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Recreational Participation and Perceived Stress Levels of College Students and if Leisure Satisfaction Mediates Their Relationship

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May 2016

To the Dean of the Graduate School:

We are submitting a thesis written by Andrew Montgomery entitled: **RECREATIONAL PARTICIPATION AND PERCEIVED STRESS LEVELS OF COLLEGE STUDENTS AND IF LEISURE SATISFACTION MEDIATES THEIR RELATIONSHIP.**

We recommend acceptance in partial fulfillment of the requirements for the degree of Master of Science in Sport and Fitness Administration through the Richard W. Riley College of Education.

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RECREATIONAL PARTICIPATION AND PERCEIVED STRESS LEVELS OF
COLLEGE STUDENTS AND IF LEISURE SATISFACTION MEDIATES THEIR
RELATIONSHIP.

A Thesis

Presented to the Faculty
of the
Richard W. Riley College of Education
in Partial Fulfillment
of the
Requirements for the Degree
of
Master of Science
in Sport and Fitness Administration
Winthrop University

May, 2016

By

Andrew Montgomery

Abstract

The purpose of this study was to examine the relationship between campus recreation participation and perceived stress in college students and if leisure satisfaction mediates their relationship. Participants for this research were 342 college students at a southeastern university. Students completed a survey about their demographics, perceived stress (PSS-10), campus recreation participation and their leisure satisfaction (LSS). Correlations and mediation was then calculated using the statistical analysis program SPSS. Participants of recreational services perceived stress was not significantly correlated with students who do not use recreational services. Leisure satisfaction was inversely correlated with perceived stress in the participants. Out of the leisure satisfaction subscales, participants who scored higher in relaxation, psychological, and social scored lower on the PSS-10. This research gives evidence that leisure satisfaction through campus recreation can be used as a stress reliever or coping strategy for college students.

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Chapter 1

Introduction

College is a time for students to further their education, gain new life experiences, and to prepare for their future careers. Along with these great opportunities come pressures, responsibilities, and hassles that can lead to students having high perceived stress levels. There are many ways for students to cope with these stressors such as physical activity, social events, or other leisure pursuits. Recreational services provide these types of coping activities students can utilize. It has been shown that physical activity behaviors and exercise can have a protective effect on stress tolerance of college students (Bland, Melton, Bigham, & Welle, 2014). With a wide variety of physical and leisure activity opportunities such as weight lifting, open gym activities, competitive sports, personal training, rock climbing and group exercise, among other programs, recreational services provide a valuable resource for students to cope with mounting stress and pressures of college.

There is no question that college can put enormous amounts of stress on college students. Without adequate coping mechanisms and time management skills, these stressors can lead to decreased performance, motivation, and lower student retention especially within the freshman and transfer populations. Research in the issue of freshman retention has concluded that the departure rate is caused largely by academic and social stressors encountered by students as they attempt to adapt to the college environment (Tinto, 1993). As students move through their college courses, and prepare for future careers, stress levels only tend to increase. These stressors accumulate to

increase a student's perceived stress. Perceived stresses are cognitive and physiological responses that the body makes to challenges and changes in life, which occurs when the individuals determine that specific circumstances have exceeded their existing coping resources or skills (Lazarus & Folkman, 1984). It has been reported that students' stressors have increased in severity over the past decade (Benton, Robertson, Tseng, Newton, & Benton, 2003). With the increase of stress and pressures on college students, it is vital that college campuses provide students with strategies for them to cope with these stressors such as workout facilities and leisure oriented opportunities.

Leisure activities are activities that we engage in for reasons as varied as relaxation, competition, or growth (Hurd & Anderson 2011). Recreational Services can be seen as a leisure activity for students. According to Iwasaki, Zuzanek, & Mannell (2011), participants who participated in physically active leisure activities had higher levels of physical health and well-being with lower scores of mental illness. These participant also had lower levels of chronic stress, life event stress, and/or work stress (Iwasaki, et al., By providing activities that engage students through recreational services, these stress reducing and coping strategies can be adopted by students.

Statement of the Problem

It is important for college students to have coping mechanisms for the stress that they experience in college. It has been shown that leisure activities can be considered a coping mechanism to stress (Qian, Yarnal, & Almeida, 2014). These can be various physical activities such as weight lifting, rock climbing, golfing, open sports, and

swimming which are all activities campus recreation can offer to students. Recreational services provide many opportunities for students to use physical activity as their leisure activity to cope with stress from college. Along with coping with stress, these activities can improve the quality of life through physical activity, socialization, goal setting, and time management. The purpose of this study was to examine the relationship between campus recreation participation and perceived stress levels of college students and to determine if leisure satisfaction mediates their relationship.

Research Questions

For this study, the following research questions were postulated.

1. Do students who participate in campus recreation have a lower perceived stress level than students who do not participate in campus recreation?
2. Does leisure satisfaction mediate the relationship between campus recreation participation and perceived stress levels of college students?

Delimitations

Delimitations for this study are the location of students surveyed. Students at a southeastern university participated in this study. Only current students who were 18 years or older could participate for this survey. Some programs measured from recreational services may not be available at other university recreational centers.

Limitations

This research utilized surveys that were self-reported by participants. With self-report, under or over estimates of participants answers can happen. Students who were 18 and over and current students were allowed to participate in this research. The sample size is also a factor in this research. There was an inadequate amount of participants to fully analyze for mediation. Participants only had 3 weeks to complete the survey.

Definition of Terms

Recreational Services. A term describing a program of recreational activities on a college or university campus, military, correctional or secondary institution with the purpose of administering recreational and sport related facilities and programming for a unique clientele (NIRSA, 2006). Campus recreation will be used interchangeably with recreational services.

Perceived Stress. Are cognitive and physiological responses that the body makes to challenges and changes in life, which occurs when the individuals determine that specific circumstances have exceeded their existing coping resources or skills (Lazarus & Folkman, 1984).

Leisure activities. Activities that we engage in for reasons as varied as relaxation, competition, or growth (Hurd & Anderson 2011).

Chapter 2

Literature Review

Research in campus recreation has been shown to enhance the college experience for students in many areas. Research has shown that participating in recreational services can increase college retention, improve academic success, increase overall college experience, improve interpersonal skills, and create positive work ethic for student employees (Forrester, 2014; Henchy, 2013). Additional benefits include health benefits from physical activity, socialization, and leisure satisfaction that can help reduce stress, anxiety, and help cope with the pressures of college. It can be inferred that students who participate in campus recreation are participating for leisure. Campus recreation is not mandatory for students, and they participate on personal time and for personal reasons and satisfaction. Participants might find more satisfaction in the physiological or psychological aspects of their leisure activities, where others may be more satisfied with social or anesthetic aspects.

The stress reducing activities that the students engage in are unique to that individual. Baghurst and Kelley (2014) found that some students gained better stress management from general physical activity (e.g., weight lifting, open recreation) than participating in cardiovascular fitness. Other research has shown that participants gained more perceived benefit from participating in sport clubs than participating in group fitness or intramurals (Lower, Turner, & Peterson 2013). This could be because of the socialization aspect of sport clubs as compared to individual activities such as weight lifting or cardiovascular activities. Some individuals might benefit more from the team

sport aspect of recreational services as others might benefit from the individual goal setting activities.

Student Benefits of Campus Recreation

In 2014, Forrester analyzed the results from the National Association of Student Personnel Administrators Consortium Nationwide Survey which surveyed over 30,000 students at 38 colleges and universities nationwide. The purpose was to inquire about student participation, retention, recruitment, wellness, learning outcomes, benefits, and student outcomes in the campus recreation field. For the purpose of this study, student benefits, skills, and college experience will be focused on from the results of this survey. According to Forrester, the top five wellness benefits participants perceived were feeling of well-being, overall health, increasing fitness level, increase in strength, and stress management. The top four skills participants perceived to increase while participating in campus recreation were time management, respect for other students, academic performance and sense of belonging/association. The top five ways participation enhanced students' college experience were meeting new people and forming new relationships, relieving stress, physical fitness, improved health, and fun and enjoyment.

These findings are vital for the research of benefits students perceived by participating in recreation services for many reasons. According to Forrester (2014), stress relief was a benefit in two of the categories. Time management was improved while participating in campus recreation. Time management is crucial for college because it is how people spread themselves over homework, job, socialization, sleep, and leisure

activities. This survey has shown that participating in campus recreation can relieve stress and improved time management skills which are important to balance the pressures and stress that college students experience.

Results of the National Intramural-Recreational Sports Association's Student Voice Campus Recreation Impact Study were analyzed by Henchy in 2013. Total of 479 students participated in this study and they were undergraduates and graduate students at a southeastern university. The survey consisted of 127 questions pertaining to their recruitment, retention, satisfaction, involvement, and benefits received from participating in campus recreation. According to Henchy, students who participated in campus recreation had an increase in belonging to the university, overall wellness, and an overall enhanced college experience. These participants also reported that their academic success increased through participating in campus recreation. Over half of the respondents answered that campus recreation moderately helped manage stress and over 80% of respondents perceived that they had better overall health and fitness levels. These findings are consistent with past studies (Baghurst & Kelley 2014; Forrester 2014). Major themes from these studies are that recreational services has impacted student success, recruitment, community belonging, overall perceived health, socialization, and stress management. The overall effect of campus recreation continuously shows evidence that students who participate in campus recreation have received benefits ranging from overall health to skills that can be applied to post college life.

Lower, Turner, and Peterson (2013) compared perceived benefits between different programs in recreation. The three programs were group fitness, intramural sport and sport clubs, and the four benefit groups were overall, intellectual, social, and fitness. The participants for this study were 1,176 students at a postsecondary institution. Participants were mailed a survey containing three different parts. This survey included questions from the Quality and Importance of Recreation Services perceived benefits scale, the Task and Ego Orientation in Sport Questionnaire survey, and a portion on demographics. The results showed that sports clubs had the highest average of perceived benefits compared to group fitness and intramurals. The study also showed evidence that all areas of recreation participation had a positive perceived benefit. This study shows evidence that participation in recreational services does not just give exercise benefits but it also gives socialization participation. These results suggest that it's not just the physical activity that students can benefit from, but also the socialization. Some participants might have the competitive edge that motivates them to participate. Sport clubs would be the activity for these types of participants because it can be considered a competitive activity. Clubs hold competitions and tournaments for other schools to join and participate. This competitive environment might suit those individuals who are looking for that aspect. Sport clubs also have a sense of community and teamwork. These are students who are interacting with each other every week during workouts and practice that can form that team bond.

Lindsey (2012) analyzed the benefits and satisfaction of participating in campus recreational sports facilities and programs among African American students. The

participants in this study were 158 Department of Health and Human Performance majors at a small private southeastern historically black college and university. The survey was a modification of the NIRSA Quality and Importance of Recreational Services Survey.

This survey is used by institutions interested in assessing the impact of recreational sport activity on student recruitment, retention, satisfaction, educational development and involvement (Lindsey). It was determined that 80% of participants benefitted with communication skills, a sense of belonging/association, and 76% of participants benefitted with leadership skills. Males showed more sense of confidence. Results also showed that 90% of participants showed a better feeling of wellbeing, 78% had a higher sense of accomplishment, and 81% improved their respect for others. The results showed that recreational services have a positive impact on students' college experiences.

Whether that's through social interaction, physical activity, or pursuit of personal goals, recreational services have a variety of opportunities for students to participate in. The findings of Lindsey (2012) are consistent with other research articles on benefits of campus recreation. Whether it's a sense of community, increased fitness levels and overall health, stress management, improved skills, increased confidence, increased opportunities to socialize with other students, and many more, recreational services has shown it can provide these services for students. Benefits are individual to each participant, but overall, recreational services have shown to play a vital role in recruitment and retention of students.

Leisure and Stress

Iwasaki, Zuzanek, & Mannell (2011) analyzed data from Canada's 1994 National Population Health Survey. Participants of this study were 17,626 people who lived in Canada during this time. By using structural equation modeling, correlations and patterns were identified from the data. Participants who participated in physically active leisure activities had higher levels of physical health and well-being with lower scores of mental illness. These participants also had lower levels of chronic stress, life event stress, and/or work stress. The physical leisure activities also had a buffering effect from life/work stressors, and it was concluded that physical leisure activities can be a significant buffering or coping strategy for stress. This applies to recreational services since many of the services of campus recreation are physically active.

Misra and McKean (2000) investigated the interrelationship between academic stress, anxiety, time management, and leisure satisfaction of activities of college students. The participants for this study were 249 undergraduates. Participants completed a four-part survey which consisted of the Gadzella's Student Life Stress Inventory, the Leisure Satisfaction Survey, the Time Management Behaviors Scale, and Spielbergers State-Trait Anxiety Inventory Form. The authors reported time management had the biggest buffering effect on academic stress than leisure satisfaction. This means the stress reducing/coping activities can reduce the impact of stress on the wellbeing of the individual. The results showed that anxiety reduction and time management, in conjunction with leisure satisfaction, may be an effective strategy for reducing academic

stress in college students. If students can manage enough time for leisure activities, along with their responsibilities such as work, sleep, social relationships and homework, they can more effectively manage the build-up of stress over a long period of time. As it has been stated in other literature, participating in campus recreation can improve students' time management skills (Forrester, 2014). This is another aspect of how campus recreation does not just improve the overall quality of students' college experience but help them gain important skills (i.e. time management) for life after college.

Chun, Lee, Kim, & Heo (2012) examined the relationship of leisure participation and satisfaction on the stress related growth complex (the ability of going through stressful events and gaining perspective and knowledge). The participants for this study were 318 undergraduate students at an eastern Canadian university. The participants completed a survey with four parts: the stressful life events, the stress related growth scale, frequency of leisure participation, and the leisure satisfaction survey. The researchers then performed descriptive analysis, multiple regression, the Pearson's zero function, and a Cronbach's alpha coefficient to test for patterns, correlations, reliability, and central tendencies of the data. According to Chun and colleagues, leisure satisfaction was the strongest predictor of stress related growth. This provided evidence that leisure satisfaction can help students cope during stressful times, but it also showed meaning to stressful events. Leisure satisfaction can play a role in how students cope with, and grow from, stressful events (Chun et al.). Further research is needed to explore how leisure satisfaction helps students grow from stressful events.

Leisure as a Mediator

A mediator explains how a variable influences another variable. It is clear from the research that participation in recreational services can serve as a coping strategy for students' stress levels, and in some cases, reduce overall stress and improve physical well-being. Participants who utilize recreational services can potentially help reduce stress through their leisure satisfaction. It is possible this relationship is mediated by leisure satisfaction. Not many studies have examined this relationship from a mediation approach.

Qian, Yarnal, & Almeida (2014) examined the effect of leisure time as a coping mechanism to daily stressors, if it moderates or mediates their relationship. The data for this study came from the National Study of Daily Experience. Participants for this study were 2022 English speaking population in the United States. Each participant gave interviews over the phone for 8 consecutive days. They were asked about the stressful events, time use behaviors, physical symptoms, and their positive and negative affect. According to Qian and colleagues, the results showed that having more leisure time than average partially mediated the effect of highly stressful events. Participants who scored high on their stressful events managed more time for the leisure activities. The leisure time seemed to moderate stressful events on the positive affect rather than mediate it. This study also supported that depending on the stress level of the individual, the allotted time for leisure activities had more of a moderating effect on positive affect. The results also showed that the effect of leisure time was ultimately determined by the individual.

Some individuals were able to get more coping resources through their leisure activities based on what they chose to do (Qian et al.).

College can put many types of stresses and pressures on students to perform at their highest level. Student need to find ways to cope with these factors whether it is found in physical activity, socialization, or any activity they find enjoyment participating in. It is important for colleges to provide opportunities for students to cope with these stressors. Campus recreation is a great way to provide an outlet for students to cope with these pressures. With the past research that has shown the benefits students can get from participating, campus recreation is and will be an important aspect on college campuses. The purpose of this study was to examine the relationship between campus recreation participation and perceived stress levels of college students and to determine if leisure satisfaction mediates their relationship.

Chapter 3

Methods and Procedures

The purpose of this study was to examine the relationship between participation in campus recreation and perceived stress in college students, and to determine if leisure satisfaction mediates their relationship. Previous research has shown that leisure time has a mediating effect on daily stressors (Qian et al., 2014). A vast amount of research shows that participation in recreational activities can lower stress levels through a coping strategy (Forrester, 2014; Henchy, 2013). Minimal research has been performed on possible mediators of this relationship.

Participants

Participants for this study were 342 college students at a southeastern university. To participate in this study, current students need to be 18 years or older and a current student. Participants were provided a written statement at the beginning of the survey, and continued if they agreed to participate. The research was conducted in the spring of 2016. Participants were recruited in multiple ways. All current students were sent an email with the link attached. Additionally, fliers were posted around campus. The flyer informed students of what the survey pertained to. This study was voluntary and students could quit at any time. This research was approved by the university's Institutional Review Board.

Instrumentation

The demographic information was assessed with 7 items and included: age, gender, ethnicity, class standing, living status (on campus or off), employment (on campus or off), and year in school.

Perceived stress levels were measured with PSS-10, which measures to what degree situations in one's life are appraised as stressful (Cohen, Karmark, & Mermelstein, 1983). It has been shown to possess substantial reliability and validity (Cohen, Karmark, & Mermelstein 1983). For the purpose of this study, the 10 question version was used. Examples of the PSS-10 include: "In the last month, how often have you been upset because of something that happened unexpectedly" and "In the past month, how often have you felt difficulties were piling up so high that you could not overcome them", and responses for each item range from 4 (strongly agree) to 0 (strongly disagree). Responses were summed for a total PSS-10 score, with higher scores indicating high amounts of perceived stress in that individual and lower scores indicating that the individual has a lower perceived stress level.

Campus recreation participation was assessed with 4 items. Questions asked about frequency and duration of activities, as well as the type of recreational programs the students had recently participated (within the last 30 days).

Leisure satisfaction was measured with the 24-item Leisure Satisfaction Survey (LSS). The LSS has six subscales that focus on: psychological, educational, social, relaxing, physiological and aesthetic forms of leisure satisfaction. This survey is used to

measure the degree to which an individual feels his/her general “needs” are being satisfied through leisure. Examples of the LSS include: “My leisure activities are very interesting to me” and “My leisure activities provide opportunities to try new things”, and responses for each item range from 5 (strongly agree) to 0 (strongly disagree). Responses within each subscale were summed, and then all subscales were summed for a total LSS score, with higher scores indicating the satisfaction the individual received from that leisure activity and lower scores indicating the lack of satisfaction that is received through that leisure activity. This survey also has a .96 reliability when the researchers ran factor analysis and an alpha reliability function (Ragheb & Beard 1980).

Data Analysis

The data was integrated into SPSS Statistics program. Descriptive analyses were used on the demographics. Correlation tests were used on PSS-10 total score and Leisure Satisfaction Survey Total score. Regression analysis were used on all three variables to produce the variables for the PROCTLIN program to measure for any mediation relationship.

Chapter 4

Journal Manuscript

College is a time for students to further their education, gain new life experiences, and to prepare for their future careers. Along with these great opportunities comes pressures and hassles that lead students to have high levels of perceived stress.

Recreational services provide several ways for students to cope with these stressors, such as physical activities, socialization, competitive sports, and other leisure activities. It has been shown that physical activity behaviors and exercise can have a protective effect on stress tolerance of college students (Bland, Melton, Bigham, & Welle, 2014). It has also been shown that leisure activities can be considered a coping mechanism to stress (Qian, Yarnal, & Almeida, 2014). With a wide variety of physical and leisure activity opportunities, recreational services provide a valuable resource for students to cope with mounting stress and pressures of college. Research has given evidence that stress management is a benefit from participating in campus recreation (Henchy, 2014). The significance of this study is to observe if participation in campus recreation lowers perceived stress levels through leisure satisfaction. The purpose of this study was to examine the relationship between campus recreation participation and perceived stress levels in college students and to examine if leisure satisfaction mediates their relationship.

Recreational services play an important role on college campuses. It has been shown that students who participated in campus recreation had an increase in belonging to the university, better overall wellness, and enhanced college experience (Henchy,

2013). These factors can determine a student's college experience. A national study found that the top five wellness benefits perceived from participation in recreational services were increased well-being, improved overall health, increased fitness level, increased strength, and increased stress management (Forrester, 2014). Recreational services provide many of these leisure activities for students, such as weight lifting, intramural sports, group fitness and open recreation.

With the mounting stressors college can put on students, if students do not have adequate coping mechanisms, this can lead to decreased academic performance and poorer health. Perceived stress is the body's cognitive and physiological responses to challenges and changes in life. Specifically, perceived stress is high when the individuals determine that specific circumstances have exceeded their existing coping resources or skills (Lazarus & Folkman, 1984). Research on freshman retention rates have concluded that the departure rate is caused largely by academic and social stressors encountered by students as they attempt to adapt to the college environment (Tinto, 1993). It is important to help students find ways to cope with these stressors of college at an early period. As mentioned, participation in recreational services can provide a healthy and effective coping strategy for student's stress levels.

Leisure activities affect people in different ways. Studies have shown people who participated in physically active leisure activities had higher levels of physical health and well-being with lower scores of mental illness. These participants also had lower levels of chronic stress, life event stress, and/or work stress. The physically active leisure

behaviors in which the participants were engaged had a buffering effect from life/work stressors (Iwasaki, Zuzanek, & Mannell, 2011). Other studies exhibited evidence that leisure satisfaction can help students cope during stressful times, and can give meaning to these stressful events (Chun, Lee, Kim, & Heo 2012). Previous research has also shown that having more leisure time than average can partially mediated the effect of highly stressful events (Qian, Yarnal, & Almeida, 2014). With the many socialization, physical activity, and self-efficacy opportunities for students, recreational services can play a key role in promoting healthy ways for students to relieve and cope with the stressors of college. Activities with high amounts of leisure satisfaction give individuals time to relax and participate in activities they enjoy. It gives them a chance to relieve stress by having time for them to enjoy themselves and their particular activity. The purpose of this study was to examine the relationship between recreational services participation and perceived stress of college students and to see if leisure satisfaction mediates their relationship.

Methods and Procedures

Participants. Participants were recruited for the research in the following ways: student listserv emails, flyers around campus, and participation in certain academic classes. Participants who volunteered to take this survey followed a link that took them to the online survey. The sample used for analysis consisted of 342 participants. This sample consisted of male (n = 101; 32.4%), and female (n = 211; 67.6%) participants and majority consisted of white (n = 183; 58.7%) and black/African American (n = 100; 32.1%).

Research Design. This study was non-experimental, descriptive, survey-based study. The survey was administered via Qualtrics, and consisted of five parts: a written statement, demographics, the Perceived Stress Survey (PSS-10), campus recreation participation, and the Leisure Satisfaction Survey (LSS).

The research was conducted in the spring of 2016. Participants were recruited in multiple ways. All current students were sent an email with the link attached. Additionally, fliers were posted around campus. The flyer informed students of what the survey pertained to. This research was approved by the university's Institutional Review Board.

Instrumentation. All surveys were conducted through the online survey tool Qualtrics.

Demographic questions consisted of the following, age, gender, race/ethnicity class status, year in school, on/off campus residence, and on/off campus employment.

Perceived stress levels were measured with PSS-10, which measures to what degree situations in one's life are appraised as stressful (Cohen, Karmark, & Mermelstein, 1983). It has been shown to possess substantial reliability and validity (Cohen, Karmark, & Mermelstein 1983). For the purpose of this study, the 10 question version was used. Examples of the PSS-10 include: "In the last month, how often have you been upset because of something that happened unexpectedly" and "In the past month, how often have you felt difficulties were piling up so high that you could not overcome them", and responses for each item range from 4 (strongly agree) to 0 (strongly disagree). Responses were summed for a total PSS-10 score, with higher scores

indicating high amounts of perceived stress in that individual and lower scores indicating that the individual has a lower perceived stress level. The reliability for the PSS was $\alpha = .831$. When scoring the PSS-10, questions 4, 5, 7, & 8 are reverse coded.

Leisure satisfaction was measured with the 24-item Leisure Satisfaction Survey (LSS). The LSS has six subscales that focus on: psychological, educational, social, relaxing, physiological and aesthetic forms of leisure satisfaction. This survey is used to measure the degree to which an individual feels his/her general “needs” are being satisfied through leisure. Examples of the LSS include: “My leisure activities are very interesting to me” and “My leisure activities provide opportunities to try new things”, and responses for each item range from 5 (strongly agree) to 1 (strongly disagree). Responses within each subscale were summed, and then all subscales were summed for a total LSS score, with higher scores indicating the satisfaction the individual receives from that leisure activity and lower scores indicating the satisfaction that is received through that leisure activity. Reliability for each subscale was acceptable and was as follows: psychological ($a = .898$), education ($a = .826$), social ($a = .862$), relaxation ($a = .883$), physiological ($a = .910$) and aesthetic ($a = .830$). This survey also has a .96 reliability when the researchers ran factor analysis and an alpha reliability function (Ragheb & Beard 1980).

Statistical Analysis. Mediation was tested with the product of coefficients approach. First a separate regression analysis was performed in order to predict each dependent variable Y (PSS score) from the independent variable X (Recreation

participation) which indicates the strength of the association between the independent and dependent variables. Second, a regression analysis was performed to predict the mediator M (Leisure satisfaction score) from the independent variable X (Recreation participation). The results of these models provided the coefficient for the *a* path, which is the path coefficient from the relationship between the independent variable and the mediator. Thirdly, a regression analysis was performed to predict each dependent variable Y from both the independent variable X and the Mediator M. The results of this model provided the coefficient for the *b* path, which represents the relationship between the mediator and the dependent variable, controlling for the independent variable. These variables were entered in the PRODCLIN program.

Results

Of the 342 participants that started the survey, 30 were removed due to a high amount of missing data. This was due to not completing the survey (14%). Table 1 describes the samples demographics and characteristics.

Perceived Stress. There was no significant difference between perceived stress level total score and whether the participants participated in recreational services. There was a significant inverse correlation between leisure satisfaction and total PSS score. As leisure satisfaction increased, perceived stress level decreased ($r(131) = -.182, p < .05$). There was also an inverse relationship between PSS total score and age and year in school. The younger the participant and earlier in their school experience, the more perceived stress they are experiencing. Within the subscales of the leisure satisfaction,

there was a negative correlation between social ($r(131) = -.216, p < .05$), relaxation ($r(131) = -.223, p < .001$) and psychological ($r(131) = -.197, p < .05$). As these three subscales increased, perceived stress decreased.

Leisure satisfaction. There was an inverse correlation between leisure satisfaction and perceived stress level total. The more leisure satisfaction participants received from recreational services, the less their perceived stress level score was ($r(131) = -.184, p < .05$). There was also a positive correlation between leisure satisfaction, age, and class ($r(131) = .164, p < 0.5$), $r(131) = .175, p < .05$) respectively). The older the participant and farther along they were in their college career, the more leisure satisfaction they received from participating in recreational services. Recreational services usage showed a positive correlation with age ($r(131) = .123, p < .05$) and class ($r = .221$).

Mediation between leisure satisfaction and perceived stress. Leisure satisfaction had no mediating effect on perceived stress levels of college students. A reason for this is because the sample size was not big enough to fully have any mediating value. The goal was to get at least 500 participants which would have been enough to establish a mediating variable. With the 342 participants, with 30 being taken out, there was not enough data to establish a mediating effect. Research by Fritz & MacKinnon (2006) examined the required sample size to detect mediated effects, the results showed the recommended number of participants to establish a mediation power was 500 participants.

Discussion

The purpose of this study was to examine the relationship between recreational services participation and perceived stress levels of college students to examine if leisure satisfaction mediated their relationship. The results showed that there was no significant correlation between participants of recreational services and perceived stress levels. The only variable that was correlated with perceived stress was leisure satisfaction. This is consistent with previous research that leisure satisfaction can be used as a stress coping or reducing factor (Qian et al., 2014). There was no mediation from leisure satisfaction on perceived stress level.

Other results showed that the younger and earlier the student is in their college career, the more perceived stress they have. This is consistent with previous research by Tinto 1993. Researchers analyzing the issue of freshman retention have concluded that the departure rate is caused largely by academic and social stressors encountered by students as they attempt to adapt to the college environment (Tinto, 1993). Results of this study can reinforce the idea that recreational services don't just help with health conscious individuals but can be used to relieve and cope with stress. With the three sub-categories social, relaxation, and psychological being correlated the most with decreasing perceived stress, programs can use this information to adapt their services to incorporate more of these aspects in their activities.

Limitations & Strengths. There were limitations to this study that could affect the analysis of the data. The small sample size made it difficult to analyze for any mediation between leisure satisfaction and perceived stress level. There were also 49 individuals who started the survey but did not finish. This came out to be 14% of the sample size. Another limitation of this study was that the surveys were a self-report style.

Strengths of this research can be seen in the population that participated. There was an even spread on males and females along with the majority ethnicities at the university. The surveys used to measure perceived stress and leisure satisfaction have been widely used. This makes reliable and valid measurements for those factors.

Practical Application

The results for this study can be used to express some of the importance of campus recreational services. Results showed that students who gained higher leisure satisfaction through campus recreation had low perceived stress levels. By exploring what part of the leisure satisfaction individuals gain the most from, it can be used in programming by personal trainers or group fitness instructors to maximize leisure satisfaction in their programs. Analyzing what particular area of recreational services participants are engaged in and seeing how this effects their leisure satisfaction, gives campus recreation more of an idea of what participants are gaining, leisure wise, from those activities. This information can be used to expand or broaden the scope of activities that are available. Since mediation was not found and there was no significant correlation

between campus recreation participation and perceived stress levels, more research is needed to explore those relationships and how leisure satisfaction plays a role.

By providing evidence of benefits that students receive from participating in campus recreation and how campus recreation plays a role in stress management and relief in students, this information can be used for justification purpose for the university. This can be seen from a budgetary view and a student involvement view. From a student perspective, studies like this can be used to recruit students who do not participate in recreational services. By giving evidence of these stress relieving qualities students can receive, this can persuade or motivate non participants to engage in activities provided by recreational services.

Table 1*Characteristics of Sample*

Characteristics	n	%	<i>M</i>	<i>SD</i>	Missing
Gender					
Male	101	29.5			30
Female	211	61.7			
Age	312		20.7	3.6	30
Year in school					
First year	88	25.7			30
Second year	69	20.2			
Third year	70	20.5			
Fourth year	53	15.5			
Fifth year or more	14	4.1			
Graduate or	18	5.3			
Race/Ethnicity					
White	183	53.5			30
Black/African American	100	29.2			
Hispanic/Latino	12	3.8			
Asian/Pacific Islander	1	.3			
American Indian/Alaskan Native/ Native Hawaiian	2	.6			
Other	14	4.1			
Employment					
On campus	83	24.3			30
Off campus	87	25.4			
Not employed	142	41.5			
Living Arrangement					
On Campus	181	52.9			30
Off campus	131	38.3			

n = number, % = percent of sample, M = mean, SD = Standard Deviation

Table 2.*Correlation matrix for all scales used in study.*

Variables	Rec Dur	Rec Freq	PSS T	LSS T	Sub Psych	Sub Educ	Sub Social	Sub Relax	Sub Physio	Sub Aesth
Rec Dur	----	.228*	-.121	.185*	.154*	.124	.104	.133	.232*	.109
Rec Freq	----	----	-.149	.159*	.223*	.130	.123	.56	.196*	.109
PSS T	----	----	----	-.184*	-.125	-.117	-.216*	-.223*	-.197*	.019
LSS T	----	----	----	----	.804*	.773*	.762*	.794*	.737*	.788*
Sub Psych	----	----	----	----	----	.590*	.528*	.603*	.542*	.528*
Sub Educ	-----	-----	-----	-----	-----	----	.601*	.490*	.415*	.509*
Sub Social	-----	-----	-----	-----	-----	-----	-----	.548*	.342*	.519*
Sub Relax	-----	-----	-----	-----	-----	-----	----	-----	.522*	.545*
Sub Physio	-----	-----	-----	-----	-----	-----	-----	-----	-----	.571*
Sub Aesth	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

*Significant correlation ($p < .05$), **Significant correlation ($p < .01$) Rec P = Recreational services participation, Rec Freq = Participation Frequency, PSS-T = Perceived Stress Survey Total, & LSS T = Leisure Satisfaction Survey. Subcategories: Sub Psych – psychology, Sub Educ – Education, Sub Social – Social, Sub Relax – Relaxation, Sub Physio – Physiological, & Sub Aes – Aesthetic

APPENDICES

Appendix A

IRB #
TO BE COMPLETED BY SPAR

Winthrop University

REQUEST FOR REVIEW OF RESEARCH INVOLVING HUMAN SUBJECTS
Institutional Review Board

<p>RESEARCHER of RECORD: Andrew Montgomery COLLEGE/DEPARTMENT: College of Education/PESH PHONE NUMBER: HOME: na WORK: na EMAIL: montgomerya11@winthrop.edu CELL PHONE: 785-215-0801 ADDRESS: [REDACTED]</p> <p>STATUS: <input type="checkbox"/> Faculty or Staff (If a student, complete faculty advisor section) <input checked="" type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student</p>	<p>CO-RESEARCHERS: Dr. Joni Boyd, Dr. Jinwook Chung, and Dr. Janet Wojcik</p> <p>FACULTY ADVISOR: Dr. Joni Boyd ADVISOR PHONE: HOME: na WORK: 803-323-4936 EMAIL: boydj@winthrop.edu CELL PHONE: [REDACTED] ADDRESS: [REDACTED]</p>
<p>TITLE OF RESEARCH: The effects of campus recreation on perceived stress levels of college students and how leisure satisfaction mediates their relationship.</p>	
<p>DATES OF THE RESEARCH PROJECT:</p> <p>Approval Requested for Start Date: 12/1/2015 (The requested start date should be at least 2 weeks after the next scheduled meeting of the IRB)</p> <p>End Date: 11/15/2015 (Maximum of one year; must be renewed annually)</p>	
<p>IS THIS RESEARCH BEING FUNDED BY RESEARCH GRANT?</p> <p><input type="checkbox"/> YES; Sponsor: <input type="checkbox"/> Funding Applied for; Sponsor: <input checked="" type="checkbox"/> NO</p>	
<p>1.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is this activity being carried out by student as a classroom assignment to be reviewed by the faculty member.</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Will the information gathered or developed in this activity be used in a presentation or publication outside of the classroom?</p> <p>If you checked yes to both questions above, please explain how the information will be used outside of the classroom: The informaion may be used to publish in a journal.</p>
<p>2.</p>	<p>INDICATE THE TYPES OF MEMBERS OF THE RESEARCH TEAM WHO WILL HAVE DIRECT CONTACT WITH HUMAN SUBJECTS:</p> <p><input type="checkbox"/> FACULTY MEMBER <input type="checkbox"/> STAFF MEMBER <input type="checkbox"/> UNDERGRADUATE STUDENT <input checked="" type="checkbox"/> GRADUATE STUDENT <input type="checkbox"/> OTHER; SPECIFY:</p>

	<p>A. BRIEFLY DESCRIBE THE PURPOSE OF THE RESEARCH IN NON-TECHNICAL LANGUAGE: The purpose is to measure campus recreation usage and perceived stress levels of college students while examining how leisure satisfaction effects their relationship.</p>																		
3.	<p>B. DESCRIBE RESEARCH PROTOCOL OR METHODOLOGY TO BE USED: The purpose of this study is to measure campus recreation participation and perceived stress levels of college students and to examine how leisure satisfaction mediates their relationship. Participants will be current Winthrop students who are 18 years and older. The design of this research is survey based. This survey will have four parts, demographics, recreational participation, the Leisure Satisfaction Survey, and the Perceived Stress Scale (PSS-10). The LSS and PSS are Likert-type scales which data collected will be transferred to SPSS where it will be statistically analyzed.</p>																		
4.	<p>EXPLAIN BRIEFLY BUT COMPLETELY WHAT TASKS OR ACTIVITIES THE SUBJECTS IN THIS RESEARCH WILL BE DOING [If a survey/questionnaire is to be used, state how many questions will be asked and the expected time to complete the survey]: Participants of this study will take a four part survey which includes demographics, campus recreation participation, the Leisure Satisfaction survey and the Perceived Stress survey (PSS-10). There are a total of 44 questions. Besides the demographics and campus recreation usage, all other questions are in a Likert-scale format. This survey should take approximately 10 minutes to complete.</p>																		
5.	<p>DESCRIBE SUBJECTS FOR THIS RESEARCH, INCLUDING A STATEMENT OF WHO WILL BE RECRUITED AND THE ANTICIPATED POPULATION SIZE: Subjects: Current Winthrop Students who are 18 years and older. Recruitment: Students in academics classes will be utilized for this survey. Anticipated Population: 500 - 700 students.</p> <p>DO YOUR SUBJECTS INCLUDE ANY OF THE FOLLOWING:</p> <table border="0"> <tr> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Infants and children younger than 7 years?</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Institutionalized mentally impaired people?</td> </tr> <tr> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td>Students enrolled in your own classes?</td> </tr> <tr> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td>Students enrolled at Winthrop University?</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Prisoners?</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Other special populations? Specify -</td> </tr> </table>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Infants and children younger than 7 years?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Institutionalized mentally impaired people?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Students enrolled in your own classes?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Students enrolled at Winthrop University?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Prisoners?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Other special populations? Specify -
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Infants and children younger than 7 years?																	
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<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Students enrolled in your own classes?																	
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Students enrolled at Winthrop University?																	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Prisoners?																	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Other special populations? Specify -																	
6.	<p>DESCRIBE HOW SUBJECTS WILL BE RECRUITED FOR THIS RESEARCH: This survey will be available to students who are enrolled in certain academic classes through their email. Since this is a voluntary study, they may choose to participate or not.</p>																		
7.	<p>HOW WILL YOU ASSURE THAT PARTICIPATION OF THE SUBJECTS IS VOLUNTARY? Students will receive nothing for taking this survey. Its strictly voluntary.</p>																		
8a.	<p>CAN THE HUMAN SUBJECT BE DIRECTLY IDENTIFIED BY: <i>(For any responses of "yes" indicate in the space provided how the subject's privacy will be protected.)</i></p> <table border="0"> <tr> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Name on Response form;</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Photograph:</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Television/VCR/DVD tapes:</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Audiotape:</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Coded Research Forms:</td> </tr> </table>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Name on Response form;	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Photograph:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Television/VCR/DVD tapes:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Audiotape:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Coded Research Forms:			
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Name on Response form;																	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Photograph:																	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Television/VCR/DVD tapes:																	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Audiotape:																	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Coded Research Forms:																	

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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	Detailed Biographical Data: Informed Consent, Assent or Parental Permission forms: Other:
8b.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If you checked yes to any item in 8a; then: Will personally identifiable data be shared with others outside of this research team? If you checked yes, please explain.
9.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	THE RESEARCHER SHALL MAKE EVERY POSSIBLE ATTEMPT TO MAINTAIN CONFIDENTIALITY OF THE RESEARCH AND THE HUMAN SUBJECTS. IF FOR SOME REASON, THE RESPONSES, INFORMATION, OR OBSERVATIONS OF THE SUBJECT BECAME KNOWN TO PERSONS OTHER THAN THE RESEARCHERS, COULD THIS INFORMATION POTENTIALLY PLACE THE SUBJECT AT RISK OF: DAMAGE TO HIS/HER FINANCIAL STANDING? DAMAGE TO HIS/HER PRESENT OR FUTURE EMPLOYABILITY? CRIMINAL OR CIVIL LIABILITY? PSYCHOLOGICAL/EMOTIONAL PROBLEMS? EXPLAIN ANY "YES" ANSWERS AND STEPS THAT HAVE BEEN TAKE TO MINIMIZE RISK:
10.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE ANY OF THE TECHNIQUES LISTED BELOW INVOLVED IN THE RESEARCH? INVASIVE MEDICAL PROCEDURES? NON-INVASIVE MEDICAL PROCEDURES? STRENUOUS EXERCISE? OTHER PHYSICAL TESTING EXPLAIN ANY "YES" ANSWERS AND STEPS THAT HAVE BEEN TAKE TO MINIMIZE RISK:
11a		DESCRIBE HOW LEGALLY EFFECTIVE INFORMED CONSENT WILL BE OBTAINED AND ATTACH A COPY OF THE CONSENT FORM. IF MINORS ARE TO BE USED AS RESEARCH SUBJECTS, DESCRIBE PROCEDURES USED TO GAIN CONSENT OF THEIR PARENT(S, GUARDIAN(S), OR LEGAL REPRESENTATIVE(S). There will be a written statement at the beginning of the survey. This written statement describes what the study is about, how it is a voluntary study, how data will be kept, and it states the participant may choose to not participate with no penalties. At the beginning of the survey, there are two filtering questions. Once question pertains to age and the other if they are a current Winthrop student. If they are below 18 years old or if they are not a current Winthrop student, then the survey goes to the debriefing form.
11b		WAIVER OF SIGNED INFORMED CONSENT REQUIREMENT TO REQUEST A WAIVER OF A SIGNED INFORMED CONSENT, COMPLETE THE FOLLOWING: <input type="checkbox"/> The only record linking the subject and the research would be the consent document, and the principal risk will be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern. Section 46.117(c)1 <input checked="" type="checkbox"/> The research presents no more than minimal risk of harm to the subjects, and involves no procedures, for which written consent is normally required outside of the research context. Section 46.117(c)2 <input type="checkbox"/> The research or demonstration project is to be conducted by or subject to the approval of state or local government officials and is designed to study, evaluate, or otherwise examine (i)public benefit or service programs; (ii)procedures for obtaining benefits or services under these programs; (iii)possible changes in or alternatives to those programs or procedures; or (iv)possible changes in methods or levels of payment

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	<p>for benefits or services under those programs; and the research could not practicably be carried out without the waiver or alteration. Section 46.116(c)</p> <p><input type="checkbox"/> The research involves no more than minimal risk to the subjects, the waiver will not adversely affect the rights and welfare of the subjects, the research could not practicably be carried out without the waiver, and whenever appropriate, the subjects will be provided with additional pertinent information after participation. Section 46.116(d)</p> <p>In cases where the documentation requirement is waived, the IRB may require the investigator to provide subjects with a written statement regarding the research.</p>	
12.	<p>STORAGE AND DISPOSAL OF DATA AND OTHER RESEARCH MATERIALS:</p> <p>A. How and where will the data and other research material be stored until no longer needed? All data will be kept on a password protected hard-drive that is locked in the researchers office.</p> <p>B. When will the disposal of data and research materials take place? 3 years after March 2016.</p> <p><i>At a minimum, investigators must maintain research records for at least three (3) years after completion of the research. All records must be accessible for inspection and copying by authorized representatives of the IRB, any federal department or agency supporting the research, and sponsor, if any. (Source: 45CFR46.115) If the Principal Investigator is a student, then the faculty advisor will be responsible for the record retention. If you are a member of a professional association or society, you may be required by their practices to keep records longer than 3 years.</i></p> <p>C. How will data and research materials be disposed ? Erased off the external hardware.</p>	
13.	<p>INDICATE ON THE CHECK LIST BELOW, ANY DOCUMENTS THAT APPLY TO YOUR RESEARCH AND ATTACH TO THIS PROTOCOL A COPY OF THE APPLICABLE DOCUMENT.</p> <p><input checked="" type="checkbox"/> SURVEY INSTRUMENT AND/OR INTERVIEW QUESTIONNAIRE</p> <p><input type="checkbox"/> INFORMED CONSENT AGREEMENT</p> <p><input type="checkbox"/> PARENTAL OR GUARDIAN PERMISSION FOR A MINOR CHILD TO PARTICIPATE IN A RESEARCH STUDY</p> <p><input type="checkbox"/> ASSENT TO PARTICIPATE IN A RESEARCH STUDY (AGES 7-14 YEARS)</p> <p><input type="checkbox"/> ASSENT TO PARTICIPATE IN A RESEARCH STUDY (AGES 15 - 17 YEARS)</p> <p><input type="checkbox"/> COPIES OF ANY OTHER MAIL TO BE DELIVERED TO RESPONDENTS OR SUBJECTS (E.G. COVER LETTERS, SCRIPTS OF VERBAL INSTRUCTIONS, ETC.)</p>	
14.	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>DO YOU CONSIDER THIS RESEARCH EXEMPT FROM REVIEW BY THE HUMAN SUBJECTS COMMITTEE? IF YES, Please check the reason for exemption from the list below:</p>
a.	<input type="checkbox"/>	<p>Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (a) research on regular and special education instructional strategies; or (b) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods [45CFR46(b)(1)]</p>
b.	<input checked="" type="checkbox"/>	<p>Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement) survey procedures, interview procedures or observation of public behavior, unless (a) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (b) any disclosure of the human subjects' responses outside the research could reasonably place the subject at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability or reputation. [45CFR46(b)(2)]</p> <p>Research involving children (subjects that have not attained the age of 18 years) is not exempt under this category unless the research involves only the observation of public behavior and the researchers do not participate or impact the activities being observed. [45CFR46.401(b)]</p>
c.	<input type="checkbox"/>	<p>Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior if (a) the human subjects are elected or appointed public officials or candidates for public office; or (b) federal statute(s) without exemption that the confidentiality of the</p>

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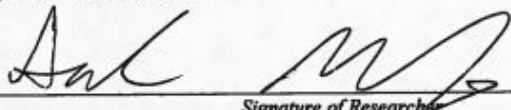
		personally identifiable information will be maintained throughout the research and thereafter. [45CFR46(b)(3)]
d.	<input type="checkbox"/>	Research involving the collection study of existing data, documents, records, pathological specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. [45CFR46(b)(4)]
e.	<input type="checkbox"/>	Research and demonstration projects which are conducted by or subject to the approval of a <u>Federal</u> department or agency heads, and which are designed to study, evaluate, or otherwise examine; (a) public benefit or service programs of Federal programs; (b) procedures for obtaining benefits or services under those Federal programs; (c) possible changes in methods or alternatives to those Federal programs or procedures; or (d) possible changes in methods or levels of payment for benefits or services under those Federal programs. [45CFR46(b)(5)]
f.	<input type="checkbox"/>	Taste and food quality evaluation and consumer acceptance studies, (a) if wholesome foods without additives are consumed; or (b) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture. [45CFR46(b)(6)]

Certifications

By my signature below, I certify that each of the named co-researchers has accepted his/her role in this study. I agree to not begin any research activity on this study until written approval by the IRB has been received. I agree to a continuing exchange of information with the Institutional Review Board (IRB). I agree to obtain IRB approval before making any changes or additions to the project. I will provide progress reports at least annually, or as requested. I agree to report promptly to the IRB all unanticipated problems or serious adverse events involving risk to human subjects. A copy of the informed consent will be given to each subject and the signed original will be retained in my files, unless a waiver of a signed informed consent has been granted.

I further certify that I have successfully completed the following Human Subjects Training Course:

- CITI – Biomedical Research Investigator
 CITI – Social and Behavioral Research Investigator
 CITI – Undergraduate Researcher
 CITI – IRB Member

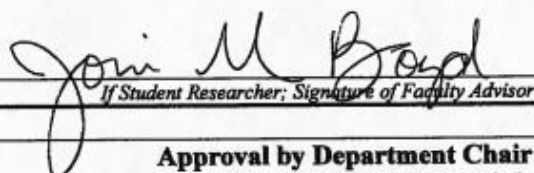


12-17-2015
Date

By my signature below, I certify that I have reviewed this research study and agree to counsel the student researcher in all aspects of the research study.

I further certify that I have successfully completed the following Human Subjects Training Course:

- CITI – Biomedical Research Investigator
 CITI – Social and Behavioral Research Investigator
 CITI – IRB Member

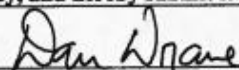


12-17-2015
Date

Approval by Department Chair of Researcher of Record

(Dean, if Chair is the Researcher or if Chair is otherwise unable to review.)

I have reviewed this research study. I believe the research is sound, that the study design and methods are adequate to achieve the study goals, and that there are appropriate resources (financial and otherwise) available to the researcher. I support the study, and hereby submit it for further review by the IRB.



Signature of Department Head or Dean

12-17-15
Date

To Examine the Relationship Between Campus Participation & Perceived Stress Levels of College Students and how Leisure Satisfaction Mediates Their Relationship.

You are being invited to participate in a research study that is examining campus recreation participation, perceived stress levels and leisure satisfaction.

If you choose to take part in this study, you will be asked to complete a survey that will take about 10 -15 minutes. This study consists of a series of questions that are all answered online through survey monkey.

As a participant, you will not benefit directly from this study. Society will benefit by having a better understanding of college students' recreational participation, perceived stress levels, and leisure satisfaction. This information could help to inform later health promotion efforts for college students.

There are very few risks related to taking part in this study. The only known risk is potential discomfort in answering questions about your recreation participation, perceived stress levels, or your leisure satisfaction. However, we expect this discomfort to be minimal, if present at all.

The information you provide will remain private. Information obtained through this study will only be used by the research staff. All data will be stored using locked computers with a password.

Please know that your participation in this study is voluntary. If you choose not to take part in the survey, there will be no penalty. You may quit the study at any time by closing out of the survey. You may also choose not to answer a question without penalty. If you choose not to participate after beginning the survey, the information that has been told to us will be kept private. Your choice to participate or not participate in this study will not reflect on you as a student of the University.

Your information will be used strictly for this research study only, will not be shared with anyone else, and you will not receive any spam emails related to participation in this study.

If you have any questions or concerns about this study, we encourage you to contact Andrew Montgomery, Principal Investigator at [REDACTED] or Dr. Joni Boyd, study mentor at [REDACTED]. You may also call the Office of Research Compliance at Winthrop University at [REDACTED].

By choosing to continue, you agree to take part in the study.

Debriefing Form

Thank you for participating in Andrew Montgomery's study!

The purpose of this study was to examine the relationship between campus recreation and perceived stress levels of college students and how leisure satisfaction mediates their relationship. By measuring campus recreational participation and perceived stress levels, relationships or correlations can be found using statistical analysis. The leisure satisfaction measurement will be used to see if it has an effect on the relationship between campus recreation participation and perceived stress level.

If you are interested in learning the results of this study, please contact the researchers after March, 2016.

Researchers:

Andrew Montgomery – [REDACTED]

If you have any concerns regarding this study, please contact the faculty advisor or the Director of Sponsored Programs and Research.

Faculty Advisor:

Dr. Joni Boyd
[REDACTED]

Sponsored Programs & Research:

Deborah Broome, Compliance Officer
[REDACTED]

If anything about this survey caused you to feel uncomfortable, health and counseling services are available to you on the 2nd floor of Crawford. You can reach Counseling Services at (803) 323-2233 or get information at <http://www.winthrop.edu/hcs/counselingservices-home.htm>. All counseling services are free and confidential.

Appendix B

PARTICIPATE IN A RESEARCH STUDY!

This study consists of an online survey pertaining to your recreational services, leisure satisfaction, and perceived stress level.

Who is eligible: All students 18 years of age and older who are currently enrolled in classes.

Surveys will be available on February 8, 2016 through students' email or the link below. Responses are kept confidential and will be used for research purposes only.

Participation is voluntary!!

For Questions or Concerns, Contact:
Andrew Montgomery



You can also access the survey through this QR code!!!

Link to the Survey



Appendix C

Perceived Stress Scale

B

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

Name _____ Date _____
 Age _____ Gender (Circle): M F Other _____

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

- | | | | | | |
|--|---|---|---|---|---|
| 1. In the last month, how often have you been upset because of something that happened unexpectedly? | 0 | 1 | 2 | 3 | 4 |
| 2. In the last month, how often have you felt that you were unable to control the important things in your life? | 0 | 1 | 2 | 3 | 4 |
| 3. In the last month, how often have you felt nervous and "stressed"? | 0 | 1 | 2 | 3 | 4 |
| 4. In the last month, how often have you felt confident about your ability to handle your personal problems? | 0 | 1 | 2 | 3 | 4 |
| 5. In the last month, how often have you felt that things were going your way?..... | 0 | 1 | 2 | 3 | 4 |
| 6. In the last month, how often have you found that you could not cope with all the things that you had to do? | 0 | 1 | 2 | 3 | 4 |
| 7. In the last month, how often have you been able to control irritations in your life? | 0 | 1 | 2 | 3 | 4 |
| 8. In the last month, how often have you felt that you were on top of things?.. | 0 | 1 | 2 | 3 | 4 |
| 9. In the last month, how often have you been angered because of things that were outside of your control?..... | 0 | 1 | 2 | 3 | 4 |
| 10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? | 0 | 1 | 2 | 3 | 4 |

Please feel free to use the *Perceived Stress Scale* for your research.

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The PSS Scale is reprinted with permission of the American Sociological Association, from Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 386-396.
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Appendix D

Leisure Satisfaction Scale

C

LEISURE SATISFACTION MEASURE (LSM)

Purpose: The purpose of the Leisure Satisfaction Measure is to determine the degree to which you are currently content with your leisure.

Directions: Listed below are 24 statements. To the left of each statement is a line to indicate how true that statement is. A "1" means that the statement is almost never true, "2" means that it is seldom true, "3" means that it is sometimes true, "4" means that it is often true, and "5" means that it is almost always true. Write down the number that best fits your situation.

Definition: "Leisure Activities" are those things that you do that are not part of your work and are not part of your basic grooming needs.

1	2	3	4	5
ALMOST NEVER TRUE	SELDOM TRUE	SOMEWHAT TRUE	OFTEN TRUE	ALMOST ALWAYS TRUE

- ___ 1. My leisure activities are very interesting to me.
- ___ 2. My leisure activities give me self-confidence.
- ___ 3. My leisure activities give me a sense of accomplishment.
- ___ 4. I use many different skills and abilities in my leisure activities.
- ___ 5. My leisure activities increase my knowledge about things around me.
- ___ 6. My leisure activities provide opportunities to try new things.
- ___ 7. My leisure activities help me to learn about myself.
- ___ 8. My leisure activities help me to learn about other people.
- ___ 9. I have social interaction with others through leisure activities.
- ___ 10. My leisure activities have helped me to develop close relationships with others.
- ___ 11. The people I meet in my leisure activities are friendly.
- ___ 12. I associate with people in my free time who enjoy doing leisure activities a great deal.
- ___ 13. My leisure activities help me to relax.
- ___ 14. My leisure activities help relieve stress.
- ___ 15. My leisure activities contribute to my emotional well being.
- ___ 16. I engage in leisure activities simply because I like doing them.
- ___ 17. My leisure activities are physically challenging.
- ___ 18. I do leisure activities which develop my physical fitness.
- ___ 19. I do leisure activities which restore me physically.
- ___ 20. My leisure activities help me to stay healthy.
- ___ 21. The area or places where I engage in my leisure activities are fresh and clean.
- ___ 22. The areas or places where I engage in my leisure activities are interesting.
- ___ 23. The areas or places where I engage in my leisure activities are beautiful.
- ___ 24. The areas or places where I engage in my leisure activities are well designed.

SAMPLE.
DO NOT
COPY

Personal
 Emotional
 Social
 Well-being
 Physical
 Aesthetics

Patient's Name	Physician	Admit #	Room/Bed
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