROVAL: **08/21/2012 to 08/20/2013**

Lawrence A. Hosman, Ph.D.
Institutional Review Board Chair

Appendix II- Survey

Circle One: African American Asian American Indian

Caucasian Hispanic Other

With 0 being not at all confident and 10 highly confident, please rate how confident you are right now that you could exercise three times per week for 20 minutes if:

1. The weather was bothering you

   0 1 2 3 4 5 6 7 8 9 10

2. You were bored by the program or activity

   0 1 2 3 4 5 6 7 8 9 10

3. You felt pain when exercising

   0 1 2 3 4 5 6 7 8 9 10

4. You had to exercise alone

   0 1 2 3 4 5 6 7 8 9 10

5. You did not enjoy it

   0 1 2 3 4 5 6 7 8 9 10

6. You were too busy with other activities

   0 1 2 3 4 5 6 7 8 9 10

7. You felt tired

   0 1 2 3 4 5 6 7 8 9 10

8. You felt stressed

   0 1 2 3 4 5 6 7 8 9 10

9. You felt depressed

   0 1 2 3 4 5 6 7 8 9 10