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Investigating the Relationship Between Goal- Oriented Strivings and Motives for Engaging in Physical Activity

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Introduction

The effects of stress on physiological functions and its links to illnesses such as heart disease and diabetes have been studied extensively using many different methods, including stress-induced cardiovascular responses, immune system changes, and by examining stress hormones such as cortisol (Kirschbaum et al., 1995). Although most stress research has focused on stress responses, maladaptive, stress-generating behaviors are often caused by problematic motives and social-emotional competence deficits. Social Action Theory (SAT; Ewart, 1991) investigates the relationship between goal-oriented striving and stress, positing that individuals can experience stressful goal strivings that increase their exposure to environmental threats, thereby reducing their ability to manage stress responses (Ewart, 1991). According to SAT, motives and self-regulatory skills influence the individual's exposure and vulnerability to certain stressors, where self-regulation involves the ability to plan and maintain behavior with the intent of achieving goals (Ewart, 1991). An area that has not been researched in much depth thus far is the relationship between goal-oriented striving and motivations for exercise. It is possible that goal-oriented strivings affect people's desire and ability to engage in regular exercise. Identifying and understanding such strivings and motives may improve our ability to help individuals reduce stress and enhance health by engaging regularly in physical activity.

Background

Many factors influence an individual's decision to participate in physical activity, including personality, age, gender, and physical activity level (Duda & Nicholls, 1992; Davis et al., 1995; Frederick & Morrison, 1996; Courneya & Hellsten, 1997). To date, however, studies have focused almost exclusively on the Big Five Personality Traits, which categorize individuals as having traits of neuroticism, openness, conscientiousness, agreeableness, or extroversion (Costa & McCrae, 1992).

Traits such as the Big Five describe the tendency to behave consistently in a particular way, but do not explain the reasons for the consistent behavior. For example, according to the theory, an individual exhibiting a high level of the trait of "neuroticism" would tend to experience anxiety, envy, and worry. Results might show that individuals with this trait fail to exercise, but perhaps this relationship suggests only that people with the trait might fail to exercise because they are anxious. However, it is important to consider why individuals displaying neuroticism are anxious in the first place, why the factors that make them anxious lead them to not exercise, and how these factors are related. The Big Five Personality Traits might tell us that people with the neuroticism trait fail to exercise, but it does not tell us the reason for this failure to exercise, and the direction of the relationship. Perhaps anxiety about body image inhibits people from exercising, or perhaps not exercising leads to anxiety about body image.

Motives, however, can explain what factors might contribute to a particular behavior. For example, upon learning that one's mother has been diagnosed with diabetes, an individual may choose to exercise regularly because he or she wants to lead a healthy lifestyle to avoid the same outcome. Another person may fail to exercise because he worries that others at the gym will make fun of his or her appearance. While the Five Factor Model has been applied to achievement and performance (Lee et al., 2003), and coping with stress (Lee-Baggley et al., 2005), SAT investigates motives, or goal- oriented strivings that may interfere with healthy behavior by generating chronic stress, through a newer model from a perspective other than that offered by personality models. This model and the motive profiles it affords, provide a framework to understand patterns of goal pursuits that may interfere with exercise by increasing stress exposure.

Social Action Theory

Social Action Theory (Ewart, 1991) is the framework upon which this study is built. According to SAT, individuals organize their daily lives around goals and endeavors that allow them to survive, maintain health, connect with others, and satisfy physical, psychological, and spiritual needs. However, people might pursue these goals in ways that generate continuing stress. Motives (the mechanisms that guide goal pursuits) and self-regulatory skills (the ability to regulate one's behavior) influence the individual's exposure and vulnerability to stressful situations. Motives are assessed with the Social Competence Interview (SCI), a valid and reliable 8-12 minute interview (Ewart, 2002) during which a

participant recalls and relives a personally stressful experience. The participant then describes his or her preferred ending to a film scenario, where the participant is asked to create a film about someone just like the participant, except that because the participant is the director, they can make the film end any way they want. That individual's goal-oriented strivings are then inferred from the film story and ending.

The SCI was initially administered in community-based research in Baltimore and Syracuse. In the first study, conducted in Baltimore with 187 high school students (54% female, 56% Black), SCI data yielded three distinct clusters of individuals with different personality profiles of stress-related motives or goal-oriented strivings: Agonistic Striving (AS), Transcendence Striving (TS) and Dissipated Striving (DS). Individuals who score highly on AS tend to cope with stressors and strive to meet their goals by attempting to influence, manage or control other people (Ewart, 2002). In contrast, individuals with the TS profile strive to meet their goals through self-control and self-improvement. Finally, persons with the DS profile have difficulty forming goals that enable them to exercise any control at all.

A second study conducted in Syracuse, NY that included 264 ninth grade students at a large public high school (55% female, 42% Black, 41% White, 17% other) replicated the results of the Baltimore study (Ewart & Kolodner, 1991). Interestingly, persons with the AS profile generated frequent interpersonal conflict and exhibited elevated blood pressure during daily social interactions. This might be attributed to characteristics of the AS pattern, including the

tendency to be more competitive and hypervigilant to potential threats, coupled with a decreased awareness of self-control. In contrast, an individual with the TS pattern might exhibit a heightened sense of self-control and a deeper desire to improve him or herself to achieve goals—as a result, this individual also has better control over factors that might cause them stress. Such a person is better able to manage this stress, leading to a decreased physiological stress response. This can be applied to the context of motivation for exercise because SAT can help us gain a better understanding of the specific goals individuals are working towards when exercising and how their pursuit of those goals compares with their pursuit of goals in a stressful situation. By understanding this relationship, we can better understand how exercise can help individuals prevent and manage stress, as well as how behavior changes might be implemented to reduce risk for negative health outcomes.

Exercise and Mood

According to the Center for Disease Control (CDC) in 2010, only 46.9% of adults 18 and over met the CDC's Physical Guidelines for aerobic physical activity in the United States. One mechanism that might contribute to the reluctance to exercise might be lowered self-motivation or self-efficacy (Salmon, 2001). Self- motivation involves the process of setting goals for oneself, and self-efficacy addresses the confidence an individual has in achieving those goals (Zimmerman et al., 1992). Because so many individuals either do not engage in exercise or find it unpleasant (Murcia et al., 2008), the mood-elevating nature of exercise has been difficult to measure. However, preliminary evidence shows an

improvement in mood when measured before and after strenuous exercise by regular exercisers (Steptoe, Kimbell, & Basford, 1998; Salmon, 2001). Moreover, research has shown that there is an improvement in cognitive functioning in older adults as a result of exercise, particularly with respect to learning, memory and attention (Kramer et al, 2006; Angevaren et al, 2008).

Exercise and Stress

Extensive research (Bolger et al, 1989; Eckenrode, 1984; Rehm, 1978) has shown consistent evidence of a significant relationship between daily stress and mood, with interpersonal conflicts accounting for a large percentage (~80%) of the variance in daily mood (Bolger et al, 1989). Salmon (2001) suggests that people who engage in physical activity regularly may do so because of the positive experience associated with strenuous physical exertion, but this is certainly not the only reason for individuals to exercise, especially since so many individuals do not experience exercise positively (Spellbring, 2000). A study by Steptoe et al (1998) followed 38 men and 35 women who completed journals of exercise, mood, and experience of stressors over 12 consecutive days. Participants who exercised for stronger personal motives, such as health, personal appearance, and mood reported experiencing more stressful events overall, but actually experienced less stress during those events on days that they exercised (Steptoe, Kimbell, & Basford, 1998). Although the relationship between exercise and stress has been researched extensively, the present study seeks to investigate what types of individuals are motivated to exercise, perhaps to manage their stress. In other words, the present study explores whether there is a relationship

between the types of individuals who cope with stress by pursuing goals a certain way and those who are motivated to exercise for particular reasons. Understanding this can allow us to streamline methods of managing stress by targeting motivation.

Motivations for Exercise

It has been suggested that intrinsic motivation is the result of the need for competence, autonomy, relatedness, enjoyment, and self-determination (Buckworth et al., 2007; Deci & Ryan, 1985). Intrinsic motivation thus implies that the drive to practice a certain behavior is to achieve personal satisfaction, while extrinsic motivation suggests that a behavior is driven by rewards and consequences external to the individual, such as awards or negative feedback (Buckworth et al., 2007). In a study by Kilpatrick and colleagues (2005) among populations of college students, motivations for exercise were more extrinsic and included motivations such as appearance and stress management. In some cases, concerns about appearance were taken to an extreme point known as social physique anxiety, leading to excessive physical activity (Frederick & Morrison, 1996). Individuals driven to anxiety about exercise were suggested as exhibiting "an emotional profile similar to addicted exercisers" (Frederick & Morrison, 1996).

On the other hand, another study reported that weight stigma—or instances where persons are treated poorly in various settings as a result of their weight— led to avoidance motivation (not behaving or acting a certain way to avoid a negative consequence), resulting in decreased activity levels among

female undergraduates (Vartanian & Shaprow, 2008). Participants answered questionnaires regarding experiences with weight stigma throughout their lives, such as comments in family gatherings, at doctors' offices, and biases at the workplace. Participants also answered questionnaires about self-esteem, exercise avoidance motivation, and reported the frequency, duration, and intensity of exercise in the past week. It was found that weight stigma experiences increased dissatisfaction with the body and increased motivation to avoid physical activity (Vartanian & Shaprow, 2008). Weight stigma experiences therefore appear to contribute to the motivation to avoid exercise. Understanding this can help us to further explore how these groups of individuals might pursue goals, based on how they think others perceive them.

Goal Perspective Theory

Goal perspective theory suggests that the desire to demonstrate competence and avoid revealing incompetence motivates achievement behavior (Boyd et al., 2002). According to Nicholls (1984, 1989, 1992), in which two types of goal orientation exist. The first is task orientation, which involves mastery of skills or improvement, as a self referenced conception. The other is ego orientation, where the perception of competence is acquired by performing better than others, or as well as others with less effort (Boyd et al., 2002). This theory has often been applied to motivations for exercise, particularly in physical activity classes and among college students (Ames, 1992; Ames & Archer, 1988; Dweck, 1986; Dweck & Elliott, 1993; Maehr & Braskamp, 1986; Nicholls, 1984, 1989; Duda & Nicholls, 1992; Boyd et al., 2002). SAT (Ewart, 1991) suggests instead that people can exercise in order to control themselves rather than to

control others. It suggests that "task" orientation reflects attempts to improve the self, while "ego" orientation is an attempt to influence or control others, reflecting the Agonistic Striving Pattern.

Exercise Motivation and Stress in a Lab Setting: Biomarkers for Psychosocial Stress

Since SAT provides a framework for understanding chronic exposure to stress, measuring the stress response is a fundamental aspect of the model. In response to a stressful situation, a "fight or flight" response is produced by the hypothalamus. The "fight or flight" response is the body's automatic response to prepare the body to either "fight" or "flee" perceived threats. This response is produced when the hypothalamus activates the sympathetic nervous system and the adrenal- cortical system.

Salivary Cortisol

In the initial moments after a stressor, corticotropin-releasing factor is released by the hypothalamus, which activates the adrenal-cortical system. The anterior pituitary gland releases the hormone ACTH (adrenocorticotropic hormone), which is produced in response to stress and functions in regulating cortisol. Cortisol is a hormone released from the adrenal gland in response to stress, and it directly responds to ACTH. Cortisol has thus been shown to be an indicator of the hypothalamic-pituitary-adrenal (HPA) axis response to psychosocial stress (Selye et al., 1960; Kirschbaum et al., 1995; Eck, 1996). Daily stressful events have been found to be linked to a rapid increase in cortisol secretion (Eck et al, 1996).

The present study analyzed samples of salivary cortisol as a biomarker for psychosocial stress. Salivary cortisol analysis is found to have many advantages over blood cortisol analyses, including ease of sampling, cost, and the less invasive nature of saliva sampling. The relationship between motives for exercise and stress is important because if individuals are motivated with characteristics of the AS pattern, which means they have less control over the situation, for example, they might be more prone to experiencing stress. Understanding this relationship can help researchers to address motivations for physical activity through the lens of managing chronic stress and associated conditions.

Salivary Amylase

The hypothalamus also activates the sympathetic nervous system resulting in glands and muscles throughout the body becoming more alert. The adrenal medulla then releases adrenaline and norepinephrine into the bloodstream, which causes an increase in heart rate. Salivary α- amylase, or sAA is secreted by the parotid salivary gland in response to the secretion of epinephrine, or adrenaline. The SAM system, or sympathetic adrenal medullary system, responds to stress alongside the HPA axis. Salivary amylase appears to be a promising indicator of the body's sympathetic nervous system's (SNS) response to stress (Takai et al, 2004; Nater et al, 2005; Strahler et al, 2010). In a study conducted by Takai et al (2004), the effects of a stressful video and a soothing video were examined on young adults. It was found that salivary amylase increased more significantly, and reacted more rapidly than cortisol after the psychological stressor. These

results suggested that sAA might actually be a better indicator of stress than cortisol (Takai et al, 2004).

The present study will analyze salivary amylase as a second biomarker of psychosocial stress. Salivary amylase sampling is non-invasive and simple. Both salivary cortisol and salivary amylase are collected by keeping a cotton swab in the mouth for a minute, and are then assayed in a lab.

Galvanic Skin Response

Galvanic Skin Response (GSR) is another means of measuring psychosocial stress by measuring skin conductance via a device that attaches to the index and middle fingers. This device sends an electrical stimulus to measure the conductivity of the area of skin exposed to the device in response to a stimulus. Skin conductance is measured through moisture, or sweat; sweat glands are controlled by the sympathetic nervous system, and this sweat becomes an indicator of general psychophysical arousal. An early study by Nichols and Champness (1971), for example, found that reciprocated eye contact with a confederate led to higher frequency and amplitude of GSR responses than when eye contact was unreciprocated. The capacity to note frequencies and amplitude of skin response allows the GSR to offer precise measurements of psychological and physiological arousal, allowing us to better understand a participant's stress response.

Aims of the Present Study

Goal-Oriented Striving Patterns and Exercise

Using SAT as the research framework, the present study explored the negative consequences of implicit motivations on health (via the body's response to stress), using the SCI and a variety of questionnaires and inventories. The study focused specifically on motivation for and engagement in physical activity, to analyze two primary questions.

First, the study investigated the role of physical activity in coping with stress. In other words, if an individual is motivated to exercise after a stressful situation, will this alleviate the negative consequences of stress? Does even thinking about exercise after a stressful event counter the negative effects of stress that would be otherwise experienced? Or, conversely, would thinking about exercise exacerbate the feelings of stress?

Second, the study investigated how different goals may motivate individuals to engage differently in exercise. For example, implicit motivations for exercise might vary from a desire for attractiveness to wanting to live a healthy life. Exercise thus functions as a response to one of these particular goal strivings, and in this study, I explored the relationships between goal oriented striving patterns and implicit motivations for exercise. In order to measure stress response, I used the aforementioned biomarkers of salivary cortisol, salivary amylase, and GSR.

Hypotheses

AS involves the motive of exercising in order to impress others or influence their perceptions of the participant, while TS is more likely to lead individuals to exercise to improve the self. These different motives will influence an individual's reasons for exercising.

Primary:

(1) The Agonistic Striving (AS) pattern is likely to be highly positively correlated with engaging in physical activity for reasons such as to be more attractive to others or to define muscles to look better; the Transcendent Striving (TS) pattern is more likely to be positively correlated with exercising for reasons such as to improve cardiovascular fitness, challenge oneself, and maintain physical strength to live a healthy life. This might be because individuals with the AS pattern tend to be more influenced by the perceptions others have of them. An individual exhibiting characteristics of AS desires to control situations around them by influencing the behaviors of others. By exercising in order to become more attractive, a person with the AS pattern is trying to influence how others see him or her. Their goal is to be more attractive, and their motive is to be positively perceived by others, perhaps to be accepted or respected.

(2) Participants who exhibit the Transcendent Striving pattern are more likely to rate family medical history as being influential on their motivation to exercise. Individuals exhibiting the TS pattern might be more likely to take control of their lifestyle habits as a preventative measure based on family history.

Secondary:

(3) Individuals with the TS pattern will report higher confidence ratings than

those with the AS pattern in achieving their ideal ending, at the end of the

SCI. An individual with the TS pattern will be more confident in their ability

to achieve a particular ending because this individual perceives himself or

herself as having more control over the actions leading to the achievement of

that goal. An individual with the AS pattern depends on others to change in

order for him or her to achieve a particular goal, and might be less able to

gauge the ability of others to behave accordingly. This leads to lower

confidence.

Methods

Participants

Four hundred and one participants were recruited to be screened via advertisements within a research participation pool system at Syracuse University, of which 247 were excluded, and 253 were eligible. Exclusionary criteria included: currently smokes tobacco products, has one or more of the following: auto-immune disease, infectious disease, thyroid disease, diabetes, cardiovascular disease, and respiratory disease, disease of the airway, gastrointestinal tract, or urinary tract, mental illness, or allergies requiring regular medication. The body mass index (BMI) was calculated as the person's weight (kg) divided by the square of their height (meters). Participants were also excluded if they had a BMI that was lower than 18 or higher than 35, or if they experienced extraordinary stress in the last 6 months, such as divorce or bereavement. Participants who met screening requirements were then invited to take part in the 1.5 hour laboratory study between 2 and 5 pm. One hundred and three students were eligible and participated in the study. Participants were compensated with course credit for their time at the end of the study. The Institutional Review Board at Syracuse University approved all procedures.

The sample was 54.4% male, with participants at the average age of 18.7 years. 53.4% of the participants were White, 18.4% were Asian, 15.5% were Black, and 6.8% and 4.9% were other races or more than one race. The average BMI of the sample was 23.7 kg/m^2.

Procedures

Participants were asked to meet a research assistant outside the CNY Medical Center at Syracuse University, who would lead them to the study site.

After arriving at the laboratory, participants were invited to take a seat in a comfortable, well-lit room. An experimenter trained in the study procedures explained all components of the study and obtained informed consent from the participant, including consent to be audio recorded during the Social Competence Interview.   After written informed consent was obtained by the experimenter, basic physiological data such as height, weight, BMI, and waist-hip ratio (WHR) were measured. Following this, basic demographics questionnaires were administered, including objective SES measures such as years of education, income level, mother and father's level of education and degree attained. After the 30-minute resting period, the first baseline measurement of saliva (S0) was obtained to assess salivary alpha-amylase, and the experimenter fitted the participant for the Galvanic Skin Response (GSR). GSR measurements were taken for the duration of the experimental session. Later, after a quiet resting period of ten minutes, participants were exposed to the standardized laboratory stress interview protocol (described below). Further saliva samples were taken immediately before the interview (S1), during the interview (S2), immediately after the interview (S3), and ten minutes after the interview (S4).

Following the SCI, participants were asked to relax in their quiet resting rooms for ten minutes and to complete a set of questionnaires that included the Pittsburgh Enjoyable Activities Test (PEAT), the Motives for Physical Activity Measure (MPAM), and the Treatment Self Regulation Questionnaire (TSRQ) for diet and exercise. The final saliva sample (S4) was taken at the end of the 10-

minute resting period. Participants were then thanked, debriefed, and awarded course credit. The entire protocol lasted approximately 90 minutes.

Social Competence Interview

The SCI is an 8-12 minute interview during which participants are asked to describe a stressful situation they experienced recently, providing as much detail as possible. The participant is then asked to pretend they are directing a movie about someone just like themselves, who is experiencing the problem they just described. The only difference is, that they can make the movie end any way they want for their character. They are asked to come up with an ideal, realistic ending to the film they described, and are asked to rate their confidence in achieving that particular ending (in order to measure self- efficacy). Participants were asked for their consent to be audio recorded during their interview. The structure of the interview is as follows:

Recalling the Stressor

The participant is given a deck of cards labeled with six different categories of stress: school stress, stress with friends, family stress, neighborhood stress, work stress, and stress about money. The participant is then asked to organize the cards so that the most stressful category at present for them is on top and the least stressful is at the bottom. The participant is asked to explain the stress card that they chose, and are asked three specific questions regarding this stress: (1) How long the stress has been going on, (2) How often the stress is bothersome, and (3) Why the stressor is an important problem for the participant. He or she is then asked to describe a specific situation during which the category

of stress was a problem. During this step, the participant is asked to recall specific emotions and cognitions that were happening during the stressful situation. The participant is also asked questions about their physiological response during the situation, such as headaches or heightened heart rate. They are then asked to describe the specific situation in precise detail, from the onset of the stressor. They are asked to recall details such as place, time of day, and what happened. Two specific questions are asked after the participant has revisited the situation: (1) Whether the participant told anyone about the situation, and how their response made the participant feel, and (2) How the participant feels about himself/ herself when thinking about the situation in the present.

Development of Coping Strategies

In the second part of the interview, the participant now is asked to imagine that he or she is directing a film about a character exactly like the participant, going through the stressful situation described. The participant is told that they can have the film end any way they would like for their character. They are then prompted to think of a realistic, positive ending for their character. The participant is asked to come up with ideas of actions for their character to achieve their ideal ending. Upon coming up with a list of possible coping strategies, the participant is asked to put himself back into the situation and choose a coping strategy that seems the most realistic or appropriate. They then rate, on a scale from 1 (least confident) to 10 (most confident), their level of confidence in accomplishing the chosen coping strategy. Finally, the participant is asked to list the possible consequences of their selected coping strategy, and then to choose

which of those consequences is most important or most likely to occur. They then rate once again, on a scale from 1 (not at all sure) to 10 (completely sure), how sure they are that if they were to cope with their stressful situation using the selected strategy, the "most likely consequence" selected, would occur.

Coding the SCI

The SCI is then coded by the interviewer and by one other experimenter, in order to profile participants into one of two striving patterns: AS and TS. Participants are rated based on Interpersonal Style, Social Impact, Empathy, Coping Goals, and Personal Strivings. Coping Goals refer to the participant's agonistic and transcendent goals, both directly and indirectly expressed when describing the problem situation—for example, how much they wanted to avoid disappointing a parent, or how much they wanted to develop a good habit. Finally, Personal Striving considers the overall interview, to measure how much the participant's behavior and content suggests particular motives or strivings, such as striving to protect or defend oneself, or striving for personal achievement. The coders also rate the participant's "ideal ending" given at the end of the interview, based on appropriateness of the ending, as well as on the effectiveness of the participant's "preferred solution".

Scenario A: Agonistic Striving

The AS pattern is noted by individuals experiencing recurring stress involving continuing struggles to influence, manage or control other people (Ewart, 2002). For example, Mike is stressed out because he has had the responsibility of taking care of his younger siblings in the evenings for the past

few years. While initially it was enjoyable, he feels now that taking care of his

siblings is hindering him from typical high school experiences, which frustrates

him. His film ending is for his parents to take the responsibility of caring for his

siblings off of him, instead finding a babysitter.

Scenario B: Transcendent Striving

The TS pattern is noted by individuals experiencing recurring stress

involving struggles to control themselves. For example, Lauren experiences

overwhelming stress before exams and experiences physical symptoms such as

headaches and nausea. She typically begins studying one or two nights before

exams, but then blanks out while taking the exam. Lauren's ideal film ending is

to make a schedule before every exam so that she can manage her time efficiently,

ensuring that she understands everything before the exam.

Data Analysis Plan

Hypothesis 1 posits that AS Goals are likely to be positively correlated

with motivations for exercise such as the desire to be more attractive to others,

and to define muscles to look better. TS Goals are more likely to be positively

correlated with motivations for exercise such as improving fitness, challenging

oneself, and maintain physical strength to live a healthy life. Thus, AS are

expected to be positively correlated with subscale measures such as exercising for

appearance and competence, while TS will be positively correlated with subscale

measures such as exercising for fitness. This hypothesis was tested by looking at

correlations between goal striving patterns as rated by the interviewer and an

observer, and specific items as well as sum measures from questionnaire data regarding motivations for exercise.

Hypothesis 2 says that individuals exhibiting the TS pattern are more likely to rate family medical history as being influential on their motivation to exercise. This hypothesis is tested by examining the correlations between goal striving patterns rated by the independent observer, and responses to the question asking participants to rate the influence of family medical history on motivation to exercise.

All data analyses were conducted using SPSS version 20. First, descriptive statistics were computed for the relevant measures. Then, sub-scales from physical activity measures were correlated with the combined scale for AS and TS (obtained by adding sub-scales) to check their relevance to the main scales of interest, i.e. AS and TS. For correlational analyses, the Pearson product moment method was used, and the hypotheses were tested using the significance level of the correlation.

Results

Preliminary analyses were conducted to see if the data met the basic assumptions for parametric statistical tests, such as conforming to a normal distribution. Agonistic Striving goal scores were skewed; most people scored low on Agonistic Striving. Age, gender, and race did not have any influence on goal striving pattern. Characteristics of the sample are shown in Tables 1 and 2. Participants' responses to the Pittsburgh Enjoyable Activities Test (PEAT), which measures the frequency of exercising in the past month, indicated that participants reported exercising an average of once a week in the past month (M= 4.07, SD= 1.12). Refer to Table 3 for results.

Analyses also examined participants' family medical history, where questions asked participants if anyone in their immediate family had been diagnosed with heart disease, cancer, stroke, or diabetes. It also asked if any immediate family members had been deceased from the above conditions, and if so, at what age. Most participants had a family history of diabetes or cancer, and the correlation between cancer and diabetes as well as stroke and diabetes were both significant; $p<0.05$ and $p<0.01$ respectively. Thirty-four percent of participants had experienced a death in their immediate family (parents, grandparents) from one of the conditions; most of the deaths involved family members who were between the ages of 66 and 70 years. Results are shown in Table 4.

Analysis also included calculating mean responses of individual items from questionnaires, for the sample (see Table 5). Means were highest for items such as: exercising because of "Wanting to be fit" (M=6.20, SD=1.20), "Wanting

to maintain weight to look better" (M=6.07, SD=1.30), "Wanting to maintain strength to be healthy" (M=6.07, SD=1.30), "Wanting to maintain health and well being" (M=6.17, SD=1.20), and "Wanting to improve body shape" (M=6.03, SD=1.30). Means were lowest for reasons such as "Easier to do when told" (M=1.75, SD=1.30), and "Don't know why" (M=1.63, SD=1.20).

Hypothesis 1: Striving Goals and Motivations for Exercise

This hypothesis was tested by examining correlations between goal strivings and measures of motivations for physical activity. There was a moderate, but statistically significant, negative correlation between Transcendent Striving and exercising for Social reasons; $p<0.01$. There was a weak, negative correlation between Transcendent Striving and Interest/ Enjoyment, Competence, and Appearance, no correlation between Transcendent Striving and Fitness. There was a weak, negative correlation between Agonistic Striving and Competence, and a weak, positive correlation between Agonistic Striving and Appearance. There was no correlation between Agonistic Goals and exercising for subscale measures such as Interest/ Enjoyment, Fitness, or Social aspects of exercise (see Table 6).

Correlations between goal striving subscales and MPAM subscales yielded interesting results, where Approval Seeking was significantly negatively correlated with Interest/ Enjoyment, Competence, and Fitness; $p<0.05$. Self Improvement was also significantly negatively correlated with the Social subscale on MPAM; $p<0.05$. There were very weak correlations between the Agonistic Striving subscales and Appearance. Results are shown in Table 7.

In looking at correlations between Goal Striving scales and subscales correlated with TSRQ for Exercise, there was a significant, negative correlation between the Approval Seeking (AP) subscale and Autonomous Motivation; $p<0.01$, and a significant, positive correlation between AP and the Amotivational subscore of TSRQ; $p<0.01$ (see Table 8 for results).

Hypothesis 2: Family Medical History and Goal Striving

This hypothesis was tested by looking at correlations between family medical history, influence on exercise, and goal striving patterns. There was a significant, positive correlation between family history of diabetes and influence on motivation to exercise; $p< 0.01$. However, there was no correlation between the goal striving patterns and influence on exercise, or family medical history.

Discussion

Conclusions

The results suggest that there is some relationship between goal strivings and appearance. However, the significant relationship between Transcendent Striving and Social suggests a few different possibilities. Perhaps individuals who are exercising to improve their skills avoid exercising with others in order to avoid competition with their peers. The negative relationship between Approval Seeking and Interest/Enjoyment, Competence, and Fitness suggests that individuals who exercise to ultimately gain approval from others do not care about the activity itself, improvement, or the skills they might gain from exercising. This is likely because these individuals are more attuned to the social environment they are exercising in, but not as much the factors of exercise that contribute to self-improvement. Consistent with Transcendent Striving, the Self-Improvement measure yielded results indicating that individuals exercising ultimately to improve themselves, did not exercise for any social benefits. This would be because social benefits may either have a negative impact or no impact at all, on an individual exercising to improve strength, or to increase self-confidence. TSRQ subscore measures indicated that individuals exercising to seek approval were not motivated by the prospect of self-improvement; in fact, they tended to not know why they were exercising. Perhaps this was because Agonistic Striving goals are more attuned to the behaviors and perceptions of others, but they also have less control over it. Thus, they are most likely also less aware of the benefits they are gaining by exercise—until someone else tells them that they are doing well, improving, or looking better, exercise simply becomes a habit rather than being perceived as beneficial.

Hypothesis 2 was partially supported, because family history of diabetes did have an impact on participants' motivation to exercise. It is interesting that diabetes showed this relationship, even though just as many participants had family members who had cancer. This might suggest that the benefits of exercise in preventing a disease such as diabetes is better known than the benefits of exercising to prevent other diseases, which raises a public health concern.

Although correlations between Agonistic Striving and appearance were not significant, the means of individual items from questionnaires suggests that exercising to improve appearance, body shape, as well as to improve general health were notable concerns of the college-age population, while simply exercising because they were told to do so, was not a concern or motive for exercising.

Limitations

One of the limitations of the present study was that the distribution of goal striving patterns was skewed, so that most of the sample had low agonistic scores. This might have occurred because the majority of participants revealed that, as Freshmen, school was the most relevant stressor for the Social Competence Interview. Thus the distribution of stress categories chosen to discuss during the SCI was also skewed. These academic struggles tended to show patterns where participants strove for self-improvement, which is a primary feature of the Transcendent Striving pattern. A second limitation is that there were no measures of the frequency, intensity, or duration of exercise participation beyond that asked in the Pittsburgh Enjoyable Activities Test. Thus, current exercise patterns of

participants were not considered. This would have aided in understanding the impact of motives. A third limitation is that one interviewer was male and the other was female. This might have contributed to the skewed distribution of chosen stress categories, because participants might have felt inhibited to discuss certain issues depending on the gender of the interviewer. Another limitation is that the sample consisted primarily of first-year undergraduate students because the participant pool was drawn from an introductory psychology course. Although there was no correlation between age and goal strivings, the chosen stress categories might have been different if the age distribution had been less skewed, since first year students often struggle with the academic transition from high school to college. Finally, a limitation is that although the salivary samples were collected from subjects, due to extenuating circumstances in the external laboratory analyzing the samples sent to them, salivary cortisol and salivary amylase measures could not be included for the full sample of participants. However, in the future this information will most definitely be incorporated into the data analysis to better understand the relationship between goal-oriented striving patterns, motives for exercise, and stress.

Significance of Study

This study applied the model of Social Action Theory by addressing exercise, an activity highly driven by motivation and the construction of goals. The way in which individuals pursue their goals is very likely to determine their confidence, satisfaction, and likelihood of continuing to pursue that particular goal. If we better understand why people exercise, and what drives them to

exercise, we can tailor motivational interventions to target goals rather than simply raising awareness about the importance of exercise. If research can in the future better understand how to help individuals construct realistic goals for leading healthy lifestyles, and can urge individuals to become better attuned to the benefits of exercise, then health professionals will have a much more concrete means of promoting healthy lifestyle habits.

Future Directions

The findings from this study and the limitations have suggested directions for future research on goal strivings and motives for exercise. One question involves discovering how social groups and organizations of which participants are members influence motives to exercise. Moreover, being a member of particular organizations might influence goal strivings in that while some might encourage self-improvement, others might require membership that focuses highly on approval from others. The present study has yielded interesting results regarding exercising for social benefits, such as meeting others. Future work might investigate the relationship between competition and social aspects of exercise. For example, if individuals with transcendent goal strivings tend to prefer to exercise alone, might this reflect on their level of competitiveness? Does competition help them to pursue self-improvement?

Another interesting direction in which this line of research can be taken is to look at the intersection between perceived emotions and motivations for exercise. For example, if a person is exercising to be more attractive, and is an Agonistic Striver in that they seek approval from others to validate their

appearance, does achieving or not achieving their goal at the end affect them emotionally? Do they construct goals based on how much they want to achieve a particular emotion (happiness, for example) at the end? If a person exercises to attract a particular individual but does not accomplish this, how does this individual change his goals? How does he continue to motivate himself in the future? If a person achieves a concrete goal such as running a marathon within a particular time, how does he frame his goals in the future? The findings from the present study along with the questions they raise, have opened doors to research in the future to further investigate goal-oriented striving patterns and motives for exercise. Using this research, we can better understand how different underlying motivations influence motives for physical activity, and other healthy lifestyle habits, as well.

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Appendix A

Table 1. Characteristics of the Sample (N = 103)

_____

Variable	Mean ± SD or %	Range
Age	18.7 ± 1.1 years	6
Male	54.4%	1
Race (White /Asian / Black / Other / More than one race)	53.4% / 18.4% / 15.5 / 6.8% / 4.9%	5
Body Mass index	23.7 ± 3.5 kg/m^2	17.2

_____

Table 2. *Agonistic Goals (AG) and Transcendence Goals (TG) Correlated with Sex, Age, and BMI*

	Mean	SD	Sex	Age	BMI (kg/m^2)
AS	12.12	5.00	0.18	-0.07	0.04
TS	18.06	5.92	-.015	0.06	0.14
Male	12.96	17.23			23.14
Female	11.16	19.02			24.43

*p < .05, ** p < .01

Male = 1, Female= 2

Table 3. Exercise Patterns of Sample, from Pittsburgh Enjoyable Activities Test

_____

Exercise Frequency (In Past Month) Sample	Frequency	Percent of

_____

Never	4	3.9%
< Once a Month	8	7.8%
Once a Month	12	11.7%
Once a Week	33	32%
Once a Day	45	43.7%
N/A	1	1%

_____

Table 4. *Frequencies of Heart Disease, Cancer, Stroke, and Diabetes Among Sample;*
Correlations Between Diseases and Influence of Medical History on Motivation for Exercise;
Members of Immediate Family Deceased from Conditions

| | | | Family Medical History | | | |
	Frequency	%	Heart Disease	Cancer	Stroke	Influence
Heart Disease	29	28.2%				0.08
Cancer	38	36.9%	0.19			0.16
Stroke	17	16.5%	0.19	0.04		0.17
Diabetes	38	36.9%	0.19	0.21*	0.37**	0.27**

	Frequency	Percent
Immediate Family Deceased (N=32)	33	34%
40-45	5	4.9%
46-50	0	0
51-55	3	2.9
56-60	2	1.9
61-65	5	4.9
66-70	7	6.8
71-75	4	3.9
76-80	2	1.9
81-85	1	1.0
86-90	0	0
91-95	2	1.9
96+	1	1.0

Table 5. *Means and Standard Deviations of Individual Items from TSRQ-E and MPAM.*

Variable (Reasons for Exercising)	N	Mean $\pm$ SD or %
TSRQ		
Taking responsibility for health	102	3.83$\pm$1.1
Feel guilty otherwise	102	4.2 $\pm$2.0
Believe good for health	102	5.78$\pm$1.5
Others will be upset otherwise	102	2.16$\pm$1.5
Don't think about it	102	2.12$\pm$1.7
Important for life	102	5.46$\pm$1.7
Feel bad about self otherwise	102	4.58$\pm$1.9
Important choice	102	5.51$\pm$1.7
Pressure from others	102	2.54$\pm$1.8
Easier to do when told	102	1.75$\pm$1.3
Consistent with life goals	102	5.27$\pm$1.8
Want approval from others	102	3.01$\pm$2.1
Important to be healthy	100	5.80$\pm$1.5
Prove capability to others	102	3.36$\pm$2.3
Don't know why	102	1.63$\pm$1.2
MPAM		
Want to be fit	100	6.20$\pm$1.2
For fun	100	5.31$\pm$1.7
For the challenge	100	5.19$\pm$1.8
To obtain new skills	100	5.28$\pm$1.7
To maintain weight to look better	100	6.07$\pm$1.3
To be with friends	100	4.40$\pm$1.9
Enjoy the activity	100	5.62$\pm$1.7
To improve skills	100	5.38$\pm$1.8
Like the challenge	100	5.39$\pm$1.7
To define muscles	100	5.30$\pm$1.9
To make self happy	100	5.71$\pm$1.5
Keep up skill level	100	5.37$\pm$1.7
To have more energy	100	5.96$\pm$1.3
For the physical challenge	102	4.94$\pm$1.7
To be with others who are interested	102	4.83$\pm$1.9
To improve cardiovascular fitness	102	5.71$\pm$1.4
To improve appearance	102	5.87$\pm$1.6
Activity is interesting	102	4.87$\pm$1.9
Maintain strength to be healthy	102	6.07$\pm$1.3
To be attractive	102	5.67$\pm$1.7
To meet new people	102	4.29$\pm$2.0
Enjoy activity	102	5.60$\pm$1.8
To maintain health and well being	102	6.17$\pm$1.2
To improve body shape	102	6.03$\pm$1.3
Get better at activity	102	5.73$\pm$1.5
Enjoy the stimulating activity	102	5.58$\pm$1.6
Feel unattractive if don't exercise	102	4.23$\pm$2.1
Friends say to exercise	102	2.14$\pm$1.4
Enjoy the excitement of participation	102	4.92$\pm$1.9
Enjoy spending time with others	102	4.82$\pm$1.9

Table 6. *Agonistic Striving (AS) and Transcendent Striving (TS), Correlated with Motives for Physical*

Activity

	Motives for Physical Activity Measure				
	Interest/ Enjoyment	Competence	Appearance	Fitness	Social
Interest/ Enjoyment					
Competence	0.82**				
Appearance	0.16	0.27**			
Fitness	0.56**	0.61**	0.56**		
Social	0.66**	0.55**	0.16	0.34**	
Observer					
AS	0.02	-0.18	0.16	0.07	0.06
TS	-0.17	-0.15	-0.07	0.00	-0.27**

$* p < .05, ** p < .01$

Table 7. *Goal Striving Subscales by Interviewer and Observer, Correlated with Motives for Physical Activity Measure Subscales*

	Interest/ Enjoyment	Competence	Appearance	Fitness	Social
Self Defense (SD)	0.05	0.03	0.16	0.11	0.04
Acceptance- Affiliation (AF)	-0.01	-0.05	0.14	0.02	0.04
Approval Seeking (AP)	-0.24*	-0.24*	-0.12	-0.23*	-0.06
Self Improvement (SI)	-0.06	-0.06	-0.16	-0.01	-0.24*

$* p < .05, ** p < .01$

Table 8. *Goal Striving Subscales, Correlated with Treatment Self-Regulation Questionnaire for Exercise, and Correlated with Motivation Subscales*

	Autonomous Motivation	Controlled Motivation	Amotivational
Self Defense (SD)	-0.04	-0.03	-0.04
Acceptance- Affiliation (AF)	-0.07	0.09	0.13
Approval Seeking (AP)	-0.27**	0.04	0.31**
Self Improvement (SI)	0.10	-0.12	0.15
Agonistic Striving	-0.06	0.05	0.07
Transcendent Striving	0.07	0.02	0.18
Autonomous Motivation		0.26**	-0.26**
Controlled Motivation			0.12
Amotivational			

p < .05, ** *p* < .01

Appendix B

Pittsburgh Enjoyable Activities Test (PEAT)

We are interested in how often in the last month you were able to spend time in activities that you enjoyed. Over the past month, how often have you been able to spend time doing the following?

    1 = Never
    2 = Less Than Once a Month
    3 = Once a Month
    4 = Once a Week
    5 = Once a Day
    6 = Not applicable/Do not enjoy

		Never	Less Than Once a Month	Once a Month	Once a Week	Once a Day	Not Applicable / Do Not Enjoy
1.	Spending quiet time alone	1	2	3	4	5	6
2.	Spending time unwinding	1	2	3	4	5	6
3.	Visiting others	1	2	3	4	5	6
4.	Eating with others	1	2	3	4	5	6
5.	Doing fun things with others	1	2	3	4	5	6
6.	Club, fellowship, and religious group participation	1	2	3	4	5	6
7.	Vacationing	1	2	3	4	5	6
8.	Communing with nature	1	2	3	4	5	6
9.	Sports and Exercise	1	2	3	4	5	6
10.	Hobbies	1	2	3	4	5	6

Pressman, S.D., Matthews, K.A.., Cohen, S., Martire, L.M., Scheier, M., Baum, A., Schulz, R. (2009). Association of Enjoyable Leisure Activities with Psychological and Physical Well-Being. Psychosomatic Medicine, 71(7), 725-32.

Sports Participation Motivation Questionnaire

For the purpose of this study, the physical activity questionnaires are more concerned with **cardiovascular exercise,** rather than with weight training. Please keep this in mind when answering questions.

Other questions:
IF you are a member of an organized varsity level sports tea, answer the following: (Club sports and others skip to question 2):

1. Why did you join a varsity level sports team at SU? Please circle the reason **most applicable** to you.

   a. Scholarship/ financial
   b. Pressure from family
   c. Intention to pursue the sport further
   d. Respect from peers
   e. The support system and structured offered by an organized sport
   f. Other

2. Has anyone in your immediate family had a history of the following (circle all that apply)

   a. Heart disease
   b. Cancer
   c. Stroke
   d. Diabetes

3. Has anyone in your immediate family died from any of the above conditions?

Y   N

4. If so, at what age?
   _____

5. How influential has your family's medical history been in motivating you to exercise?

1   2   3   4   5   6   7

(Not important)   (Somewhat important)   (Very important)

Treatment Self-Regulation Questionnaire (TSRQ)

The following question relates to the reasons why you would either start eating a healthier diet or continue to do so. Please indicate the extent to which each reason is true for you, using the following 7-point scale:

1	2	3	4	5	6	7
not at all true for me						very true for me

Part I:

	The reason I would eat a healthy diet is...	Not at all true		Somewh at true			Very true
1	Because I feel that I want to take responsibility for my own health.	1	2	3	4	5	6	7
2	Because I would feel guilty or ashamed of myself if I did not eat a healthy diet.	1	2	3	4	5	6	7
3	Because I personally believe it is the best thing for my health.	1	2	3	4	5	6	7
4	Because others would be upset with me if I did not.	1	2	3	4	5	6	7
5	I really don't think about it.	1	2	3	4	5	6	7
6	Because I have carefully thought about it and believe it is very important for many aspects of my life.	1	2	3	4	5	6	7
7	Because I would feel bad about myself if I did not eat a healthy diet.	1	2	3	4	5	6	7
8	Because it is an important choice I really want to make.	1	2	3	4	5	6	7
9	Because I feel pressure from others to do so.	1	2	3	4	5	6	7
10	Because it is easier to do what I am told than think about it.	1	2	3	4	5	6	7
11	Because it is consistent with my life goals.	1	2	3	4	5	6	7
12	Because I want others to approve of me.	1	2	3	4	5	6	7
13	Because it is very important for being as healthy as possible.	1	2	3	4	5	6	7
14	Because I want others to see I can do it.	1	2	3	4	5	6	7
15	I don't really know why.	1	2	3	4	5	6	7

Part II:

	The reason I would exercise is...	Not at all true			Somewhat true			Very true
1	Because I feel that I want to take responsibility for my own health.	1	2	3	4	5	6	7
2	Because I would feel guilty or ashamed of myself if I did not exercise regularly.	1	2	3	4	5	6	7
3	Because I personally believe it is the best thing for my health.	1	2	3	4	5	6	7
4	Because others would be upset with me if I did not.	1	2	3	4	5	6	7
5	I really don't think about it.	1	2	3	4	5	6	7
6	Because I have carefully thought about it and believe it is very important for many aspects of my life.	1	2	3	4	5	6	7
7	Because I would feel bad about myself if I did not exercise regularly.	1	2	3	4	5	6	7
8	Because it is an important choice I really want to make.	1	2	3	4	5	6	7
9	Because I feel pressure from others to do so.	1	2	3	4	5	6	7
10	Because it is easier to do what I am told than think about it.	1	2	3	4	5	6	7
11	Because it is consistent with my life goals.	1	2	3	4	5	6	7
12	Because I want others to approve of me.	1	2	3	4	5	6	7
13	Because it is very important for being as healthy as possible.	1	2	3	4	5	6	7
14	Because I want others to see I can do it.	1	2	3	4	5	6	7
15	I don't really know why.	1	2	3	4	5	6	7

Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology, 57*, 749-761.

Motives for Physical Activity Measure

The following is a list of reasons why people engage in physical activities, sports and exercise. Keeping in mind your primary physical activity/sport, respond to each question (using the scale given), on the basis of how true that response is for you.

1	2	3	4	5	6	7
not at all true for me						very true for me

		Not at all true for me			Somewhat true for me			Very true for me
1	Because I want to be physically fit.	1	2	3	4	5	6	7
2	Because it's fun.	1	2	3	4	5	6	7
3	Because I like engaging in activities which physically challenge me.	1	2	3	4	5	6	7
4	Because I want to obtain new skills.	1	2	3	4	5	6	7
5	Because I want to look or maintain weight so I look better.	1	2	3	4	5	6	7
6	Because I want to be with my friends.	1	2	3	4	5	6	7
7	Because I like to do this activity.	1	2	3	4	5	6	7
8	Because I want to improve existing skills.	1	2	3	4	5	6	7
9	Because I like the challenge.	1	2	3	4	5	6	7
10	Because I want to define my muscles so I look better.	1	2	3	4	5	6	7
11	Because it makes me happy.	1	2	3	4	5	6	7
12	Because I want to keep up my current skill level.	1	2	3	4	5	6	7
13	Because I want to have more energy	1	2	3	4	5	6	7

14	Because I like activities which are physically challenging.	1	2	3	4	5	6	7
15	Because I like to be with others who are interested in this activity.	1	2	3	4	5	6	7
16	Because I want to improve my cardiovascular fitness.	1	2	3	4	5	6	7
17	Because I want to improve my appearance.	1	2	3	4	5	6	7
18	Because I think it's interesting.	1	2	3	4	5	6	7
19	Because I want to maintain my physical strength to live a healthy life.	1	2	3	4	5	6	7
20	Because I want to be attractive to others.	1	2	3	4	5	6	7
21	Because I want to meet new people	1	2	3	4	5	6	7
22	Because I enjoy this activity.	1	2	3	4	5	6	7
23	Because I want to maintain my physical health and well-being.	1	2	3	4	5	6	7
24	Because I want to improve my body shape.	1	2	3	4	5	6	7
25	Because I want to get better at my activity.	1	2	3	4	5	6	7
26	Because I find this activity stimulating.	1	2	3	4	5	6	7
27	Because I will feel physically unattractive if I don't.	1	2	3	4	5	6	7
28	Because my friends want me to.	1	2	3	4	5	6	7
29	Because I like the excitement of participation.	1	2	3	4	5	6	7
30	Because I enjoy spending time with others doing this activity.	1	2	3	4	5	6	7

Ryan, R. M., Frederick, C. M., Lepes, D., Rubio, N., & Sheldon, K. M. (1997). Intrinsic motivation and exercise adherence. *International Journal of Sport Psychology*, 28, 335-354.

Appendix C

Sample SCI A

Can you tell me about stress with friends?

I just got out of a relationship this past week, so it has been really stressful for me. I haven't been able to sleep or eat. I've been trying to figure out why we really broke up.

How long as this been going on?

Just this past week.

How often does it bother you?

Constantly. Just this week, I've been thinking about it every day, numerous times throughout the day. I haven't been able to focus on my main priorities because I've been stressed out about the situation.

Why is this important to you?

I think it's important because I really do care about the person a lot. This guy I was in a relationship with, was someone I could see myself having a future with. I felt like I was finding someone that complemented me well. He is very ambitious and successful so it's just a really happy medium. But sometimes long distance and other factors can make or break a relationship.

Could you tell me about a specific thing that happened that you want to talk about that was very stressful for you?

I think the most stressful part was the night we broke up, because I went to see him at a function. He's in the military, and it was a ball. So that night, we broke up. But, I feel like he's unstable. He doesn't know exactly what we wants right now. He was still reassuring, and the next day everything was fine. I just don't know exactly where his heart lies. We planned for him to come here next weekend, but there have been some issues with that too, so I've been pretty upset about that too.

Okay, so while you were talking to him what sorts of thoughts were going through your mind?

What did I do wrong? Where did this relationship go wrong? We were both in this thing together and now I feel like it's more of a one-way street. Should I really

fight for this relationship, or just kind of move on? Do I want to make a friendship out of this or will a friendship complicate things? That's really about it.

How did it make you feel having all these questions and not knowing how he felt?

I had a lot of anxiety. One my fears, I realized, is that I fear being alone. Throughout my life ever since I was in 8th grade, I've had a relationship, and I've always bounced from one relationship to another because I have a fear of being alone and I'm very dependent on affection, feelings, and stuff like that. But I'm very independent in the sense of handling business, so I've just always wanted a companion supporting me throughout my journey. I need to find some self worth and find some time to be alone.

So when this was happening, did you feel any stress physically?

Well physically I was drained, like I said, I couldn't sleep. I had a curb of appetite, and I still can't really eat. I have insomnia, mild headaches, lack of focus and concentration.

If someone had seen you, would they have seen a reaction on your face or a change in behavior?

Once we broke up, no. But the minute I left him and got back on the bus to come back here, I broke down. It was very startling. I didn't expect to break down at all. So people knew something was going on, but they probably thought I had separation anxiety or something like that.

So can you actually take me back to this one situation, and lead me through what happened with as much detail as possible?

Well, it was probably 930 or 10 pm that evening so I was kind of tired. And I was frustrated, because I was late and I had to get my hair done. I told him I really needed to talk to him, and he said okay. When we got back, we just talked about how we felt about things, and once he was like, "My actions have not been living up to what I've been saying and promising to you, and maybe right now is not the best time to be in a relationship". I was in awe. I could not handle the burning feeling inside my heart. It was very unexpected and I was flabbergasted because, you know, when you're with someone, you start getting comfortable with that person. You start trusting that person, and it gets really hard to not see yourself with that person anymore, so I was emotionally drained. The next day, it was like everything was normal, as if we were going together still. It was like a dream going on, masking this reality like, are we broken up? Are we still together? There were a lot of questions in my head, and I knew once I got back home there would be a lot of complications in our friendship, relationship, everything. That night was really stressful for me.

Did you tell anyone about what happened?

The night of, yes, one of my friends.

And how did your friend's response make you feel?

They were just completely flabbergasted, disgusted, saddened, supportive, and just wanted to know why and what exactly was going through his head.

So looking back now, how do you feel about yourself and that situation?

I still feel sickened, and I can't go back in time so there's nothing I could do. I'm trying to fight for this relationship. I think about the small things I could have done—when he asked me to hold his hand, I could have held his hand instead of saying no because I was frustrated about the whole day. If I didn't even bring up a talk, because having the talk is never really good. But I didn't think having the talk would lead to that. I was thinking it would lead to conflicts of interest, but we've had a lot of arguments before, so I didn't think anything of it. I thought, you know, things would be different. If I could go back in time to fix it I would.

Alright so, we're going shift focus now. I want you to pretend you're directing a movie and you're making a film about a main character that's just like you. She's going through this break up, and just trying to figure things out. The only difference is that you can make the film end any way you want. So, what would be a positive, but realistic ending for your character?

I think a positive realisitic ending would be her journey. She makes a promise to herself to hold out for a month, to find out what it would be like to be alone, to find her self worth, and just move on from there. She would move forward with her life and start loving herself. I think that would be my ending. Ideally, I would want someone supporting her, her significant other, but right now I don't know if that's realistic or not, so I can see her just actually being happy with herself and her self-worth.

So, what are some things your character could do to make that happen?

More self reflection, more meditation. Self devotion. I need to get back to talking to my mother and father. Just more me time, I focus more on others than on myself.

On a scale from 1-10, with 1 being least confident and 10 being most confident, how confident are you that you can start spending more time working on yourself?

An 8.

What are some things that might happen if you get involved in more things for yourself, like meditating?

I feel like at first it would be hard because I'm dependent on people, but good in the long run because I know this is going to benefit me. I wouldn't do anything that wouldn't have a positive effect, so I think it'll have a good outcome for my future.

Anything else that might happen?

I might start eating again, less stress, less anxiety.

Of those things mentioned, less stress, being more healthy, eating, as well as just having a better general outlook, which one is most important to you?

My health, I don't want to get sick from this happening to me.

On a scale from 1-10, 1 with 1 being least sure and 10 being completely sure, how sure are you that if you start focusing on yourself more you'll become more healthy and stay healthy?

A 10.

Sample SCI B

Could you tell me about stress with friends?

Okay so, I'm not the most comfortable person interacting with other people, and I'm constantly thinking about what other people are thinking. I try to adapt myself to that situation and it basically makes my family mad at me, because I'm constantly thinking what the other person is thinking. I do well with friends, and I can make friends, but I get really nervous and I can sometimes cause issues with friends. I don't always feel like I belong in a group of friends.

Okay, how long has this been going on for you?

Well really just recently. In high school I had a really good friend up until senior year. I started focusing on school and she got a little frustrated with me, but then when I came here I was never good at making friends. I don't have a group of friends yet that I can consistently hang out with, so I feel a little lonely.

Okay, so how often does this bother you?

Daily. I don't want it to, but I've always been that type of person who needs to belong. I'm starting to develop a good friend, but I still don't know quite yet, and I'm an engineer so all the people I live with are guys, and I don't always fit in with the guys.

So why is this important to you?

One issue of mine is I always need to belong, and if I don't belong I get really lonely and scared. It's an issue because it causes me to feel those emotions that I don't want to feel.

Can you tell me about a specific situation that happened recently?

I went a date with this guy, I went on one date with him and, I told him I don't want to date you anymore, and he went into depression for 4 weeks. He blamed me for the depression. Every time I see him, he doesn't even look at me. I've said hello and he doesn't even acknowledge my existence, and I just want to punch him in the face. I guess it is recent because he literally lives across the hall from all my other friends, and they're all friends with him, and he has asked me to not talk to him.

So what types of thoughts were going through your mind when this happened, with this guy? Like when he said he didn't want to talk to you?

Well, I thought that was perfectly okay. I've been in that situation where the person keeps saying "Can we talk about this, can we talk about this?"… And I'm

like, just let me be for a little bit. So at the beginning I was okay with it, but then, actually I was really upset because I don't like losing friends. But I could understand it. As time went on, and I literally became a brick building to him, and that has hurt more than I have wanted it to.

Okay, so was there something that happened recently that made you feel that way?

Yeah, hes in my recitation class, which is right before this, so 3 times a week, I see him. He avoids where I'm sitting.

So the most recent time that happened what thoughts were going through your mind?

I was thinking, "Why are you doing this? Is it really helping you? It's not doing anything for me". I just want to know why he is thinking this and try to recreate a friendship. I don't want this huge separation. Before this appointment, the same thing happened and I wanted to go talk to him because I don't want to be the person that causes something. I've already done that.

How does it make you feel that he doesn't want to talk to you?

I feel hurt, I feel like its unfair to me, and yeah he was upset, but how long will you be upset? I think it's extremely unfair and rude to do it on a daily basis, like, if I walk into a room he will literally leave.

When you saw him and he avoided you, did you feel any physical stress?

I just had an urge to punch him. Like when he first broke up with me I actually pulled an all nighter because I couldn't sleep. When I broke up with him, I was just destructively studying because I didn't know what else to do. Now when I see him, I feel like everytime he walks by there's a blow to my chest because he doesn't acknowledge the fact that I exist anymore, and that really scares me.

So if I had been there would I have seen any reaction on your face or a behavior change?

You would have seen him walk by and me being like, "Okay". It happens so often that it's second nature now.

I want to make sure I know the whole situation, so could you take me back to the situation and just walk me through step by step, with as much detail as possible?

I walked in, saw he was there, and I looked at my professor, got my papers, and then I sat down. This was today. I would look at him occasionally and I knew he wasn't going to even look in my direction, so then I would continue on my work.

So the class went on and I continued my work, and I'm not having the greatest day today so it was touching on my emotions more than it should be. And he got up early, and I was mad because he finished first and we're about the same, knowledge wise. And I also saw one of his scores for the past homework and he got a 100 and I didn't, and it's just that kind of like, tension. Because hes putting so much on me I want him to feel something, but it doesn't look like he is.

Did you tell anybody else about what happened?

I've told quite a few people, everyone knows the breakup story. I've told my parents, but they were kind of annoyed by the situation. They said I needed to just get over it.

How do all of these responses make you feel?

Well I kind of want to feel the same way. I kind of want to move on. I want him to move on.

Well thinking about the situation now, how do you feel about yourself and what happened?

I feel like a crying little girl who should just move on.

Okay we're going to shift directions now. I want you to pretend you are the director of a movie and you're making a film about a main character that's just like you. Dealing with this breakup, having to see this person everyday. The only difference is that you can make the movie end any way you want for your character. What's a positive but also realisitic ending that you would have for your main character?

I would give her someone she could truly love, so she could feel that emotion. And someone would be there when she did fall again, pick her up and comfort her and be there for her.

What are some things your character could do to make that happen?

Well she would find that person she likes who liked her back, someone she truly liked because that's another thing one of my problems. I'll start liking someone and then figure out I don't like that person, and this will happen. It's mostly because I feel trapped, so she'll find someone who sets her free, and he will be the one to sort of sweep her off her feet like a romantic story. He'll try to find ways to sweep her off her feet even when she pushes him away. He'll accept who she is.

On a scale from 1-10 with 1 being least confident and 10 most confident how confident are you that you can find someone that fulfills those things for you?

I'd probably say a 6.

So what things might happen if you do find this?

I'd feel content, I'd feel full, complete.

Is there anything else that might happen?

I'd want a ring! Like, a secure future.

Okay, of those two things, feeling complete or having a secure future, which is most important to you?

A secure future.

Okay, on a scale of 1-10, 1 being least sure and 10 most sure, how sure are you that if you found this person that it would give you a secure future?

A 9.

Summary of Capstone Project

My Capstone project uses the framework of Social Action Theory to better understand motivations for exercise. Social Action Theory (SAT) is concerned with understanding how people create goals and the various approaches they might take to achieve those goals. This concept of pursuing goals by taking particular actions is known as goal-oriented striving. Within this framework, three goal-oriented striving patterns have been defined, known as Agonistic striving (AS), Transcendent striving (TS), and Dissipated striving (DS). SAT posits that the way in which people create and pursue goals can put them at risk for chronic exposure to stress, leading to conditions such as heart disease, stroke, diabetes, and cancer.

The AS pattern characterizes individuals who are typically more competitive, defensive, and seek approval from others. Individuals exhibiting the AS pattern also tend to try to achieve their goals by controlling their environment and people around them. In other words, they perceive their achievement of a particular goal as being highly dependent upon and influenced by others. For example, an individual with the AS pattern, whose goal is to do well in a course might opt to pursue this goal by hoping that his teacher will offer him an extra credit opportunity. Individuals with the TS pattern, on the other hand, are characterized by their desire to achieve their goals by improving themselves or taking greater control of their lives. For example, an individual with the TS pattern might try to do well in a course by creating a schedule to manage her time better, in hopes of performing well on exams. Finally, the DS pattern

characterizes individuals who do not perceive a clear way of fulfilling their goals. For example, an individual with the DS pattern might want to do well in a course but may not be able to come up with a viable means of achieving that goal. Thus, these three "actions" – controlling others, controlling the self, and lacking control—fashion how an individual attempts to achieve a particular outcome.

Goal-oriented striving patterns are indexed by the Social Competence Interview (SCI). The SCI is an 8-10 minute interview during which trained interviewers ask participants to thoroughly reflect on a recent stressful experience. The participant can choose from categories of stress including school stress, neighborhood stress, work stress, money stress, friend stress, or family stress. The participant is then prompted to recall details of the incident, including the participant's thoughts, feelings, observations, and interactions with others. In the second part of the interview, the participant is prompted to play the role of a film director making a movie about a main character experiencing the situation they just described, in order to come up with a realistic, but ideal ending for this character. This ending is used to infer the character's "goal", and they are subsequently prompted to describe approaches they can take to achieve their ideal ending. They are also asked to rate their confidence in achieving their desired ending. The interviewer, and an observer who listens to audio recordings of the interviews, then code the SCI on characteristics of the individual and their stressful experience, including expressiveness, competitiveness, self-defense, approval seeking, affiliation, and self- improvement. The three goal striving pattern scores for the respondent are derived from these factors.

Individuals across all age groups in our world today are faced with the growing epidemic of obesity, particularly due to poor diet combined with a lack of physical activity. While resources and access to facilities or safe neighborhoods for physical activity most definitely contribute to the lack of exercise in the world today, my project investigates motivation. Individuals exercise for a variety of reasons—from wanting to improve skills, to desiring respect from others, to working towards a more satisfying appearance. However, individuals also lack the motives to exercise, perhaps because of anxiety about their appearance while working out, or because they feel that they lack the competence to participate in sports or exercise activities.

My project explored the relationship between motives (why an individual chooses to exercise), and the level of motivation (their underlying reasons for pursuing an activity). For example, in one scenario, a man might run daily to improve his race time. One reason he might wish to improve his race time is that he wants his friends to prove to his friends that he is fit, so that they will respect him more. Another reason might be that he has been training since his last race and wants to prove to himself that he has improved his fitness. In this scenario, improving his race time, or his running skills, are motives. It is this individual's particular reason for exercising. His underlying motivations, however, could either be for seeking approval from his friends, or for self improvement; these two motivations represent the "Approval Seeking" or "Self Improvement" measures from the SCI. The man's goal striving pattern is then derived from this—if in a particular struggle, this man tends to be highly attuned to the approval he gets

from his friends, his Agonistic Striving score will increase, and if his desire to improve himself in that particular struggle is very apparent, his Transcendent Striving score will increase. No matter what, this man reports exercising daily; however, his underlying motivations, which might describe his motives, may explain why he is so disciplined in his exercise patterns.

For my project, participants were interviewed, and also completed questionnaires on demographics and motivations for physical activity. I wanted to explore whether the motives driving college students to exercise were related to the ways in which they pursued their goals. One of my questions was whether there was a relationship between Agonistic goals and exercising for reasons such as increasing attractiveness or competence, where an individual's sense of achieving attractiveness would be highly influenced or validated by gaining the approval of peers. Another question was whether Transcendent goals, described by the characteristic of improving one's health through exercise, are influenced by an individual's family medical history. It appears, though, that motivation is very much linked to the goals people construct for themselves—whether these goals are realistic, achievable, how much control an individual has over achieving these goals, and their confidence in their abilities. For example, an individual who wants to exercise to improve his or her health might have greater control over achieving this goal than an individual who wants to be attractive; however, perhaps the desire to be more attractive is a stronger incentive to exercise because gaining approval from peers gives this individual confidence. On the contrary, the positive outcomes of running to improve health take much longer to become

apparent, so perhaps this individual will stop exercising within a few weeks.

Understanding these motives and how people pursue their goals can help

researchers and professionals to streamline how they approach the concern of

physical activity in various settings—from schools to clinics to wellness sessions.

A woman who exercises to be more attractive so that she can gain confidence in

herself is very different from a woman who exercises to be more attractive so that

others will praise her. Although both have the capacity to have great control over

their exercise habits, one might experience more stress than the other. According

to SAT, the woman who seeks approval from others—and is trying to control her

environment—is more likely to experience stress, than the woman who wants to

gain confidence or stay fit.

Three questionnaires were primarily used to gauge participants'

motivations for physical activity: the Pittsburgh Enjoyable Activities Test

(PEAT), the Motivations for Physical Activity Measure (MPAM), and the

Treatment Self-Regulation Questionnaire for Diet and Exercise (TSRQ). The

PEAT is a measurement of how often an individual has participated in leisure

activities in the past month, including sports and exercise. MPAM assesses

motives for participating in physical activity, including the following reasons:

Interest or Enjoyment, Fitness (to improve cardiovascular fitness and strength),

Competence (to gain and improve skills), Appearance (to become more

attractive), and Social (for meeting new people or having fun with others).

Finally the TSRQ is a questionnaire used to determine why an individual might,

in this case, exercise, to improve his or her lifestyle by engaging in a healthy habit.

Results from this project have brought to light interesting results that can lead to future research, the development of policies, and aid health practitioners in creating plans for stress management among young adults. For example, recognizing the impact of seeking approval from others can lead to further research on competition, as well as the relationship between exercising for self improvement and avoiding exercising with others. Moreover, recognizing that individuals that exercise to seek approval from others typically don't really understand why they are exercising in the first place, can help us understand why so many people quit an exercise plan after just a few weeks. Health professionals can then possibly help these individuals become more attuned with their lifestyle habits so that they might better understand the benefits of physical activity. By better understanding an individual's motives with regard to setting and pursuing goals, we can take a step forward to fight obesity and related chronic diseases.