

THE EFFECTS OF CHARITABLE CAUSE ON PHYSICAL ACTIVITY MOTIVATION

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PUBLIC ABSTRACT

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People know that physical activity is good for their health. However, just having this knowledge is not sufficient to motivate people to engage in regular physical activity. Current data shows that 52% of the U.S. population has chosen a lifestyle that is either sedentary or insufficiently active. Recently, behavioral scientists have been searching for better ways to motivate people's physical activity levels. Providing an immediate reward of donating for a charitable cause for physical activity behavior may be one way to increase motivation to engage in physical activity, and using social media to make one's physical activity public may be another motivational strategy. Thus, the purpose of this study was to investigate whether or not linking an exercise task to a charitable cause (earning money via cycling to be donated to a charity) influences the amount of effort expended in a single bout of exercise on a stationary exercise bike. Additionally, the effect of making exercise results public (e.g., posting on social media) on effort while cycling was examined. Results of this dissertation demonstrated that immediate rewards following an exercise bout increased motivation in terms of longer cycling minutes.

ABSTRACT

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Motivation is an important factor for the promotion of physical activity behavior, and motivation to perform a given task can derive from various sources (Katz & Kahn, 1966; Ryan & Deci, 2000). One source of motivation is the use of rewards. This dissertation addresses two different characteristics of motivating rewards grounded in self-presentational theory: (a) the time-based nature and (b) the image-based nature of a reward; and how they are associated with physical activity motivation and behavior. The primary purpose of this study was to investigate whether or not linking an exercise task to an immediate reward in the form of a charitable giving opportunity influences the amount of effort expended in a single bout of exercise on a stationary cycle ergometer. The secondary purpose was to examine the effect of adding an image-based reward component in the form of making results public (e.g., posted on social media) on effort expended in a cycling bout. Two studies were conducted using experimental designs where participants were randomly assigned to four different treatment conditions: (a) Private pro-health (i.e., control group-delayed reward, potential health benefit), (b) Private prosocial reward (i.e. immediate reward - cycling for a monetary donation to charity), (b) Public self-presentational reward (i.e., immediate reward – cycling results posted on social media), and (d) Both Public prosocial and self-presentational reward (i.e., immediate reward, cycling and charity donation results posted on social media). The first study was a pilot study ($N=30$) to test the research process and protocol and also to identify variables of interest. The second study, grounded in self-presentation theory, replicated the basic task, elaborating the theoretical framework and

methodology with a larger sample size. In Study 2, college students ($N = 108$) completed questionnaires for assessment of previous physical activity levels, completed exercise eligibility forms, and performed a single bout of cycling. The dependent variable was time spent (minutes) cycling during a session. Analyses using current physical activity levels and altruistic personality as covariates showed there was a significant difference in a way that more time was spent cycling when immediate rewards such as charity donations and Facebook posts were used. In addition, self-efficacy beliefs increased when immediate rewards were involved. The findings from this study support the possibility that using motivating rewards (time and image based) is positively associated with increased physical activity levels.

This dissertation is dedicated to Mom and Dad.
Thank you for providing me the opportunity to have a dissertation.

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CHAPTER 1

INTRODUCTION

The beneficial health outcomes of physical activity are well acknowledged (Livingstone, Robson, Wallace, & McKinley, 2003) and include numerous psychological and physiological health benefits (e.g., weight loss, reduced risk of heart disease, lowered risk of depression, or certain types of cancer) (CDC, 2012). However, explicit knowledge of these potential health benefits is not sufficient to motivate people to engage in physical activity at the recommended levels. Healthy People 2020 reported in 2008 that only 44% of adults meet recommended levels of physical activity in The United States. Previous studies also show similar patterns throughout the world. For example, adults in Europe (40%) and Australia (57%) are meeting minimum guidelines of physical activity (De Cocker, De Bourdeaudhuij, Brown, & Cardon, 2007). As the lack of physical activity may trigger health problems in individuals (CDC, 2012), it is crucial to find ways to motivate people to adopt a physically active lifestyle to prevent some of the common chronic diseases.

Recently, behavioral scientists have been searching for ways to better understand motivation and the factors affecting motivation that may influence people's physical activity levels (Edwardson & Gorely, 2010; Katz & Kahn, 1966; Livingstone et al., 2003; Ryan & Deci, 2000). Motivation to perform a given task can derive from various sources (Katz & Kahn, 1966; Ryan & Deci, 2000). One source is to use rewards that entice people to be more active, especially for physical activities that are not inherently interesting or for people who need additional motivation to exercise (Ryan & Deci, 2002). Researchers have been able to determine several characteristics of motivating rewards. This dissertation addresses two different characteristics of motivating rewards: (1) time-based nature and (2) image-based nature of

reward, and how they are associated with physical activity motivation and behavior.

First, time-based nature of the reward (i.e., when one gets rewarded) may have a consequence on motivation, because when rewards are delayed, people have to rely on their willpower (i.e., self-control) to regulate their behavior rather than relying on an external reward (Mischel, Shoda, & Peake, 1988). If two reward choices are offered (immediate vs. delayed), individuals who have a weak willpower will be more likely to choose an immediate reward, even if the delayed reward is more valuable and beneficial than the immediate reward. In the physical activity context, the health benefits that are received from regular exercise are usually delayed rewards (e.g., weight loss, low risk of common chronic diseases, etc.). Considering the recent research demonstrating the upward trend of obesity and heart diseases in the U.S.A (CDC, 2010), I assert that health benefits are delayed rewards but very valuable rewards for one's health and overall wellbeing such as obesity prevention, improved heart health and weight management (CDC, 2010). On the other hand, the immediate reward of inactivity for people can be relaxation (e.g., sitting and watching TV) while the immediate consequences of activity might entail pain, soreness, and fatigue, especially for a novice exerciser (Dishman & Buckworth, 2010). This may explain the potential reason why people would choose sedentary behavior; inactivity has immediate rewards. However, inactivity has delayed consequences that can be detrimental for one's health: poorer health because of weight gain, metabolic syndrome, and heart-related problems.

Even when individuals are motivated enough to initiate physical activity, the timing of the reward may be important for how long or how much effort they put into their physical activity. Therefore, I wanted to incorporate tangible immediate rewards to physical activity for this study. Specifically, the rewards I investigated involved providing an opportunity to donate to

a charity by cycling and/or announcing the cycling results and charity donation on social media, such as Facebook (FB). So, while using the time-based nature of the reward by immediately rewarding people with the opportunity to provide charitable donations, I strengthened the reward potential by adding the image-based nature of the reward (e.g., self-presentational concerns) through the opportunity to post people's results on social media (i.e., FB).

Second, researchers explained the importance of the image-based nature of rewards (also called "image motivation hypothesis"). Image motivation is the desire to be perceived as kind and nice by others. People like to be appreciated and recognized by others for a desirable behavior, such as helping the elderly, donating to charities, or showing good health behavior. Thus, image motivation is in effect when others can see one's prosocial behaviors (Ariely, Bracha, & Meier, 2009; Zimmerman, 2009). Image motivation is very similar to self-presentation theory (Schlenker & Leary, 1982), which explains that people try to convey socially desirable information and/or images about themselves to other people. Specifically, self-presentational concerns occur when other people are present to evaluate them, and therefore experience social anxiety. This anxiety motivates them to make a desired impression on other people. For the purposes of this dissertation, image motivation and self-presentational motivation can be used interchangeably.

In a series of experiments conducted by Ariely et al. (2009), the researchers demonstrated that people are more motivated to show prosocial behaviors in public than they are in private. In their experiment, they created two different conditions to complete a simple task. In the first condition, participants were told that the task was to click on X and Y on a computer keyboard simultaneously for 5 min as much as possible to earn money to be donated to the American Red Cross, a charitable aid organization. In this condition, the amount of money earned by the

participant was confidential and only the participant and the researcher knew the donated amount. Researchers referred to this condition as “private.”

The second “public” condition included the same task to click on X and Y as much as possible for 5 min. However, this time, participants had to announce the amount earned at the end of the session with the remaining people in that particular room. The hypothesis was that image motivation (announcing the money earned to the other people in the room) would create a difference in the number of clicks. Results supported the hypothesis; participants clicked significantly more on the keyboard in the public image condition compared to the private confidential condition. Therefore, there is some support indicating that people will exert more effort on simple tasks if they know their contributions will be made public, and will, therefore, enhance their image to others.

Ariely et al., (2009) conducted another experiment to examine the differences in performance between two different motivating rewards while cycling on a stationary bike. In the first condition participants were told that they would earn a dollar for each mile cycled during a 10-min exercise bout and that the earned money would be donated to a charity. In the second condition, participants were told that they would earn money for charity and they would also earn a dollar for themselves for each mile cycled. Results revealed that participants in the condition with two rewards (charitable donation and individual payment) cycled longer than the charitable donation-only condition. One should take into consideration that this experiment was implemented in behavioral economics field, and thus lacks some of the typical features of an exercise experiment conducted in the kinesiology field, such as controlling for exercise intensity, measuring previous physical activity levels, etc. So, for this present study I conducted an exercise experiment through a kinesiology lens, including some of typical features (e.g.,

checking exercise eligibility, assessing previous physical activity levels etc.)

Aforementioned, self-presentational motivation is contingent upon the visibility of one's behaviors. Recently, a milieu that allows people to freely self-present is social media. Facebook (FB) is one of the most popular social networking site with 1.01 billion daily active members as of September 2015 and, self-presentation is a significant element for FB- it gives people the opportunity to post information about their lives, and others can “like” or comment on their status (Hofmann & Nadkarni, 2013; Kim & Lee, 2011; Lee-Won, Shim, Joo, & Park, 2014; Wong, 2012). People seem to enjoy receiving “likes” because it is a sign of appreciation and approval and thus a reward. Wong (2012) explains that uploading photos and videos is very popular on FB mainly because people have the chance to upload or write what they prefer to show to others. Usually, people share photos that they look the best in. They write and post about their success or the fun things that they are doing (e.g., graduating, traveling, etc.). FB provides a nice opportunity for people to build good impressions in others' eyes because they have the control and time to decide in what way they would like to self-present (Chen & Marcus, 2012). Besides they can reach many people all at once. Studies explain that people want to maintain a positive image on FB in order to get appreciation and recognition in return online (e.g., receiving “Likes” from many people). So, FB might motivate people to convey their desired image in order to receive positive feedback. (Kim & Lee, 2011; Lee-Won et al., 2014; Wong, 2012).

In the physical activity context, people like to share the kilometers that they have ran, the training that they conducted for various kinds sports and photographs while competing, etc. However, little is known about self-presentational motivation on social media (e.g., FB) for physical activity behavior and whether or not it enhances physical activity behavior. For the present study, I used FB as the social-media milieu to announce participants' cycling task

performances in order to make it visible to others. So, FB was the mechanism to publicize one's behavior.

To my knowledge no study has examined the relationship between the image-based nature of a reward (self-presentational motivation) and physical activity behavior for the intention to promote physical activity levels. Because the health benefits of exercise are delayed rewards that compete with the immediate rewards of inactivity, time and image-based rewards might be powerful tools to promote greater exercise.

The primary purpose of this study was to investigate whether or not linking an exercise task to an immediate reward in the form of a charitable giving opportunity influences the amount of effort expended in a single bout of exercise on a stationary cycle ergometer. The secondary purpose was to examine the effect of adding an image-based reward component in the form of making results public (e.g., posted on social media) on effort expended in a cycling bout.

This dissertation encompassed two studies; the first study was a pilot study in which I conducted an experiment to test the research process and protocol and also to identify variables of interest. The second study, grounded in self-presentation theory and image motivation, was an extended version in which methodology was improved with a larger sample size. There is one independent variable in this dissertation, the nature of a reward for exercise, with four levels: (a) an anticipated health reward for exercising (delayed private pro health reward), (b) an immediate reward for exercising by charitable giving (immediate private altruistic reward), (c) an immediate image-based reward for exercising (immediate public pro health reward), and (d) an immediate image-based reward for exercising and charitable giving (immediate public pro health in FB and altruistic reward). The dependent variables were exercise duration, calories expended, and self-efficacy for cycling. This dissertation investigated several hypotheses and research

questions.

Research Questions

- 1) What are the effects of using a motivating reward, that has a self-presentational aspect, on exercise task performance?
- 2) What are the effects of using immediate a motivating reward, that is altruistic but private in nature, on exercise task performance?
- 3) Does using a motivating reward affect performance-related constructs such as self-efficacy, duration of cycling?

Hypotheses – Study 1

- (a) Participants in each of the three immediate reward conditions (Private prosocial reward, Public self-presentational reward, Public prosocial and Self-presentational reward) will spend significantly more time and burn more calories exercising compared to participants in the control group (only for pro health reasons).
- (b) Participants in Public prosocial and Self-presentational reward condition (FB and charity together) will spend significantly more time and burn more calories exercising compared to exercising for Private prosocial reward (only charity) and Public self-presentational reward (only FB) treatment conditions.
- (c) Exercising for Public self-presentational reward (for public recognition on social media FB) will lead one to spend more time and burn more calories exercising compared to exercising for for a private prosocial reward (private charitable reward).

Hypotheses – Study 2

- (a) Participants in each of the three immediate reward conditions (Private prosocial reward, Public self-presentational reward, Public prosocial and Self-presentational

- reward) will spend significantly more minutes on exercise performance compared to participants in the control group (Private pro-health reasons group).
- (b) Participants in Public prosocial and Self-presentational reward condition (FB and charity) will spend significantly more minutes exercising compared to exercising for Private prosocial reward (only charity) and Public self-presentational reward (only FB) treatment conditions
 - (c) Exercising for public Self-presentation reward (for public recognition on social media) will lead one to spend more time exercising compared to exercising for a private prosocial reward (private charitable
 - (d) Participants in each of the three immediate reward conditions (Private prosocial reward, Public self-presentational reward, Public prosocial and Self-presentational reward) will report greater self-efficacy changes compared to the control group (Private pro-health)
 - (e) There will be a Gender X Altruistic Condition interaction, such that, females will spend more time exercising in the Private prosocial condition compared to males who will spend more time exercising in the Public self-presentation condition compared to females.
 - (f) There will be no significant difference on any of the dependent variables between American and Turkish students. Students from both nations will show similar behavior patterns.

Delimitations

The study sample for this dissertation included undergraduate students between 18-35 years of age who are mostly physically active in recommended levels. For this reason, the results

of this dissertation may not be generalizable to other populations, such as people who are sedentary or children. Also, college students are seen as interacting more with social media than other age groups, so social media might be more motivating for them. However, charitable donations might be more motivating for middle-aged audience (e.g., 35-55 years) as they might want to “give back” and acknowledge the importance of helping others. As a result, the type of motivating rewards might work differently among age groups.

Definitions

Altruistic personality: Person who promotes someone else’s welfare, primarily toward strangers.

Charities: The charity list included three big scale charities. Feeding America, American Red Cross and UNICEF.

Image-based nature of the reward: The image-based reward was the posts on FB.

Physical activity: Physical activity in this research is operationalized as cycling on a stationary bike.

Self-efficacy: an individual’s belief of his/her capabilities to organize and execute the courses of action necessary to accomplish a specific task.

Self-presentation: Any behavior that is designed to convey a positive impression in others' eyes. Self-presentation in exercise and altruistic behaviors are considered in this dissertation

Time-based nature of the reward: The immediate reward for physical activity was the charitable donations or/and FB postings.

CHAPTER 2

LITERATURE REVIEW

The purpose of this chapter is to provide a review of the literature that is relevant to the variables, procedures, and hypotheses of this study. The chapter starts with an overview of physical inactivity being a major problem for overall wellbeing and health. From there, it is argued that incorporating immediate motivating rewards to physical activity can be a way to motivate people to be more active. Motivating rewards include; using social media (e.g., FB) to post the duration of an exercise bout and/or charity donations earned after completing certain duration of exercise. Next, the literature on self-presentation is reviewed as it can provide theoretical support to explain how motivating rewards might work to promote physical activity. In addition, related to self-presentation theory; self-presentation in exercise settings, social media usage and self-presentation in altruism is also reviewed. Lastly, self-efficacy beliefs and gender components were reviewed.

Physical Inactivity Problem

The beneficial health outcomes of physical activity are well acknowledged (Livingstone et al., 2003). However, explicit knowledge of these potential health benefits is not sufficient to motivate people to engage in physical activity at the recommended levels. Studies also point out that the occasions to engage in sedentary behaviors have also increased in the last decades, for example driving versus walking, using elevators instead of stairs, using drive-troughs (Brownson, Boehmer, & Luke, 2005). Healthy People 2020 reported in 2008 that only 44% of adults meet recommended levels of physical activity in The United States. Previous studies also show similar patterns throughout the world. For example, adults in Europe (60%) and Australia (43%) follow a sedentary lifestyle (De Cocker et al., 2007). As the lack of physical activity may

trigger health problems in individuals (CDC, 2012), it is crucial to find ways to motivate people to adopt a physically active lifestyle to prevent some of the common chronic diseases.

There are numerous psychological and physiological health benefits derived from regular exercise. Examples include reduced risk of heart disease, depression and certain types of cancer (CDC, 2012). In addition, regular exercise facilitates weight management; with an active lifestyle people can maintain their optimal weight or lose the excessive weight and keep it off. This is especially important as the obesity epidemic in the U.S.A still has an upward trend (Dishman, 2004).

There are also neurocognitive benefits that come from exercise. These benefits might be difficult to perceive and differentiate for people. Cognitive kinesiology research revealed that physical activity might address some neurocognitive problems. For example, brain structures, such as hippocampus, prefrontal cortex, and temporal and parietal cortices showed decline in volume (e.g., shrinking), as adults aged. Fortunately, high levels of PA and/or fitness were positively correlated with greater brain volumes specifically in the areas where shrinking happens (Etnier & Chang, 2009; Hillman, Erickson, & Kramer, 2008). So, there is some evidence that exercise might help to prevent brain atrophy and cognitive decline. These studies suggest that exercise is not only important for maintaining physical and mental health, but it is also an important factor in retaining cognitive health.

Many campaigns have been launched to increase public's awareness about the importance of having a physically active lifestyle to prevent chronic diseases such as National Institute of Health's campaign "Go4Life". This is a campaign initiated to encourage older adults (over 50 years of age) to exercise regularly and to be physically active in their daily life. The aim of the campaign is to motivate older adults to become physically active for the very first

time, or return to exercise after a break in their routines by providing tip sheets, evidence-based exercise articles, exercise tracking tools via an interactive website (Herman, 2014). Another one is Sport England's national campaign "This Girl Can" that encourages women to get involved in sport and exercise regardless of their age, size and shape ("This Girl Can," n.d.). However, evidence suggests that increasing knowledge of the benefits of an active life is not sufficient for people to move. Therefore, researchers need to find unique ways to improve motivation to promote physical activity.

Motivation

Motivation is defined as the direction and intensity of effort (Gill, 1989). Direction refers to the reason why people are attracted to a particular situation. Intensity refers to the amount of effort given for that particular situation. Motivation to perform a given task can derive from various sources (Katz & Kahn, 1966; Ryan & Deci, 2000). One source is the use of motivating rewards, especially for physical activities that are not inherently interesting or for people who need additional motivation to exercise (Ryan & Deci, 2002). An interesting aspect of motivating rewards for exercise behavior might be the timing of when people get rewarded – immediate vs. delayed rewards.

Mischel, Shoda, and Peake (1988) conducted one of the initial studies on timing of rewards, although it was not in an exercise context, it might have implications on exercise behavior. In their longitudinal study, they examined preschooler's capability to delay gratification for an extrinsic reward – a tangible award given to someone for achieving a behavior. Children between 4-5 years of age were offered a choice between two rewards (one vs. two marshmallows) and were asked to choose one of the options. Afterwards participants were asked to wait alone in the room until the experimenter comes back in order to get the chosen

reward (e.g., two marshmallows). Children were not forced to wait until the experimenter returns to the room, they had the option to ring a bell and experimenter would immediately come back to the room. However, if they chose this option, the children would only get the less preferred reward (e.g., one marshmallow instead of two). Researchers assessed the relation between the current capability to delay gratification and future social and academic success of children. Children were assessed again 10 years later via self-report survey filled out by their parents. Results show that those children who were able to delay gratification when they were 4-5 years old, received higher scores from their parents in terms of academic and social success when they are 14-15 years old. Causality cannot be drawn from this experiment but these results show that one's ability to delay gratification in childhood might be an indicator of social and academic success in the future.

In similar research (Weller, Cook, Avsar, & Cox, 2008), results revealed that obese women were less likely to delay gratification compared to their normal weight counterparts. The study was looking at the relationship between body weight and delay gratification because it was argued that obese women lack inhibitory control. Participants were offered two different amounts of money and were asked to choose between the options. One of the options had a larger amount of money with a delayed delivery (e.g., 2 weeks) while the other had a smaller amount with an immediate delivery. The findings indicated that obese women significantly preferred the immediate smaller amounts of monetary rewards compared to normal-weight women.

In some of the situations choosing immediate or delayed reward might seem like a personal decision (some might not care about the marshmallow), but in other circumstances it is more obvious that people are motivated by the immediate reward. In the physical activity

context, the health benefits that are received from regular exercise are usually delayed rewards (e.g., weight loss, low risk of common chronic diseases, etc.). Considering the recent research demonstrating the upward trend of obesity and heart diseases in the U.S.A (CDC, 2010), we assert that health benefits are delayed rewards but very valuable rewards for one's health and overall wellbeing such as obesity prevention, improved heart health and weight management (CDC, 2010). Most people know the health benefits of regular exercise but resting at home have an immediate reward (e.g., enjoyment) compared to get ready to head to the gym for the delayed reward of improving one's cardiovascular health.

There is some evidence that shows that timing of the reward might be crucial for some people to initiate a behavior – in this case physical activity. Therefore, I wanted to provide a tangible immediate reward to physical activity for this study, beyond mere feedback on performance, such as providing an opportunity to donate to a charity by cycling or/and announcing the cycling result on social media (e.g., FB). So, in addition to the time-based nature of the reward (my exercise with no immediate reward condition), I used the image-based nature of the rewards.

Self-Presentation. An additional aspect of motivation is self-presentation. Self-presentation theory indicates that individuals are motivated to manage the impressions others shape of them, that is why impression management is used interchangeably with self-presentation theory. According to research studies, people sometimes behave in ways that will form positive impressions in others' eyes. This is important because the impressions people create for themselves might have implications about how other people perceive and evaluate them (e.g., dieting to be more physically attractive, trying to create a good first impression, being active to be seen physically fit, etc.) (Leary & Kowalski, 1990; Martin Ginis & Mack, 2012;

Martin, Leary, & O'Brien, 2001). Leary and Kowalski (1990) introduced the two-component model of impression management. The two components are (a) impression motivation and (b) impression construction. In the first, impression motivation, people are motivated to control other people's impressions of them and they are concerned about what people think of them. Often, people are so preoccupied to reflect a desired image that they neglect the desired behavior itself. In the second process, impression construction, people think and decide about a particular image that they want to reflect and try to find the necessary strategies to convey that image (Ginis & Leary, 2004; Leary & Kowalski, 1990; Martin Ginis & Mack, 2012). Even though impression motivation and construction seem like two separate constructs, it is not easy to untangle them in experimental and real world settings.

Self-Presentation in Exercise. This two-component model has been widely used in exercise literature and can be considered a theoretical framework to investigate the effect of self-presentation in exercise settings because of the social arena in which exercise often occurs. The typical instrument used to measure self-presentation in exercise is the Self-Presentation in Exercise Questionnaire (SPEQ). Conroy, Motl, and Hall (2000) developed the SPEQ based on Leary and Kowalski's (1990) model to measure self-presentational tendencies for exercisers and was designed to assess both impression motivation (IM) and impression construction (IC) in exercise environments.

Some research demonstrated that self-presentational concerns in exercise are associated with both unhealthy (e.g., avoiding to exercise because social physique anxiety) and healthy (e.g., exercise to be perceived fit) behaviors amongst people. In this sense one can say that high self-presentational concerns might encourage or discourage physical activity behavior depending on individual factors such as self-efficacy, age, gender, self-identity, etc. (Ginis & Leary, 2004;

Martin Ginis & Mack, 2012; Martin et al., 2001). For example, Martin et al. (2001) found that some girls would avoid exercising because they were worried about the way their body would look while they perform an exercise task (social physique anxiety), on the other hand there were girls who were exercising to look fit and more attractive. Studies point out that self-presentation may be an important antecedent of physical activity because it might influence people's exercise thoughts, feelings, and behaviors (Hausenblas, Brewer, & Van Raalte, 2004). Taking into account this information, I tried to manipulate self-presentation in a way to encourage physical activity. Performing a task in front of an audience can be intimidating for some people, such as those who have social physique anxiety, but posting about an already completed workout on a social media setting might be more comfortable for people. Besides one always has an option to opt out and choose not to post it. In addition, I am including SPEQ as an individual difference variable. Self-presentational concerns can vary greatly among participants (e.g., one might not care about being seen fit and healthy).

Facebook. Self-presentation literature explains that people try to reflect images that are consistent with their own characteristics and that they like to represent valued aspects of themselves (Leary & Kowalski, 1990). Recently a milieu that allows people to freely self-present is social media. FB is one of the most popular social networking site with 1.01 billion daily active members as of September 2015 and, self-presentation is a significant element for FB (Hofmann & Nadkarni, 2013; Kim & Lee, 2011; Lee-Won et al., 2014; Wong, 2012).

FB is a social network site in which certain applications are used to communicate with other members. These applications include status updates (e.g., writing and posting about an interesting thing that happened that particular day), uploading photos and videos, having a “Like” and comment option on each post. These are the ways to have interaction with many

people on FB (Kim & Lee, 2011; Lee-Won et al., 2014). Wong (2012) explains that uploading photos and videos is very popular on FB mainly because people have the chance to upload or write what they prefer to show to others. Usually, people share photos that they look the best in. They write and post about their success or the fun things that they are doing (e.g., graduating, traveling etc.). FB is providing a nice opportunity for people to build good impressions in others' eyes because they have the control and time to decide in what way they would like to self-present (Chen & Marcus, 2012). Additionally, people who post can reach many people all at once. Studies explain that people want to maintain a positive image on FB in order to get appreciation and recognition in return online (e.g., receiving "Likes" from many people). People like to be appreciated and recognized by others for a desired behavior and the "Like" button option is for a member to tap on it to indicate they actually have seen/read what has been posted (e.g., personal notes or photos) and really enjoyed doing it. So, FB might motivate people convey their desired image in order to receive positive feedback. (Kim & Lee, 2011; Lee-Won et al., 2014; Wong, 2012). However, little is known about self-presentational motivation on FB for physical activity behavior.

A common assumption is that FB members potentially present their idealized self rather than actual self over their profiles. Back, Stopfer, Vezire, Gaddis (2010) tested this hypothesis to see whether FB profiles reflected actual selves or the idealized selves via a self-report surveys. They found that people were conveying their real personalities instead of glorifying an idealized version of themselves (Back et al., 2010). The main reason was that people fear to deceive others with misinformation because this might deteriorate self-presentation in an irreversible way, if others find out. However, it seems like there is a caveat, although people reflect their actual personalities on FB profiles they do tweak reality a little in terms of behaviors (e.g., hobbies,

interests). For example, adding a socially desirable behavior (e.g., doing Yoga) that they seek to have in the future (Zhao, Grasmuck, & Martin, 2008). By adding a socially desirable behavior, the need to belong (e.g., being among people who practice Yoga) and need to self-presentation (e.g., I am cool I am doing Yoga) is met. Authors suggest that FB usage is increasing self-esteem levels by increasing users' sense of belonging.

In the review of studies in social media, Nadkarni and Hofmann (2012) explained FB's popularity in two areas: (a) the need to belong and (b) the need for self-presentation. The need to belong refers to the innate desire to relate to a group, and the need for self-presentation is the constant activity of impression management. These two factors can co-exist, but can also each be the single reason of FB's popularity.

In another study examining the relation between self-presentation and FB usage, researchers assessed the effects of FB usage on subjective well being among college students. Researchers assessed whether the number of FB friends and displaying a positive self-presentation on FB affected subjective well-being or not (Kim & Lee, 2011). Results showed that both number of FB friends and positive self-presentation had a positive association with subjective well-being. Researchers explained that this association was mediated by the perceived social support they receive from friends via FB. The authors deduced that because FB allows quick social support and recognition, it indirectly enhances users' self-esteem and happiness. Also, in another study, Yu, Tian, Vogel, & Kwok (2010) found a positive correlation between FB usage and higher levels of self-esteem. Researchers implemented a survey to college undergraduates in China. The results showed that FB use was beneficial for students' socialization in universities resulting in having more students happy and satisfied with their university life. Further, positively affected their self-esteem level.

All these studies suggest that the need for self-presentation has an influence while people create and manage their FB profiles. This need seems to influence the member's choices, such as choice of profile photo, posts about an event and the number of friends, these are all some sort of an indication of a user's desired impression management.

Altruism and Self-presentation. According to studies, some of the personality characteristics (e.g., being empathetic) are positively correlated with increased helping tendencies. This evidence suggested that there might be an altruistic personality (Carlo, Eisenberg, Troyer, Switzer, & Speer, 1991; Khalil, 2004). However there are mixed findings in the literature and other researchers claim that altruistic behavior is due to other motives.

According to studies, there are several underlying motivations to voluntarily donate to charitable causes or support such organizations. It appears that there are two extreme standpoints. At one end, donors might be pure altruists. They only care about the well being of the receiver. The other end, donors get satisfaction simply from the act of donating (Andreoni, 1990; Bénabou & Tirole, 2006; Harbaugh, 1998). Andreoni (1990) has named this as “warm glow” – the feeling good effect that you get from helping others. So, people might have a purely egoistic motivation for contributing to a charity, and they might like the warm glow they get from giving. However, research suggests that one cannot label people with such strict boundaries because in real life givers are neither pure altruists nor pure egoists. Rather, the evidence shows that givers are impure altruists, motivated by both altruism and warm glow (Andreoni, 1990; Bénabou & Tirole, 2006).

Research from both economics and psychology fields confirm that people are sensitive about the perceptibility of their behavior in pro-social contexts and that people's behaviors reveal a combination of altruism and self-presentational concerns. Besides the warm glow effect that

people receive from helping, altruism is also seen as a socially desirable behavior and people do it to some extent for self-presentational concerns (e.g., people do not want to be seen as reckless, indifferent) (Eisenberg et al., 1989; Harbaugh, 1998; Khalil, 2004). Reasons include prestige, respect, recognition, which cumulatively improves one's social-image. Benabou and Tirole (2006) explain that charities make a very good use of people's self-presentational concerns. Charities provide prestige and recognition in return for people's donation by printing donors' names in newspapers and newsletters, naming public centers on behalf of donors, organizing events for acknowledgment and appreciation, and giving bumper stickers or award certificates.

Trivers (1971), an evolutionary biologist, explains reciprocal altruism. This is a phenomenon where people help others with some sort of cost in expectation for similar treatment when needed in the future (the cost will be physical activity in this case). Researcher also explains that individuals are capable of detecting and punishing selfish individuals in the long run. A selfish individual who refuses to help will eventually harm his/her own interests because people will be less likely to help him/her in the future. The study points out that the human altruistic system is a sensitive and unstable one (Trivers, 1971). Therefore, the tendency to help, and the response to other's acts of helping are complex. Individuals act differently in the degree of these tendencies and responses. In this current research proposal, I propose an experiment to investigate how individuals differ in these tendencies given them an opportunity to be altruistic via physical activity.

In another qualitative study (Vorvoreanu, 2009), college students, who were in a focus group, explained that they liked the "causes" application on FB. The causes application on FB provided a milieu for people and non-profit organizations to interact; for example, people can support organizations and fundraisers, organizations can announce their campaigns, etc. Students

reported to have positive feelings towards the non-profit organizations. They expressed their support via FB pages, but they usually did not prefer to donate money, mostly because they were not sure if FB was safe for money transactions (Vorvoreanu, 2009).

Gender considerations in motivation. Studies provide substantial evidence for the assumption that gender matters in terms of altruism. Research explains that women are more likely to partake in charitable giving (e.g. donating money for causes) than men. Even though there are numerous studies supporting the gender differences in charitable giving, the essential reason for this difference is not thoroughly explained. In a few attempts to explain this gender gap in charitable giving, researchers explain that females are more prone than males to demonstrate concern and to act like a nurturer which naturally provides them the motive to be altruistic (Carlo et al., 1991). In another study, researchers claim that gender differences in charitable giving may lie in social emotions such as empathy and compassion. Being empathetic is considered as an underlying motivator to be altruistic and women score significantly higher than men on empathy (Willer, Wimer & Owens, 2012). So, it seems that gender differences can have important implications for this study.

Self-Efficacy

Self-efficacy theory is a subcategory of the bigger theory of social cognitive theory (SCT) and described as, “Beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments,” (Bandura, 1997). In simple words, self-efficacy is one's belief of what he/she is capable to do for a given task. Self-efficacy beliefs, according to Bandura, influence behavior in terms of the choices one engages in, the effort to reach given attainments at a task, and the perseverance in those efforts, especially in the face of obstacles. High-efficacious individuals pursue more challenging goals, cope with pain better, and persevere

through setbacks to a greater extent than low-efficacious individuals.

Self-efficacy beliefs are formed from various sources of information. Bandura (1997) categorized these as four main sources: (a) mastery experiences (i.e., past accomplishments), (b) vicarious experiences (i.e., modeling), (c) verbal persuasion (e.g., “you are doing great”, “keep up the good work”), and (4) physical and emotional states (e.g., feeling energetic enough accomplish a task). Other researchers have suggested a separate category for emotional states (Maddux, 1995; Schunk, 1995) and imaginal vicarious experiences (Maddux, 1995). In the most comprehensive review of efficacy research in sport, Feltz et al. (2008) described the previously mentioned six categories (i.e., mastery experiences, vicarious experiences, verbal persuasion, physical states, emotional states, and imaginal states) when describing the sources of efficacy in sport.

For the present study, I was interested in participant’s self-efficacy beliefs before and after completing the cycling task. Individuals who perform up to or better than their efficacy expectations should show increases in their efficacy beliefs. Individuals who fall short of their expected performance should show decreases in their efficacy beliefs. If individuals are motivated to exercise longer through the opportunity to raise money for a charitable cause, or through the opportunity to post their exercise performance results on social media, they should be expected to show accompanying increases in self-efficacy.

CHAPTER 3

METHODS

The purpose of this study was to investigate whether or not linking an exercise task to a charitable cause influences the amount of effort expended in a single bout of exercise on a stationary cycle ergometer. Additionally, I examined the effect of making one's exercise results and charitable giving, based on exercise, public (e.g., posted on social media such as FB). Therefore, I evaluated differences in cycling duration between groups exercising for four different reward types: (a) Private pro-health-Control (i.e., delayed potential health reward) (b) Public Self-presentational reward-FB Only (i.e., image-based pro health reward - results posted on social media) (c) Private prosocial reward-Charity Only (i.e., private prosocial reward - cycling for a monetary donation to charity) and (d) both Public prosocial and Self-presentational reward- FB and charity (i.e., image-based prosocial and pro health reward).

First, a pilot study was conducted to test the research process and protocol and also to identify variables of interest. Based on results from the pilot data, a full-scale Study 2 was designed establishing the theoretical framework and improving methodology of Study 1 and to test the hypotheses put forth in Chapter 1.

Study 1: Pilot

Participants

Participants (25 females, 5 males) were recruited from kinesiology classes at Michigan State University on voluntary basis. They ranged in age from 18 and 25 years ($M= 20.20$, $SD= 1.75$).

Questionnaires

Physical Activity Readiness Questionnaire (PAR-Q) and demographic questionnaire. Participants were initially screened with the PAR-Q to ensure they were healthy enough to engage in moderate-intensity exercise. This is a 7-item assessment designed to screen for health problems, which may be triggered by aerobic exercise (Thomas, Reading, Shephard & Roy, 1992). According to the American College of Sports Medicine (2010), completion of this questionnaire prior to an exercise experiment is considered sufficient for the college-aged population because they are at low risk of suffering any problems from exercise. Participants also answered a demographic questionnaire with questions including age, gender, class, major and race and ethnicity.

The Godin Leisure Time Exercise Questionnaire (GLTEQ). Previous physical activity level was operationalized as the frequency and type of physical activity performed in the previous 7-day period. Participants reported the amount and type of physical activity that they engaged in for more than 15 min during the past 7-day period. A total score for physical activity was calculated by multiplying weekly rates of strenuous, moderate, and light activities by nine, five, and three, respectively (Godin & Shephard, 1985). The GLTEQ measures physical activity as METS per week. The survey was used to assess the regular patterns of physical activity of participant on a regular week.

Apparatus

Participants performed exercise by cycling on a stationary bike located in an exercise science lab on Michigan State University campus. The bike was equipped with a built-in screen control panel. The screen control panel displayed information concerning total calories burned and time cycled. Participants were able to see duration and calories while they cycled and knew

the progress being made during the cycling session.

Procedure

All participants signed up for one 60-min. session. Once they arrived at the lab and completed the informed consent forms, participants in all treatment conditions were handed the health bulletin to read for a few minutes. Participants in all treatment conditions received information about the beneficial health outcomes of physical activity. This was in a format of a flyer. The text of this flyer was taken from the CDC website. I used only the bulleted points available in this text in order to be concise and to avoid boredom. Example outcomes included “Physical activity can help reduce your risk of cardiovascular disease” and “physical activity can help control your weight.” The flyer is contained in Appendix B. Afterwards they completed the pack of questionnaires including demographics, PAR-Q, GLTEQ. Upon completing surveys, participants were randomly assigned to one of four treatment conditions.

Participants then began the exercise session. Experimenters reminded the participants that the time and intensity they chose to cycle was up to them. Experimenters checked on participants every 5 min. to ensure they were not having any difficulties. The exercise bout was completed as soon as the participant decided he/she wanted to finish the session or reached 60 min; participants stopped cycling, dismounted the stationary bike and read the debriefing form. At the end of the session, the experimenter wrote down the time and calories burned.

Treatment Conditions

A randomized control design was employed to examine the differences in physical activity, operationalized as total duration (time) cycled and calories burned from a single cycling session, between four different conditions:

Condition 1: Private pro-health (Control). This is considered a delayed potential health

benefit. Although participants may not expect to receive any health benefits from one-time exercise, they read the short health bulletin on the health benefits and recommendations of physical activity. Participants were then asked to perform a cycling task. Experimenter explained that the duration and intensity of the task was totally up to their preference. They were able to stop and leave the experiment anytime they desired (i.e., “You are cycling for your health and you can decide whenever you want to stop, You can follow up the calories your progress from the screen panel in front of you) .

Condition 2: Public Self-presentational reward (FB only). This was the image-based pro health reward condition. In this condition, the immediate reward was a posting on social media. Participants were asked to perform the same exact procedure as the control condition. However, in addition they were told, before starting their exercise, that after the first 50 calories burned during the session, they would get a FB post on the university’s Kinesiology FB page regarding their total calories expended. (i.e., “ You are cycling for your health and also for each 50 calories you burn on the stationary bike, you will be getting a FB post. You can follow up the calories burned from the screen panel in front of you. We will be posting on behalf of you, for example if you burn 100 calories we will be posting; Tom burned 100 calories cycling for his health”. Do you have any questions?).

Condition 3: Private prosocial reward (Charity only). This was the private pro social/pro health reward condition. Participants were asked to exercise for altruistic reasons. The immediate reward was a charity donation. Participants were asked to perform the same exact procedure as the control condition, and in addition, before starting their exercise, they were informed that for each 50 calories expended while cycling, they would earn \$1.00 for a chosen charity. The experimenter handed a list of charities to the participant (American Red Cross, Food

for America, Unicef) and. they chose their preferred charity prior to cycling. At the end of the session, they learned how much they accumulated.

(i.e., You are cycling for your health and also for each 50 calories you burn on the stationary bike, you will be earning a dollar for a charity that you prefer, here is the list of the available charities, please take a second and choose one of them. We will be donating to this charity on behalf of you, for example if you burn 100 calories we will be donating 2 dollars to charity X”. Do you have any questions?)

Condition 4: Both public prosocial and Self-presentational reward (FB and charity).

This condition combined the image-based prosocial and prohealth rewards. In this condition, the immediate reward was a social media post regarding their total calories expended combined with an accumulated charity donation based on their exercise performance. Participants followed the same procedures as the only charity group. However, at the beginning of the session they were told that the burned calories and the donated amount to their preferred charity would be announced as a post in an MSU-Kinesiology FB page (i.e., You are cycling for your health and also for each 50 calories you burn on the stationary bike, you will be earning a dollar for a charity that you prefer, in addition you will be getting a FB post about these results. Here is the list of the available charities, please take a second and choose one of them. We will be donating to this charity on behalf of you and we will be posting the result on FB for you. For example, if you burn 100 calories we will be posting; Tom burned 100 calories cycling for his health and earned 2 dollars for American Red Cross”. You can follow up the calories burned from the screen panel in front of you. Do you have any questions?). Tom donated \$2.00 to American Red Cross by burning 100 calories).

A debriefing form was given to participants for each of these conditions to explain that

that the university Kinesiology FB page was actually fictitious and their cycling results were not posted. In addition, donations were not really given to charities. Each participant read the debriefing sheet immediately after completing the cycling session.

Results

Preliminary Analysis. The initial analysis focused on previous physical activity levels, as it can become a potential confounder. Students who are regularly physically active might be able to cycle more without undue fatigue compared to inactive students regardless of the treatment condition. Therefore, we wanted to check whether there was a significant difference between treatment groups on the GLTEQ. The GLTEQ assesses the number of days per week spent doing mild (3 METS), moderate (5 METS), and strenuous (9 METS) activities. GLTEQ scores can range between 0 and 119. According to previous research, 24 points is near the minimal recommended physical activity guidelines (Godin & Shepard, 1985). The lowest GLTEQ score in this sample was 7 while the highest was 92. The mean scores and standard deviations of each treatment condition are presented in Table 1.

Table 1. *Means and Standard Deviations (SD) for Previous Physical Activity Levels.*

	Control (n=7)	Only FB (n=9)	Only Charity (n=8)	FB & Charity (n=6)
GLTEQ	62.14 (23.30)	32.11 (12.88)	42.00 (17.30)	40.83 (9.90)

One-way ANOVA resulted in a significant difference, $F(3, 26) = 3.67, p = .016$. An LSD post-hoc test revealed that the control group was significantly more physically active than the remaining groups (only FB, only charity, and FB & charity) as can be seen in Table 1. Random assignment was successful in composing conditions that did not differ in physical activity levels except the control condition.

Experimental Analysis: Time Spent Cycling in Minutes. Data obtained from the GLTEQ was used as a covariate to control current level of physical activity. It was important to control for current level of physical activity as it could affect the duration of the cycling task. Between-subjects one-way ANCOVA showed a statistically significant difference in minutes cycled between treatment conditions after controlling for self-reported physical activity, $F(3, 25) = 4.65, p=.01$. Means of minutes cycled in treatment conditions can be seen in Table 2. Additionally, planned contrasts were conducted to test the hypotheses. The first hypothesis comparing the control group to only charity-private reward, FB for pro health, and FB for pro health and charity showed that the three treatment groups spent significantly more time exercising compared to participants in the control group ($M = 16.53, SD = 6.68$), $t(26) = 2.47, p=.014$. The second hypothesis that participants in FB for pro health and charity will spend significantly more time exercising compared to exercising for only charity-private reward and FB for pro health treatment conditions. Results showed that there was not a significant difference ($M = 7.21, SD = 4.29$) $t(26) = 1.67, p=.105$. The third hypothesis compared exercising for self-presentation reward only (for public recognition in FB for pro health) to exercising for a private prosocial reward only (private charitable giving). Results showed that there was not a significant difference ($M = .174, SD = 2.19$) $t(26) = .079, p=.938$.

Table 2. *Unadjusted Means of Minutes Cycled in Each Treatment Condition.*

Minutes	N	M	SD
Control	7	22.28	8.17
FB only	9	31.77	12.41
Charity only	8	32.12	6.77
FB & charity	6	39.16	5.91

Experimental Analysis: Calories Burned During the Session A separate between-subjects ANCOVA, with GLTEQ as a covariate, for calories burned revealed that there was no significant difference ($p=.11$) in calories burned between treatment conditions, $F(3, 25) = 2.15$, $p > .05$, thus not supporting any of the calories burned aspects of the hypotheses. However, mean scores for calories burned showed a trend by condition similar to time spent cycling as seen in Table 3.

Table 3. *Means of Burned Calories in Each Treatment Condition.*

Calories	N	M	SD
Control	7	126.43	82.34
Only FB only	9	165.22	75.02
Charity only	8	181.38	42.96
FB& charity	6	216.00	61.75

Discussion

In this randomized control trial, time and image based nature of rewards were used to investigate cycling duration and calorie expenditure across four different conditions: (1) Private pro-health (i.e., delayed potential health reward) (2) Public self-presentational reward (i.e., using social media FB) (3) Private prosocial reward (i.e., private prosocial reward - cycling for a monetary donation to charity) and (4) both Public prosocial and self-presentational reward (i.e., Charity donation and social media usage together).

The experiment, having four different treatment conditions, was designed to compare and contrast the treatment effects. In this case, charitable donations and FB postings seem to have a positive effect on physical activity behavior as participants in these conditions willingly cycled longer compared to the control group. In fact, both public prosocial and self-presentational reward group increase their cycling time 75.76% over the private pro-health group (i.e., Control

group) and Public self-presentational reward group (i.e., FB only) and Private prosocial reward group (i.e., Charity only) by 42.59% and 44.17% respectively. The findings from this pilot study demonstrated that using motivating rewards (e.g., image and time-based rewards) for cycling resulted in a significant increase in cycling duration as compared to a solely health related purpose for cycling where people need to wait in order to receive the rewards.

This pilot study showed some promising results but had some limitations that Study 2 addressed, such as improving the theoretical framework and methodology. In the pilot study, the majority of the participants were female and the sample size was small. Thus, it was not possible to investigate a potential gender effect. Having a balanced number of males and females in order to examine gender differences across treatment groups with a larger sample size might moderate the findings.

Another limitation was the lack of accounting for individual differences. Exploring the individual differences in altruistic personality, self-presentation in exercise and self-presentation in altruistic behavior can enhance the design and methodology of the study while enhancing the understanding about the relation between motivation and self-presentation.

Also, intensity of cycling was not pre-determined; participants were free to choose their intensity level, which could lead to different exercise efforts for each participant (e.g., one can raise more money for charity with a higher intensity in a shorter time period). Controlling for intensity can provide all participants to have a somewhat similar experience. Lastly, exploring the effects of motivating rewards on self-efficacy beliefs could be interesting to improve our understanding of physical activity behavior.

CHAPTER 4

STUDY 2

In the light of the results from the pilot study a full-scale study was designed. The purpose of Study 2 was to replicate the basic task while elaborating the theoretical framework and methodology of Study 1 in order to test the hypotheses put forth in Chapter 1.

To address the problematic aspects of Study 1, multiple changes were made for Study 2. First, this study integrated self-presentation theory (e.g., also image motivation hypothesis) and research from several different areas, including motivation, characteristics of motivating rewards (e.g., time and image based), and altruism to constitute a strong theoretical framework that supports the research questions and gives a rationale to the hypotheses.

Second a larger sample with a balance between males and females is targeted to provide an opportunity to investigate gender differences in effect of charity donations and usage of social media in an exercise context.

Third, it was vital to initially explore the individual differences in altruistic personality, as it could become a potential confounder. Students who are more altruistic might give more importance to charity conditions (e.g. only charity and charity & FB) compared to students who are less altruistic in personality.

Fourth, the extent to how people would like to self-present can vary greatly. Therefore, to account for individual differences, additional measures such as self-presentation in exercise and self-presentation in altruistic behavior were included to the second study.

Fifth, the self-efficacy belief scales before and after completing the cycling task were added to Study 2. This way, it was possible to investigate whether individuals who are motivated to exercise longer - through the opportunity to raise money for a charitable cause, or through the

opportunity to post their exercise performance results on social media- increased self-efficacy beliefs or not.

Further, it was important to exercising at an individualized target HR to fix the intensity across participants and treatment conditions in order to further explore the relation of charity donations, social media use, and the resultant exercise behavior. The hypotheses for Study 2, therefore, included:

- (a) Participants in each of the three immediate reward conditions (Private prosocial reward, Public self-presentational reward, Public prosocial and Self-presentational reward) will spend significantly more minutes on exercise performance compared to participants in the control group (Private pro-health reasons group).
- (b) Participants in Public prosocial and Self-presentational reward condition (FB and charity) will spend significantly more minutes exercising compared to exercising for Private prosocial reward (only charity) and Public self-presentational reward (only FB) treatment conditions
- (c) Exercising for public self-presentation reward (for public recognition on social media FB only) will lead one to spend more time exercising compared to exercising for a private prosocial reward (private charitable giving)
- (d) Participants in each of the three immediate reward conditions (Private prosocial reward, Public self-presentational reward, Public prosocial and Self-presentational reward) will report greater self-efficacy changes compared to the control group (Private pro-health)
- (e) There will be a Gender X Altruistic Condition interaction, such that, females will spend more time exercising in the Private prosocial condition compared to males who

- will spend more time exercising in the Public self-presentation condition compared to females.
- (f) There will be no significant difference on any of the dependent variables between American and Turkish students. Students from both nations will show similar behavior patterns.

Methods

Participants

University students from the U.S.A and Turkey were recruited for this research study. Students from Turkey were included to diversify and extend the sample size and for convenience in conducting the study in my home country. There were 108 participants in total (50 females) with a more equal numbers of males and females in the sample compared to Study 1. Participants were between ages of 18 and 35 years of age. College students were recruited from two different settings: American college students East Lansing, Michigan - United States (Michigan State University, $N = 36$) and Turkish college students in Istanbul, Turkey (Turkish Universities, $N = 72$).

Questionnaires

All participants completed questionnaires in a lab setting prior to and after the cycling session. The packet of questionnaires consisted of eight sections: a questionnaire on demographic information, Physical Activity Readiness Questionnaire (PAR-Q), Godin Leisure Time Exercise Questionnaire (GLTEQ), Pre-Self Efficacy Scale, Prosocial-Altruistic Personality Scale, Self-presentation in Exercise Questionnaire (SPEQ), Self-Presentation in Altruistic Behavior Scale, Post Self-Efficacy Scale. All assessment tools can be seen in Appendix A.

The questionnaires were not translated into Turkish because Koc University's educational language is English and all courses are held in English. Thus, students' English language level is proficient. The demographic questionnaire included questions about participants' age, gender, class, major and race.

Physical Activity Readiness Questionnaire. This is a 7-item assessment designed to screen for any problems, which may be triggered from exercising. According to the American College of Sports Medicine (2010), completion of this questionnaire prior to an exercise experiment is considered sufficient for the college-aged population because they are at low risk of suffering any problems from exercise.

Godin Leisure Time Exercise Questionnaire. This is a self-report survey, which asks participants to report the amount and type of physical activity that they engaged in for more than 15 minutes during a 7-day period. Total score for physical activity was calculated by multiplying weekly rates of strenuous, moderate, and light activities by nine, five, and three, respectively (Godin & Sheppard, 1985). The survey was used to assess the regular patterns of physical activity of the participant during a regular week.

Self-Efficacy Scale. SE was measured with a scale developed specifically for this study. I asked participants to rate their confidence that they can cycle at 65% of their maximum heart rate for a specified range of minutes just prior to starting their cycling session and again at the end of the session regarding the next time they cycle at 65% of their maximum ability.

Altruistic Personality Scale (APS). This is a 14-item scale to measure altruistic personality by assessing how often one engages in altruistic acts primarily toward strangers (e.g., "I would donate to charity"). Participants answered on a 5-point scale ranging from never (0) to very often (5). The reliability of this scale is reported as 0.84 (Rushton, Chrisjohn, & Fekken,

1981).

Self-Presentation in Exercise Questionnaire (SPEQ). This is a 14-item scale to measure self-presentational concerns while one is exercising. SPEQ includes both impression motivation (e.g., “I enjoy the praise I often receive for exercising” and construction (e.g., “I exercise so that regular exercisers will like me”) scales (Conroy, Motl, & Hall, 2000).

Participants answered on 6-point Likert scale. The reliability was reported as .83 and .81 for the impression motivation and construction scales, respectively.

Self-Presentation in Altruistic Behavior Scale (SPABS). To my knowledge no scale exists to measure self-presentation in altruistic behavior. Therefore, this questionnaire was specifically designed for this dissertation. Adapted from the self-presentation in exercise scale, this is a 5-item scale to measure self-presentational concerns while one is engaging in altruistic behavior. The items include “I value to be seen altruistic by others”, “I enjoy the praise I often receive for being an altruistic person”, “I value the attention and praise offered by others in regard to appearing altruistic”, “Appearing altruistic to others is not important to me”, and “I want to be thought of as a person who is altruistic”. Participants answered on 6-point Likert scale.

Perceptual Value of Donating \$1.00. Perceptual value of donating a dollar to charity was assessed with a 6-item Likert-type question that ranged from 1 (strongly disagree) to 6 (strongly agree). It was a one-question scale only applied to a sub-sample of 15 who were in charitable donation groups. The item stated “I value the donation of a \$1 for each 12 min I cycle.”

Apparatus

The apparatus is the same as that used in Study 1. Participants performed exercise by

cycling on a stationary bike located in an exercise science lab on a university campus. The bike was equipped with a similar built-in screen control panel that displayed information concerning total calories burned and time cycled.

Procedure

The pre-exercise procedure is similar to Study 1, except for the addition of heart-rate monitors. All participants signed up for one 60-minute session and they were able to stop whenever they want during the experiment and leave the experiment site. Participants were randomly assigned to one of four treatment conditions. Participants in all treatment conditions received a document about the health benefits of physical activity and exercise. These benefits are listed in Centers for Disease Control and Prevention (CDC) website. All participants filled out the PAR-Q pre-screening questionnaire. If participants indicated that they have any of the health conditions listed on the PAR-Q they were not eligible to participate to this study.

New to Study 2, all participants were fitted with a polar rs300X heart rate monitor when they came to the lab. First, participants were asked to sit quietly for 5 min in order to record their resting heart rate. At the end of the 5 min the experimenter wrote down the resting heart rate and calculated each participant's target heart rate using the Karvonen formula (Target Heart Rate = $[\text{Maximal heart rate (220-age)} - \text{resting heart rate}] \times 0.65 + \text{resting heart rate}$).

After being fitted with the monitor, participants mounted the stationary bike, were given 2 min to warm up at the lowest gear, and were told to keep the pace between 66 and 74 rpm and ideally at 70. Participants were able monitor their rpm on the bike screen. At the end of the 2-min warm-up, the participant's heart rate was checked. If they had not achieved 65% HRR, the experimenter would increase the gear by one level every 10 s, for up to 3 min, until the participant reached 65% HRR. If the participants' heart rate rose above 65% HRR during the 3

min period, the gear would be decreased by one level every 10 s until they achieved steady state at 65% HRR. Participants were told that they must attempt to stay within the interval of 66-74 rpm at all times. The experimenter would monitor the participant until the participant decides to stop cycling. All participants completed paper questionnaires and surveys before starting to cycle including a questionnaire on demographic information, Physical Activity Readiness Questionnaire (PAR-Q), Godin Leisure Time Exercise Questionnaire (GLTEQ), Pre-Self Efficacy Scale, Altruistic Personality Scale (APS), Self-presentation in Exercise Questionnaire (SPEQ) and, Self-Presentation in Altruistic Behavior Scale. At the end of the exercise session, all participants completed the post self-efficacy scale.

Treatment Conditions

Condition 1: Private pro-health (control). This condition was the same as the control condition used in Study 1. This is considered a delayed potential health benefit. Although participants may not expect to receive any health benefits from one-time exercise, they read the short health bulletin on the health benefits and recommendations of physical activity. Participants were asked to cycle as long as they want. They were informed that they have the control over time and they could stop at any time. (i.e., “Today you will be cycling for your health, you can cycle as long as you want and decide whenever you want to stop, you can follow up the duration to see your progress from the screen panel in front of you. Do you have any questions?”).

Condition 2: Public Self-presentational reward (FB only). This was the image-based pro health reward condition. In this condition, the immediate reward was a posting on social media. Participants were asked to perform the same exact procedure as the control condition. In addition, before starting their exercise, participants were informed that for each 12 min cycled,

they would get a post on the university's Kinesiology FB page regarding their total time spent cycling. (i.e., Tom spent 24 min cycling for his health). (i.e., "Today you will be cycling for your health, you can cycle as long as you want and also please know that for each 12 min you spent on the stationary bike, you will be getting a FB post. You can follow up the duration from the screen panel in front of you. We will be posting on FB behalf of you, for example if you cycle 24 min, we will be posting; Tom cycled 24 min for his health". Do you have any questions?) The FB posts consisted of multiples of 12. So, a participant who cycled 15 minutes would get a post that he/she cycled for 12 min unless completed to 24 min. This was done to mimic charitable donation condition in which participants raised \$1.00 for each 12 min timespan that they cycle. Identical to Study 1, participant's written consent about FB post was collected in advance.

Condition 3: Private prosocial reward (Charity only). This was the private prosocial reward condition. Participants were asked to exercise for purely altruistic reasons. The immediate reward was a charity donation. Instead of informing participants that for each 50 calories expended while they cycled, they would earn \$1.00 for a chosen charity, participants were informed that they will earn \$1.00 to be given to a charity for each 12 min timespan that they cycle. (i.e., "Today you will be cycling for your health, please cycle as long as you want and also please know that for each 12 min you spent on the stationary bike, you will be earning a dollar for a charity that you prefer, here is the list of the available charities, please take a second and choose one of them. We will be donating to this charity on behalf of you, for example if you spend 24 min we will be donating 2 dollars to charity X". You can follow up the duration from the screen panel in front of you. Do you have any questions?)

Identical to Study 1, participants chose their preferred charity from a list of charities prepared by the researcher (e.g., American Red Cross, Feeding for America and UNICEF). At

the end of the session, they learned how much they accumulated for their preferred charity.

Condition 4: Both public prosocial and Self-presentational reward (FB and charity).

Participants followed the same exact procedures as the only charity group. However, at the beginning of the session they were told that their total time cycled and the total money raised to be donated to their preferred charity was announced in university's Kinesiology FB page. Their written consent was collected in advance. (i.e., Today you will be cycling for your health, you can cycle as long as you want and also please know that for each 12 min you spent on the stationary bike, you will be earning a dollar for a charity that you prefer and you will be getting a FB post about these results. Here is the list of the available charities, please take a second and choose one of them. We will be donating to this charity on behalf of you and we will be posting the result on FB for you. For example, if you spend 24 min we will be posting; "Tom spent 24 min cycling for his health and earned 2 dollars for American Red Cross". You can follow up the duration from the screen panel in front of you. Do you have any questions?). Written consent about FB post were collected in advance.

Similar to Study 1, a debriefing form was given to participants for each of these conditions to explain that that the university Kinesiology FB page was actually fictitious and their cycling results were not posted. In addition, donations were not really given to charities. Each participant read the debriefing sheet immediately after completing the cycling session.

Treatment of the Data and Data Analysis

Data were screened for outliers, normality. Alpha coefficient was calculated to assess internal consistency for the Self-Presentation in Altruistic Behavior. Descriptive statistics, including correlations, were calculated for all variables.

Preliminary *t* tests were conducted for all variables on Gender, including Hypothesis (d)

that females will be more altruistic compared to males. In addition, a similar analysis was conducted between American and Turkish students.

Current Level of Physical Activity. As was employed in Study 1, data from the GLTEQ was used as a covariate to control current levels of physical activity. It was important to control for physical activity level as it could predict minutes cycled.

Altruistic Personality Scale. Students who are more inclined to partake in altruistic behavior might cycle more compared to students who are less inclined to partake in altruistic behavior regardless of the treatment condition. Therefore, the correlation between altruistic personality and the dependent variable of duration was examined. If the correlation was at .29 or higher, scores from the Altruistic Personality Scale also were used as a covariate.

Tests of Hypotheses

The primary dependent variable is the time spent cycling. Time was analyzed while controlling for individual differences including previous physical activity levels and altruistic personality. Scores obtained from GLTEQ and APS were used as covariates. Therefore, a between-subjects ANCOVA was performed to assess differences in minutes cycled between treatment groups. The analysis was supplemented with planned contrasts and post-hoc tests. A planned contrast of three conditions (only charity-private reward, FB for pro health, FB for pro health & charity) compared to Control was used to test Hypothesis (a). The planned contrast for Hypothesis (b) was that Public prosocial and Self-presentational reward plus Public self-presentational reward alone would have longer minutes of cycling compared to Private prosocial reward alone (i.e., Charity only). Also another planned contrast was conducted for Hypothesis (c) to see whether was a significant difference between Private prosocial reward condition and Self-presentational reward condition. For the hypothesis (d) regarding self-efficacy, first, the

difference between Pre and Post Self-efficacy scores was calculated in order to obtain a difference score for change in SE. Then, one-way ANOVA across treatment conditions was conducted on SE difference score. For hypothesis (e), a between-subjects 2x2 (Gender by Altruistic Condition) ANOVA was conducted to see whether or not females will spend more time exercising in the Private prosocial condition compared to males who will spend more time exercising in the Public self-presentation condition.

Finally, Independent sample *t* tests were conducted to see if there are any differences on any of the dependent variables between American and Turkish students. Hypothesis (f) stated that students from both nations will show similar behavior patterns.

Exploratory Analyses. A between-subjects one-way ANCOVA with GLTEQ as a covariate and Altruistic Personality Scale scores as another, was executed to explore all treatment differences in minutes cycled between treatment groups. In addition, a multiple regression analysis was employed to examine the predictive strength of treatment, GLTEQ, Altruistic Personality, SPEQ, SPABS, and pre-SE on Cycling duration

Results

The results are organized into three major subdivisions. The first part provides preliminary analyses, including data screening, correlations and descriptive statistics. The second section presents the main analyses, and hypothesis testing. The third section presents exploratory analyses, including regression analyses.

Descriptive Statistics, Data Screening and Correlations

The sample consisted of 108 (*M*_{age} = 24.5, *SD* = 4.85) participants, with 58 males and 50 females, distributed across the four treatment conditions (control= 15 males, 14 females, only Facebook = 13 males, 12 females, only charity = 18 males, 12 females, Facebook & Charity=

12males, 12 females) as can be seen in Table 4. Most of the participants 88 % ($n= 95$) were Caucasian, 67% were Turkish ($n=72$) while the remaining participants were categorized as American.

Table 4. *Number of Participants in Each Treatment Condition by Gender.*

Condition	Gender		Total
	Male	Female	
Control	15	14	29
Only FB	13	12	25
Only Charity	18	12	30
FB & Charity	12	12	24
Total	58	50	108

The data were evaluated for univariate outliers that were outside of ± 3 SD from the overall mean. Based on z-scores, several outliers were identified. Two scores were found for the difference score in change in SE (the difference between Pre and Post Self-efficacy scores). One score was found for GLTEQ score and another for the difference of SE score obtained from pre and post SE beliefs scale. All analyses were performed once with and without the outliers. The results of the analyses were not different and therefore results including the outliers were reported in this dissertation.

The data were also evaluated for multivariate outliers using Mahalanobis distance. Findings showed that there was one outlier for the SPABS score and two for the difference score for change in SE. The analyses were conducted with and without those outliers; there was not any difference. Thus, the results with the outliers were reported.

Normality was assessed using skewness statistics while looking at the histograms for each of the main variables. All analyses resulted in normal distributions.

Correlations. Bivariate correlations were computed between all study variables.

Descriptive statistics are presented in Table 5 and 6 and the correlations between all variables are presented in Table 7.

Table 5. *Overall Means and Standard Deviations for All Variables by Gender.*

Descriptive Statistics			
		Mean	Standard Deviation
PA Levels - Godin	Male	37.66	21.46
	Female	35.30	17.35
Altruistic Personality	Male	45.83	1.04
	Female	49.08	1.00
SPEQ Image Management	Male	29.43	6.53
	Female	28.18	5.02
SPEQ Image Construction	Male	18.71	6.24
	Female	17.14	5.99
Table 5 (cont'd)			
SPABS	Male	20.12	4.47
	Female	20.42	3.871
Post-Pre SE Difference	Male	1.21	1.57
	Female	.940	1.15

Table 6. *Overall Means and Standard Deviations for All Variables by Condition and Gender.*

Descriptive Statistics									
Condition	Sex		PA Levels	APS	Image Managemen t	Image Constructio n	SPABS	post-preSE	Min
1	Male	Mean	31.71	45.28	28.57	19	19.92	0.47	20.21
		SD	19.11	7.76	7.33	6.83	5.22	0.79	4
	Female	Mean	35.38	51	27.69	16.84	19.23	0.41	17.53
		SD	18.39	6.74	6.22	6.5	5	1.42	4.66
	Total	Mean	33.48	48.03	28.14	17.96	19.59	0.44	18.92
		SD	18.5	7.71	6.7	6.64	5.032	1.11	4.46
2	Male	Mean	33.46	47	30.61	18.07	20.15	2.02	26.76
		SD	18.45	8.15	7.91	4.66	4.18	1.79	5.55
	Female	Mean	30	45.75	27.08	18.58	20.25	0.9	21.58
		SD	22.33	4.76	4.48	6.41	2.59	0.95	6.05
	Total	Mean	31.8	46.4	28.92	18.32	20.2	1.49	24.28
		SD	20.05	6.63	6.61	5.45	3.44	1.53	6.26
3	Male	Mean	43.66	46.22	30.66	17.72	19.88	1.05	25.44
		SD	26.23	8.63	4.01	4.61	4.12	1.77	6.53
	Female	Mean	38.9	49.7	27.4	17.2	20.9	1.15	23.8
		SD	16.75	6.39	3.4	5.45	3.21	1.26	3.22
	Total	Mean	41.96	47.46	29.5	17.53	20.25	1.089	24.85
		SD	23.07	7.96	4.06	4.83	3.79	1.58	5.56
4	Male	Mean	38.33	45.08	26.83	21	21.16	1.4	30.58
		SD	18.77	7.46	7.03	8.9	4.6	1.41	6.63
	Female	Mean	41.091	50.909	30.545	16.727	22.455	1.46	33.09
		SD	11.65	8.38	5.93	6.6	4.08	0.86	5.31
	Total	Mean	39.65	47.87	28.6	18.95	21.78	1.43	31.78
		SD	15.49	8.28	6.65	8.03	4.31	1.15	6.04
Total	Male	Mean	37.28	45.93	29.33	18.8	20.22	1.2	25.54
		SD	21.45	7.89	6.55	6.25	4.43	1.58	6.69
	Female	Mean	36.1	49.32	28.15	17.34	20.63	0.95	23.67
		SD	17.78	6.8	5.22	6.13	3.94	1.18	7.53
	Total	Mean	36.75	47.44	28.8	18.15	20.4	1.09	24.7
		SD	19.81	7.58	5.99	6.21	4.2	1.41	7.11

Note: Condition 1 = Private pro-health (Control). Condition 2 = Private prosocial reward. Condition 3 = Public self-presentational reward. Condition 4 = Public prosocial and Self-presentational reward.

Figure 1. *Mean Minutes Cycled for Each Condition.*

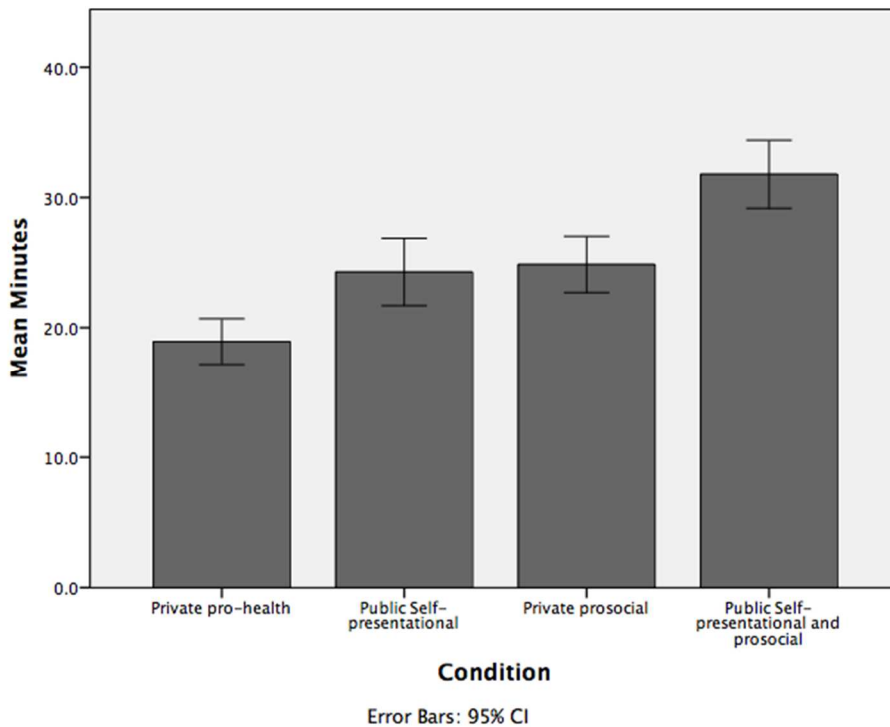


Table 7. *Correlations Between All Variables.*

	PA Godin	Altruistic Personality	SPEQ Management	SPEQ Construction	SPABS	Post-Pre SE Difference
PA Levels - Godin	1					
Altruistic Personality	.17	1				
SPEQ Management	.16	.08	1			
Table 7 (cont'd)						
SPEQ Construction	-.08	-.24**	.35**	1		
Table 7.(con						
SPABS	.02	.37**	.30**	.07	1	
Post-Pre SE Difference	.10	.14	.10	-.06	.12	1
Minutes cycled	.24**	.27**	.21*	.00	.29**	.20*

Preliminary Analyses

Internal consistency. Alpha coefficient was calculated to assess internal consistency for

the Self-Presentation in Altruistic Behavior (SPAB), which was specifically designed for this dissertation. Cronbach's alpha was 0.83, which indicates a high level of internal consistency for the scale.

Gender. Preliminary *t* tests were conducted for all variables on Gender. The results revealed that there were no statistically significant differences between males and females in terms of self-presentational concerns for exercise, self-presentational concerns in altruistic behavior, and previous physical activity levels (GLTEQ). The only significant gender difference was for altruistic personality with females being more altruistic than males, $t(106) = -2.306$, $p < 0.05$. This finding aligned with previous literature (Einolf, 2011; Mesch, Brown, Moore, & Hayat, 2011).

Nationality. A similar analysis was conducted between American and Turkish students. Independent sample *t* tests were conducted for all variables on Nationality. There were significant differences between Turkish and American students in terms of previous physical activity levels and altruistic personality scores. American students ($M = 43.53$, $SD = 21.78$) were more physically active compared to Turkish students ($M = 33.08$, $SD = 17.57$) with $t(106) = 2.683$, $p < .05$. In addition, American students ($M = 49.94$, $SD = 8.53$) were more altruistic compared to Turkish students ($M = 46.03$, $SD = 6.53$) with $t(56.133) = 2.422$, $p < .05$ (df adjusted for unequal variances with the Levene test). These results did not support the hypothesis (f) that stated there will no significant difference between American and Turkish students. Students from both nations showed similar behavior patterns for self-presentational concerns for exercise and altruistic behavior.

Covariates. As was employed in Study 1, previous levels of physical activity (data from GLTEQ) were used as a covariate to control current levels of physical activity in order to control

for individual physical activity levels. A preliminary one-way ANOVA between conditions for GLTEQ scores resulted in a non-significant difference, $F(3, 104) = 1.252, p = .295$. Random assignment was successful in composing conditions that did not differ in physical activity levels, however, GLTEQ scores significantly correlated with minutes cycled ($r = .24$).

Students who are more inclined to partake in altruistic behavior might cycle more compared to students who are less inclined to partake in altruistic behavior regardless of the treatment condition. Therefore, examining the correlation between altruistic personality and the minutes cycled was important. Altruistic behavior and cycling duration were significantly correlated, $r = .27, p < .05$. Therefore, scores from the Altruistic Personality Scale was also used as a covariate.

Main Analyses and Hypothesis Testing

The primary dependent variable was the cycling duration as measured in minute. A 4x2 (groups x gender) ANCOVA was conducted to assess differences in minutes cycled between treatment groups controlling for self-reported physical activity levels and altruistic personality. Results indicated a significant effect for condition and gender after controlling for the covariates $F(3,98) = 27.96, p = .001$. and $F(1,98) = 5.56, p = .02$, respectively. There was no significance for the interaction between condition and gender $F(3,98) = 1.57, p = .20$.

The ANCOVA was supplemented with two different planned contrasts to test the hypotheses. The first contrast showed that the Control group ($M = 18.99, SD = 4.30$) was significantly lower than the immediate rewards conditions (Facebook pro health, only charity-private reward and Facebook & charity) ($M = 24.09, SD = 3.57$), $t(104) = 6.73, p = .001$, which supported the Hypothesis (a).

Public prosocial and Self-presentational reward condition (FB and charity together) will

spend significantly more time and burn more calories exercising compared to exercising for Private prosocial reward (only charity) and Public self-presentational reward (only FB) treatment conditions. The second contrast compared the Public prosocial and Self-presentational reward condition (FB and charity together) ($M = 31.70$, $SD = 5.92$) with Private prosocial reward (only charity) and Public self-presentational reward (only FB) treatment conditions, ($M = 26.87$, $SD = 3.81$) and was significant, $t(104) = 7.05$, $p = .001$, supporting Hypothesis (b) that FB and Charity combined would result in longer cycling times than Facebook and Charity alone. Hypothesis (c) compared exercising for self-presentation reward only (for public recognition in FB for pro health) to exercising for a private prosocial reward only (private charitable giving), ($M = .720$, $SD = 1.48$). Results showed that there was no significance $t(104) = .485$, $p = .626$.

To investigate self-efficacy beliefs, the difference between Pre and Post Self-efficacy scores was calculated and a difference score for change in SE was obtained. Then, one-way ANOVA across treatment conditions was conducted on SE difference scores and resulted in a significant difference, $F(3,104) = 3.33$, $p = .02$. LSD Post hoc findings showed that FB for pro health ($M=1.49$) and FB and charity ($M=1.42$) reported significantly higher change in self-efficacy beliefs than those in the control condition ($M=0.46$), $t(104) = -.956$, and $t(104) = -1.030$, respectively, which partially supported Hypothesis (d). There was no significant difference between only charity ($M=1.09$) and control condition.

Hypothesis (e) focused on gender and altruistic condition interaction. Data showed that in this sample, females scored significantly higher in altruistic personality compared to male participants. Afterwards, a 2x2 between-subjects ANOVA was conducted to examine whether females cycled significantly longer in private prosocial group than males and whether males cycled significantly longer in Public Self-presentational group than females. For conducting 2x2

between-subject ANOVA two conditions were omitted from the data: (1) private pro-health (control group) and (2) Both Public prosocial and Self-presentational reward (Charity and FB). As seen in Table 9, there was a significant difference in cycling minutes as a function of gender. Males cycled longer ($M = 26.00$, $SD = 6.08$) than females ($M = 22.96$, $SD = 5.00$). However, there was no significance regarding the interaction of condition and sex. Please see table 9. Thus, females' higher altruistic personality scores did not result in longer cycling efforts in the private prosocial group compared to males.

Table 8. *Between-subject 2x2 ANOVA for Altruistic Condition and Gender.*

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Condition	1	6.79	6.79	.213	.647
Sex	1	132.55	132.55	4.152	.047
Condition*Sex	1	55.51	55.51	1.738	.193
Total	55	35293.00			

Exploratory Analyses

A multiple regression was run to predict minutes cycled in a session for age, gender, GLTEQ, Altruistic Personality, SPEQ, SPABS, and pre-SE on cycling duration. These variables statistically significantly predicted minutes cycled, $F(8, 99) = 3.56$, $p = .001$, $R^2 = 0.24$. Table 10 presents the standardized beta coefficients for the predictor variables. As illustrated in Table 10, Altruistic personality, GLTEQ and SPABS variables were the strongest predictors of cycling duration, but did not quite reach statistical significance at $p < .05$. Also, even though Gender was not as significant as other 3, the beta weight ($-.161$) was as strong as PA levels.

Table 9. *Summary of the Multiple Regression Statistics for the Predictor Variables.*

Predictor Variable	<i>B</i>	SE	P value
Age	.111	0.13	0.23
Gender	-.161	1.32	0.08
PA Levels - Godin	.156	0.03	0.06
Altruistic Personality	.211	0.10	0.06
SPEQ Management	.087	0.12	0.42
SPEQ Construction	.004	0.11	0.97
SPABS	.303	0.17	0.06
Pre SE	.615	0.33	0.16

Perceptual value of donating a dollar to charity was assessed with a 6-item Likert-type question that ranged from 1 (strongly disagree) to 6 (strongly agree) with a sub-sample of 15 participants. The mean was 5.27 with a SD of .70, suggesting that participants found this amount valuable.

Discussion

The main goal of Study 2 was to replicate the basic task in Study 1 while elaborating the theoretical framework, study design and methodology to evaluate the effects of motivating rewards. Study 2 differed from Study 1 in various ways. First, exploring the individual differences in altruistic personality, self-presentation in exercise and self-presentation in altruistic behavior enhanced the design and methodology of the study. Second, having a larger sample size with balanced number of males and females provided an opportunity to examine gender differences across treatment groups. Third, intensity of cycling was not pre-determined in

Study 1; controlling for the intensity in Study 2 provided participants to have a somewhat similar exertion experience. Additionally, exploring the effects of motivating rewards on self-efficacy beliefs gave some important insights that could be considered while conducting and designing future experiments and or interventions.

Even though there were numerous differences between Study 1 and 2 in terms of methodology, the results came out to be similar which confirms again the effectiveness of using motivating rewards to increase physical activity. Consistent with the Study 1, participants spent more effort and time on cycling in conditions where they had some kind of immediate reward (e.g., either FB posts or charitable donations). Furthermore, participants spent the most time when the immediate reward was strengthened with a self-presentational component. This finding supports the idea that motivating rewards could be beneficial to promote physical activity behavior.

Main and Secondary Analyses

The first hypothesis indicated that participants in control group would spend the least amount of time cycling compared to the remaining conditions. The first hypothesis (a) was supported as all experimental conditions outperformed the control group. These results were aligned with the Study-1 Pilot conducted for this dissertation.

Similarly, the second hypothesis stated that participants in FB posting of pro health and charity condition will spend significantly more minutes on cycling compared to only FB pro health and only charity-private reward. The second hypothesis (b) was supported as the FB and charity condition outperformed both remaining conditions.

These results also suggest that, when immediate rewards are involved in exercise settings, people are motivated to perform for longer periods of time than people who need to delay

receiving rewards. Thus, the longest performance was achieved when strengthening the reward potential by adding a real social media posts component (e.g., Facebook).

The third hypothesis stated that exercising for public self-presentation reward (for public recognition on social media FB only) will lead one to spend more time exercising compared to exercising for a private prosocial reward (private charitable giving). This hypothesis was not supported and these results were aligned with the Study-1 Pilot conducted for this dissertation.

The fourth hypothesis (d) stated that there would be a significant difference between the three experimental conditions (Public self-presentational reward, only charity-private prosocial reward, Both FB and charity) and the control condition on self-efficacy beliefs. This hypothesis was partially supported; post-hoc findings from One-way ANOVA revealed that there was a significant difference between the control and FB plus charity group. In addition, there was a significant difference between the control and Only FB group, but non-significant difference between control and only charity – private reward condition. This could be merely by chance or the explanation might rely on social media posts (announcing and sharing the information with others). Making results public might be motivating for people in a way that increases self-efficacy beliefs for cycling in the future.

The main analysis also revealed that female participants had significantly higher altruistic personality scores compared to male participants, not a surprising finding as it is consistent with previous research (Carlo et al., 1991; Einolf, 2011). Thus, it appears that female participants might be more motivated to exercise for charitable reasons than their male counterparts. However, when we conducted the 2x2 ANOVA (gender and altruistic condition) no statistical significance was found across conditions, in terms of cycling duration, between males and females.

Lastly, it was hypothesized that Turkish and American students would show similar behavior patterns. However, results indicated that American students were more active than Turkish students. A potential reason for this difference might be the sample itself from the United States. Kinesiology students participated to this study while there were not any Kinesiology students in the Turkish sample as the field is non-existent in Turkey. Another potential explanation can be logistics. There are more recreational options in the United States such as avenues and facilities to be physically active compared to Turkey. Facilities and recreational parks may encourage students to be more physically active in the United States.

CHAPTER 5

GENERAL DISCUSSION

The beneficial health outcomes of physical activity are well known by the public (Livingstone et al., 2003). However, as of 2012, only 44% of people in the U.S. reported that they were meeting the recommended guidelines of weekly-based physical activity (CDC, 2012). This evidence indicates that explicit knowledge of these potential health benefits is not enough to motivate people to engage in physical activity at the recommended levels. This physical inactivity problem may be better understood by investigating how motivating rewards affect behavior. Particularly, what are the effects of using motivating rewards, that has altruistic and self-presentational aspects, on exercise task performance?

Ariely, Bracha, and Meier (2008) conducted a study that examined the association between monetary type rewards (charitable donation and/or personal payment) for completing a cycling task and the resultant performance on the cycling task. The results revealed that the group earning both charitable donation and personal payment cycled the most miles. Although their study was conducted in the field of behavioral economics, it showed that charitable donation could be an efficient motivating reward for physical activity.

The present experiments conducted herein provide an important extension to our understanding of how different motivating rewards for performing exercise (i.e., immediate vs. delayed rewards) impact exercise behavior. Furthermore, a control group that contains a natural form of a delayed reward (i.e., the health benefits of exercise) provides a suitable real world comparison.

In summary, in Study 1, a cycling task was used that allowed participants to cycle at any

intensity level and duration they preferred. The self-selected duration allowed the total time cycled to be used as an outcome variable between four different conditions in a randomized control trial. In Study 2, the cycling task consisted of fix intensity (65% of maximal heart rate), included a larger sample and greater number of male participants, and included measures of individual differences in altruistic personality, self-presentation in exercise and self-presentation in altruistic behavior. In both studies, participants in each treatment condition read a health bulletin about the health benefits of exercise. The control condition received no further information, the Facebook pro health condition received information relating to the posting of the results of the exercise session on Facebook (e.g., for each 12 minutes getting a post on MSU Kinesiology page), the charity-private reward condition received information concerning to the charitable donation (immediate intrinsic) that would be earned from cycling. The Facebook and charity condition received information about both charitable donation and Facebook posting. In terms of the main analysis of treatment conditions, both studies showed that the control group spent the least amount of time cycling compared to the remaining conditions and that the Facebook and charity condition had significantly longer cycling times compared to Charity and Facebook alone conditions. The general discussion section starts by discussing the results in the light of self-presentation theory and then ends with an explanation of the dissertation's strengths, limitations and future research directions.

Self-presentation theory

Self-presentation theory indicates that individuals are motivated to manage the impressions others shape of them. Specifically, self-presentational concerns occur when other people are present to evaluate them, and therefore experience social anxiety. This anxiety motivates them to make a desired impression on other people.

Little is known about self-presentational motivation on social media (e.g., FB) for promotion of physical activity behavior and the aim of this dissertation was to examine whether or not it motivates physical activity behavior. Findings of this dissertation suggested that self-presentational concerns can be helpful to promote physical activity. Participants willingly cycled longer in conditions self-presentational rewards were involved; however, caution is necessary when praising the benefits of self-presentational concerns in physical activity settings. Despite its beneficial effect on this cycling task, self-presentational concern has been shown in some research studies to create anxiety in people at the expense of not exercising at all (e.g., social physique anxiety)(Ginis & Leary, 2004; Martin et al., 2001). In this sense, social media could be a beneficial milieu to use in such research to avoid creating such anxiety. Naturally, future studies are warranted to investigate this assumption.

Results from this dissertation also revealed that the scores for change in SE beliefs were significant in conditions in which self-presentational rewards were involved (e.g., FB for pro health, charity and FB). One possible explanation might be, again, the use of social media. Giving people the freedom to post or not to post about their exercise results upon completing the task (not the process of doing the task) might be relaxing and, therefore might increase the self-efficacy beliefs of cycling in the future.

In both of the studies, time spent cycling was the longest when charitable donations were fortified with a self-presentational reward such as FB posts. Additionally, the time spent cycling in Charity alone and Facebook alone conditions were also longer compared to the control condition in which there was no immediate reward (e.g., participants had to wait for the potential delayed health rewards of exercising). This finding was consistent across both studies. Taken together, the two studies in this dissertation provide preliminary support for the concept of self-

presentation theory to could be helpful to increase and motivate people to be physically active.

Analyses revealed that female participants had significantly higher altruistic personality scores compared to male participants, this was an expected finding as it is aligned with previous research (Carlo et al., 1991; Einolf, 2011). Therefore, we assumed that female participants would be more motivated to exercise in charitable conditions and would cycle longer periods than their male counterparts. However, results of 2x2 ANOVA (gender and altruistic conditions) shown no statistical significance for the interaction of condition and gender. One possible explanation to this finding can be the experiment compromised only one bout of cycling session. Regardless of the gender, maybe all participants were excited about an immediate reward followed by a cycling session (either private charitable reward or Public self-presentational reward). This could be a possible reason why gender differences did not manifest in regarding cycling duration across conditions. I should reiterate that females in this sample did score significantly higher in altruistic personality than males, maybe providing the participants a chance to cycle several times and then comparing the cycling duration might produce noticeable differences between males and females in terms of altruism.

Strengths

There were multiple strengths to this dissertation. First, this dissertation's research methodology were based on self-presentation theory and previous research on motivation. For many years, studies in the Sport and Exercise Psychology (SEP) field investigated motivation and sources of motivation to promote physical activity levels for the general public. Recently, events that associate exercise with charitable causes (e.g., breast cancer marathons, run for charitymiles applications on smart phones) are getting more popular, but the effects of charitable cause on exercise motivation is not thoroughly examined in the field of SEP. Some recent studies

have focused on using the charitable cause on an exercise task to examine human behavior within the field of behavioral economics (Ariely et al., 2008). This dissertation was inspired from those experiments but built through a kinesiology lens. Furthermore, social media websites such as Facebook, Instagram and Twitter are becoming milieus in which people post and talk about their exercise goals and routines. So, more research could be conducted to examine the effect of social media on physical activity behavior with the intention to increase physical activity levels.

Aforementioned at the very beginning of this dissertation, there is a widespread decay of physical activity levels in the general public, and therefore many different ways/methods need to be explored in order to increase physical activity levels. Lessening this problem will require being more up-to-date with new trends (e.g., social media) to create attractive solutions for people to adopt a physically active lifestyle. This dissertation was an effort to draw attention to these avenues and its results suggest that incorporating immediate rewards such as charitable cause and/or social media posts can lead to statistically significant additions to exercise minutes. More research of this nature should be conducted to develop innovative methods to address the multidimensional issue of physical inactivity.

Another strength of this dissertation is that it can be easily applied in real life settings. Corporate and/or government organizations that are sponsors to charitable events can use exercising as a prerequisite (e.g., each donor needs to exercise to be eligible to donate). Campaigns using charitable causes could be launched while incorporating social media into this arena. Advertisement campaigns could be made emphasizing that one can receive the health benefits of exercise while earning money to be donated to various charities for the betterment of the society (e.g., run for a purpose, improve your health while helping to improve health of others).

Limitations and Future Research Directions

Limitations. As with any research study, this dissertation has limitations too. One limitation is the generalizability of the findings. This study was performed with young, healthy students, who are internet/social media savvy. Young adults are much more experienced with posting information on social media and following posts than other age groups (Chen & Marcus, 2012; Lee-Won et al., 2014; Wong, 2012). Most likely these students are already members of social media sites and are active users who are posting/interacting every day. Thus, the results from this dissertation may not generalize to people who are not as familiar or comfortable with interacting via social media. Using social media might be intimidating for middle-aged and older adults. On the other hand, another argument could be made for charitable donations. With maturity, middle-aged and older adults might be more motivated to exercise for charitable donations, they might be more inclined to help others or give back to society, and young adults may be more skeptical and/or might not give importance to charitable donations yet. So, more research is needed to reveal how other populations respond to these motivating rewards.

Another limitation is that the only actual delayed reward was the control group with the potential health benefits that participants might experience in the future, if they exercise on a regular basis. For the control group, there is no definitive amount of time before this health reward happens and there was only one session provided to the participants. Considering all these points it is apparent that the control group is the major weakness of this study in trying to claim it as a delayed reward. The studies in this dissertation involved only one bout of exercise. If people are to receive the health benefits of exercise, they must exercise on a regular basis. However, this experiment is only one of the first attempts to investigate the relation between immediate rewards and physical activity motivation. Considering it is only a first scratch of a

whole line of research, it could pave the way for future studies with actual delayed rewards. For example, investigating delayed Facebook posts and/or charitable donations (e.g., posting exercise results after a week or donating to charity in 2 weeks) could generate interesting results.

Researchers could see whether delayed rewards generate similar effects such as immediate rewards or not. Also another avenue of research it so examine whether or not the effects of immediate, image-based rewards would attenuate over time needs to be explored in future research.

Additionally, there was no public-charity only condition with which to compare the public versus private nature of the reward. The Facebook post for charity also included one's cycling performance.

The use of 12 min segments to receive motivating rewards could be a problem, especially for people who are sedentary. If they believe they cannot make it all the way through the next 12-min segment, they may quit prematurely. Instead, using 6 min segments to receive \$0.50 might seem more motivating especially for a novel exerciser. However, the fact that the control group, in which there was no immediate rewards, cycled 18 minutes on average suggests that 12 min segments was not problematic for this sample. Also for future studies the control condition could be told to that the more 12-min segments of exercise you reach the closer to come to your recommended daily requirements of PA for health.

Because the experimenter was female, there was no control for gender-match of the research collector. The researcher was also the experimenter who collected most of the data and tried to control experimenter bias by limiting conversations with all participants. Researcher gave the same exact explanations to each of the participants and answered all related questions but after, the researcher was dull throughout the session in order to limit small talk attempts

initiated by some of the participants. A computer generated randomization program was used to create random conditions. The condition was determined before even seeing and meeting with the participant. For future studies Having male and female data collectors might be another avenue to explore and to control for experimenter bias.

A sub-sample of 15 participants in Study 2 were asked the perceptual value of donating a dollar to charity. There were some striking comments while they were completing the survey. A female participant stated; "UNICEF kept me going or I would have stopped. I'm overweight so it's hard but I kept going." Another student mentioned she would have stopped earlier if not for her name being posted to FB for charity donations. A male participant reported that he was happy money was being donated, even it is only one dollar, he said that it gives you a feeling that you want to work harder. Another male explained that it was exciting to reach 12 and 24 min goals.

Future directions. Given the lack of current research exploring the effect of immediate and self-presentational rewards on exercise promotion and the promising results demonstrated here which suggest that these types of rewards in nature result in increased exercise, future research is warranted. Having a treatment condition with FB posting with private charity, thus completing the cells of a 2 (charitable donation) by 2 (Facebook postings) ANOVA, would allow for a stronger experimental design.

Future research should design an intervention in which participants come to the laboratory several times and conduct follow-ups to examine the effects of the motivating rewards long-term. People get the chance to earn and donate money more than once by being physically active. Given the opportunity to do several bouts of exercise might change the dynamics of motivation. People might realize that they actually enjoy being physically active.

Another possible idea might be to have a group that is physically active for a chosen charity and investigate the group motivation and dynamics in the process.

Conclusion

The results from this dissertation suggest that people's motivation can increase when motivating rewards such as charity donations and social media are used in exercise contexts. Doing so, can add minutes to an exercise session. Importantly, these immediate motivating rewards are increasing self-efficacy beliefs to cycle longer the next time. This might be a sign for the intention to exercise in the future. Therefore, it is an encouraging finding to pursue an intervention type study and a possible longitudinal study in the future. Additionally, this dissertation suggests that associative and dissociative imagery may be effective methods to improve performance on exercise duration tasks, too, and could provide a relatively easy way to boost motivation and performance while exercising. Overall, group dynamics principles and imagery are two strategies that can be used separately or together to extend exercise duration.

APPENDICES

APPENDIX A:

IRB APPROVAL LETTER FOR STUDY 1 PILOT

MICHIGAN STATE UNIVERSITY

Initial IRB Application Approval

April 16, 2015

To: Deborah L. Feltz
130 IM Sports Circle
Dept. of Kinesiology
MSU

Re: **IRB#** 15-367 Category: EXPEDITED 4, 6, 7
Approval Date: April 15, 2015
Expiration Date: April 14, 2016

Title: The effects of charitable cause on exercise motivation

The Institutional Review Board has completed their review of your project. I am pleased to advise you that **your project has been approved**.

The committee has found that your research project is appropriate in design, protects the rights and welfare of human subjects, and meets the requirements of MSU's Federal Wide Assurance and the Federal Guidelines (45 CFR 46 and 21 CFR Part 50). The protection of human subjects in research is a partnership between the IRB and the investigators. We look forward to working with you as we both fulfill our responsibilities.

Renewals: IRB approval is valid until the expiration date listed above. If you are continuing your project, you must submit an *Application for Renewal* application at least one month before expiration. If the project is completed, please submit an *Application for Permanent Closure*.

Revisions: The IRB must review any changes in the project, prior to initiation of the change. Please submit an *Application for Revision* to have your changes reviewed. If changes are made at the time of renewal, please include an *Application for Revision* with the renewal application.

Problems: If issues should arise during the conduct of the research, such as unanticipated problems, adverse events, or any problem that may increase the risk to the human subjects, notify the IRB office promptly. Forms are available to report these issues.

Please use the IRB number listed above on any forms submitted which relate to this project, or on any correspondence with the IRB office.



**Office of Regulatory Affairs
Human Research
Protection Programs**

**Biomedical & Health
Institutional Review Board
(BIRB)**

**Community Research
Institutional Review Board
(CRIRB)**

**Social Science
Behavioral/Education
Institutional Review Board
(SIRB)**

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APPENDIX B:

IRB APPROVAL LETTER FOR STUDY 2

MICHIGAN STATE UNIVERSITY

December 16, 2015

Revision Application Approval

To: Deborah L. Feltz
130 IM Sports Circle
Dept. of Kinesiology
MSU

Re: **IRB# 15-367** Category: EXPEDITED 4, 6, 7
Revision Approval Date: December 16, 2015
Project Expiration Date: April 14, 2016

Title: The effects of charitable cause on exercise motivation

The Institutional Review Board has completed their review of your project. I am pleased to advise you that **the revision has been approved**.

This letter notes approval to include Turkish students (ages 18-35) in the target population, as well as revisions to the consent form.

The review by the committee has found that your revision is consistent with the continued protection of the rights and welfare of human subjects, and meets the requirements of MSU's Federal Wide Assurance and the Federal Guidelines (45 CFR 46 and 21 CFR Part 50). The protection of human subjects in research is a partnership between the IRB and the investigators. We look forward to working with you as we both fulfill our responsibilities.

Renewals: IRB approval is valid until the expiration date listed above. If you are continuing your project, you must submit an *Application for Renewal* application at least one month before expiration. If the project is completed, please submit an *Application for Permanent Closure*.

Revisions: The IRB must review any changes in the project, prior to initiation of the change. Please submit an *Application for Revision* to have your changes reviewed. If changes are made at the time of renewal, please include an *Application for Revision* with the renewal application.

Problems: If issues should arise during the conduct of the research, such as unanticipated problems, adverse events, or any problem that may increase the risk to the human subjects, notify the IRB office promptly. Forms are available to report these issues.

Please use the IRB number listed above on any forms submitted which relate to this project, or on any correspondence with the IRB office.

Good luck in your research. If we can be of further assistance, please contact us at 517-355-2180 or via email at IRB@msu.edu. Thank you for your cooperation.

Sincerely,



Ashir Kumar, M.D.

Chair, Biomedical and Health Institution Review Board (BIRB)
Human Research Protection Program

c: Duygu Gurleyik



Office of Regulatory Affairs
Human Research
Protection Programs

Biomedical & Health
Institutional Review Board
(BIRB)

Community Research
Institutional Review Board
(CRIRB)

Social Science
Behavioral/Education
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APPENDIX C:
DEMOGRAPHICS

Subject #: _____

Age: _____ Date of Birth: _____ Gender: Male Female

Ethnic Background: African American/Black Asian/Pacific Islander
 Caucasian/White Hispanic
 Native American Other: _____

Education : College: 1 freshman 2 sophomore 3 junior 4 senior 5 other

Degree program: _____

Graduate School: Yes/No

If Yes, then degree: _____

APPENDIX D:

PHYSICAL ACTIVITY READINESS QUESTIONNAIRE (PAR-Q)

Please read the questions carefully and answer each one honestly. Circle “Yes” or “No”.

- | | |
|--------|---|
| Yes/No | 1. Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor? |
| Yes/No | 2. Do you feel pain in your chest when doing physical activity? |
| Yes/No | 3. In the past month, have you had chest pain when you were not doing physical activity? |
| Yes/No | 4. Do you lose your balance because of dizziness or do you ever lose consciousness? |
| Yes/No | 5. Do you have a bone or joint problem that could be made worse by a change in your physical activity? |
| Yes/No | 6. Is your doctor currently prescribing medications for your blood pressure or heart condition? |
| Yes/No | 7. Do you know of any other reason why you should not do physical activity? |

If you answered “YES” to any of the above, please explain briefly in the space below.

APPENDIX E:

GODIN LEISURE TIME SCALE

Considering a **7-Day period** (a week), how many times on the average do you do the following kinds of exercise for **more than 15 minutes** during your **free time** (write on each line the appropriate number.)

Times Per Week

a) STRENUOUS EXERCISE

(HEART BEATS RAPIDLY)

(e.g., running, soccer, basketball, judo, racquetball
skating, vigorous swimming, vigorous long distance biking)

Times Per Week

b) MODERATE EXERCISE

(NOT EXHAUSTING)

(e.g., fast walking, tennis, easy biking,
volleyball, badminton, easy swimming, dancing)

Times Per Week

c) MILD EXERCISE

(MINIMAL EFFORT)

(e.g., yoga, archery, fishing, bowling,
golf, easy walk)

APPENDIX F:

ALTRUISTIC PERSONALITY QUESTIONNAIRE

Instructions: How often would you exhibit the following behaviors?

Please circle the most appropriate choice

1. I would give directions to someone I did not know.

1	2	3	4	5
Never	Once	More than once	Often	Very often

2. I would make changes for someone I did not know.

1	2	3	4	5
Never	Once	More than once	Often	Very often

3. I would give money to a charity.

1	2	3	4	5
Never	Once	More than once	Often	Very often

4. I would donate clothes or goods to a charity.

1	2	3	4	5
Never	Once	More than once	Often	Very often

5. I would help carry belongings of someone I did not know.

1	2	3	4	5
Never	Once	More than once	Often	Very often

6. I would delay an elevator and hold the door for someone I did not know.

1	2	3	4	5
Never	Once	More than once	Often	Very often

7. I would allow someone I did not know to go in front of me in line.

1	2	3	4	5
Never	Once	More than once	Often	Very often

8. I would point out a clerk's error in undercharging me for an item.

1	2	3	4	5
Never	Once	More than once	Often	Very often

9. I would let a neighbor I did not know well borrow an item of value to me.

1	2	3	4	5
Never	Once	More than once	Often	Very often

10.I would help a classmate who I did not know well with a homework assignment when my knowledge was greater than his or hers.

1	2	3	4	5
Never	Once	More than once	Often	Very often

11.I would voluntarily look after a neighbor's pet or children without being paid.

1	2	3	4	5
Never	Once	More than once	Often	Very often

12.I would offer to help a handicapped or elderly person across the street.

1	2	3	4	5
Never	Once	More than once	Often	Very often

13.I would offer my seat on a train or bus to someone who was standing.

1	2	3	4	5
Never	Once	More than once	Often	Very often

14.I would help an acquaintance move houses.

1	2	3	4	5
Never	Once	More than once	Often	Very often

APPENDIX G:
SELF-EFFICACY BELIEFS PRE

Pre-Exercise

Directions: Rate your confidence **right now** that you can cycle at 65% of your maximum ability for...

5 minutes

0	1	2	3	4	5	6	7	8	9	10
Not at all Confident							Absolutely Confident			

10 minutes

0	1	2	3	4	5	6	7	8	9	10
Not at all Confident							Absolutely Confident			

15 minutes

0	1	2	3	4	5	6	7	8	9	10
Not at all Confident							Absolutely Confident			

20 minutes

0	1	2	3	4	5	6	7	8	9	10
Not at all Confident							Absolutely Confident			

25 minutes

0	1	2	3	4	5	6	7	8	9	10
Not at all Confident							Absolutely Confident			

30 minutes

0	1	2	3	4	5	6	7	8	9	10
Not at all Confident							Absolutely Confident			

35 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

40 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

45 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

50 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

55 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

60 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

APPENDIX H:

SELF- PRESENTATION IN EXERCISE QUESTIONNAIRE

Instructions: How often would you exhibit the following behaviors?

Please circle the most appropriate choice

1) I value the attention and praise of others when they regard me as being in good shape.

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

2) I want others to see me with friends who are exercising

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

3) I enjoy the praise I often receive for exercising

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

4) I prefer to exercise in groups so more people will view me as an exerciser

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

5) I try to appear toned or fit to others

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

6) Appearing fit or healthy to others is not important to me

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

7) Receiving praise while exercising makes me want to exercise more

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

8) I often wear exercise clothing even when I am not exercising to ensure that others know I am an exerciser.

Strongly	Agree	Agree	Disagree	Disagree	Strongly
----------	-------	-------	----------	----------	----------

agree 6	Moderately 5	Slightly 4	Slightly 3	Moderately 2	disagree 1
------------	-----------------	---------------	---------------	-----------------	---------------

9) I want to be thought of as a person who exercises.

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

10) I wear exercise/athletic clothing so other people will see me as an exerciser

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

11) I emphasize my athletic ability around those who do not yet know that I am an “exercise nut.”

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

12) I value the attention and praise offered by others in regard to appearing physically fit.

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

13) When I exercise, it is important to appear that I am not trying too hard.

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

14) I exercise so that regular exercisers will like me

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

APPENDIX I:

SELF-PRESENTATION IN ALTRUISTIC BEHAVIOR QUESTIONNAIRE

1) I value to be seen altruistic by others

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

2) I enjoy the praise I often receive for being an altruistic person

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

3) I value the attention and praise offered by others in regard to appearing altruistic

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

4) Appearing altruistic to others is not important to me

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

5) I want to be thought of as a person who is altruistic.

Strongly agree 6	Agree Moderately 5	Agree Slightly 4	Disagree Slightly 3	Disagree Moderately 2	Strongly disagree 1
------------------------	--------------------------	------------------------	---------------------------	-----------------------------	---------------------------

APPENDIX J:

SELF-EFFICACY BELIEFS POST

Directions: Rate your confidence right now that you can cycle at 65% of your maximum ability
the next time you cycle for...

5 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

10 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

15 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

20 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

25 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

30 minutes

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Absolutely Confident

35 minutes

0 1 2 3 4 5 6 7 8 9 10

	Not at all Confident					Absolutely Confident					
40 minutes	0	1	2	3	4	5	6	7	8	9	10
	Not at all Confident					Absolutely Confident					
45 minutes	0	1	2	3	4	5	6	7	8	9	10
	Not at all Confident					Absolutely Confident					
50 minutes	0	1	2	3	4	5	6	7	8	9	10
	Not at all Confident					Absolutely Confident					
55 minutes	0	1	2	3	4	5	6	7	8	9	10
	Not at all Confident					Absolutely Confident					
60 minutes	0	1	2	3	4	5	6	7	8	9	10
	Not at all Confident					Absolutely Confident					

APPENDIX K:

HEALTH BULLETIN

Regular physical activity is one of the most important things you can do for your health. It can help:

- Control your weight
- Reduce your risk of cardiovascular disease
- Reduce your risk for type 2 diabetes and metabolic syndrome
- Reduce your risk of some cancers
- Strengthen your bones and muscles
- Improve your mental health and mood
- Improve your ability to do daily activities and prevent falls, if you're an older adult
- Increase your chances of living longer

Everyone can gain the health benefits of physical activity - age, ethnicity, shape or size do not matter.

If you're not sure about becoming active or boosting your level of physical activity because you're afraid of getting hurt, the good news is that **moderate-intensity aerobic activity**, like brisk walking, is generally **safe for most people**.

The health benefits of physical activity far outweigh the risks of getting hurt.

Start slowly. Cardiac events, such as a heart attack, are rare during physical activity. But the risk does go up when you suddenly become much more active than usual. For example, you can put yourself at risk if you don't usually get much physical activity and then all of a sudden do vigorous-intensity aerobic activity, like shoveling snow. That's why it's important to start slowly and gradually increase your level of activity.

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