Evaluation of the virtual Exercise is Medicine on Campus campaign: Effects on college students' physical activity perceptions and behaviors

by

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Abstract

Background/Purpose: The COVID-19 pandemic has negatively affected the mental health and wellbeing of college students, as well as behaviors such as physical activity. Exercise is Medicine On Campus (EIM-OC) calls upon universities and colleges to promote physical activity as a vital sign of health. The aim of this study was to evaluate the reach and effectiveness of the virtual EIM-OC campaign and its effects on college students' physical activity behaviors and selected social cognitive theory (SCT) variables. As a secondary aim, we also assessed physical activity behavior and barriers among college students during the COVID-19 pandemic.

Methods: We conducted an online baseline survey at the end of September 2020 and a follow up survey at the beginning of November 2020. A total of 469 K-State students (n = 362 females; n = 82 kinesiology majors) completed the baseline survey, and 337 of these participants completed the follow-up survey. Throughout October (EIM-OC month), K-State conducted a variety of virtual events to promote physical activity on campus, including Lunch and Learn presentations by Kinesiology faculty, weekly physical activity challenges, a monthlong Bingo challenge, daily social media posts, and a Distinguished Lecture Series presentation. Changes in physical activity and SCT variables (self-efficacy, self-regulation, outcome expectations, and perceived community support) from baseline to follow-up were assessed using parametric and non-parametric tests.

Results: Of the 337 individuals who completed the follow up survey, 97 (28.8%) said they had heard of EIM-OC month at K-State. Kinesiology students were significantly more likely to have heard of EIM-OC than non-Kinesiology students (χ^2 = 129.8, p < .001). Paired t-tests revealed there was a small but significant increase in participants' perceived community support from baseline to follow-up (t = -3.2, p = .002), but no changes in self-efficacy, self-regulation, or outcome expectations. Wilcoxon Signed Rank test results revealed that vigorous activity (Z = -2.78, p = 0.005) and total activity (Z = -3.08, p = 0.002) were significantly lower at follow-up compared to baseline among those who had not heard of EIM-OC, but remained the same among those who had heard of EIM-OC. Overall, roughly half of the sample was classified as high active. Males were more likely to be classified as high active than females at baseline (χ^2 = 12.5, p = 0.002), but not follow-up (χ^2 = 0.304, p = 0.86). COVID-related restrictions, lack of time/being busy, motivation/laziness, and school were common barriers at both time points, and weather was identified as an added barrier at follow-up. Outdoor and campus spaces were most frequently reported as physical activity resources used by participants.

Conclusions: Overall, the awareness of EIM-OC was high within, but not outside of, the Kinesiology department. Students reported few changes in physical activity behaviors or targeted SCT variables from baseline to follow-up. Future campaigns should explore diverse strategies for promoting EIM-OC across campus to maximize its reach and effectiveness.

Keywords: Exercise is Medicine On Campus; college students; physical activity; physical activity behaviors, self-efficacy, self-regulation, COVID-19, community support

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Chapter 1 - Introduction and Literature Review

Physical Activity Behaviors, Benefits, and Barriers in College Students

The physical activity guidelines for American adults recommend 150+ min of weekly moderate aerobic activity, or 75+ min of vigorous aerobic activity a week. Additionally, adults should perform 2 or more days a week of muscle strengthening exercises (USDHHS, 2008). Even though seven of the ten most common chronic diseases are favorably influenced by regular physical activity, unfortunately nearly 80% of adults are not meeting the guidelines for both aerobic and muscle-strengthening activity, while only about half meet the key guidelines for aerobic physical activity (USDHHS, 2018). Research done with college students has demonstrated that physical activity has multiple benefits. Many studies have found that physical activity can have beneficial effects on mental and physical health. For example, Ghrouz et al. (2019) found that there are significant positive associations between physical activity and sleep quality with mental health. Also, Asztalos et al. (2010) found that the association between physical activity and mental health was consistently positive, regardless of the intensity of activity. In the same study, the positive associations between physical activity and mental health in men were specifically observed for vigorous physical activity and psychological complaints (i.e., specific dimensions of mental health). On the other hand, the positive associations between physical activity and mental health in women were observed between walking and moderate physical activity and both emotional well-being and psychological complaints (i.e., general and specific dimensions of mental health). Moderate physical exercise benefits sleep quality in all age groups in healthy populations (Wang & Boros, 2021). Physical activity or exercise is associated with enhanced affect and mood, and therefore can buffer the negative effects of stress on emotions and experienced feelings (Wunsch, 2017).

Despite the multiple benefits previously mentioned, physical inactivity is still a problem among American adults. Physical inactivity is linked to approximately $117 billion in annual health care costs and about 10% of premature mortality (USDHHS, 2018). Research shows that physical inactivity is the number one public health concern of the twenty-first century (Trost et al., 2014). Low levels of physical activity in young adults can increase the risk of developing obesity, and especially abdominal obesity (Pietiläinen et al., 2008). In 2012, Booth and colleagues addressed the fact that the human body adapts to insufficient physical activity, and if continued, it will result in decreases in both total and quality years of life. There is evidence that physical inactivity is one important cause of most chronic diseases (Booth et al., 2012). Reducing physical inactivity, a serious and persistent public health concern, has been designated as one of the priorities in the Healthy People 2030 objectives, as well as to reduce the proportion of adults who engage in no leisure-time physical activity (USDHHS, 2020).

Findings from Healthy People 2010 showed the need to improve efforts in promoting the importance of physical activity in young adults (USDHHS, 2010). Studies show that a high proportion of college students' physical activity levels remain below recommended standards and may decrease as they become older (Huang et al., 2003). The decrease of physical activity during college is also linked to weight gain, known as "The Freshman 15" (Jung et al., 2008). A study by Racette et al. (2008) found that exercise patterns during freshman and senior years did not meet the recommended guidelines for nearly one third of students, which is consistent with college students nationwide. They found that 59% of freshmen engaged in aerobic exercise regularly which is similar to other studies with 58% of freshmen who met the recommended guidelines for moderate and vigorous exercise (Racette et al., 2008).

One key change from adolescent to adult responsibilities is an increase in competing demands on time, which may influence opportunities to be physically active (Leslie et al., 1999). From that study, 57% of a population of over 2,700 college students were employed, either full-time or in part-time jobs, contributing to time constraints. Among all possible barriers, lack of time, laziness, lack of motivation/willpower and other priorities have been identified as the most common barriers to exercise in college aged populations (Ebben & Brudzynski, 2008; Silliman et al., 2004). It is common that students do not make exercise a priority when they have to study, go to class, and work, all of which are demands on their time. Ball et al. (2018) found the top 3 barriers reported by traditional and nontraditional students were the same, and included lack of time, energy, and willpower. Differences between nontraditional and traditional students can vary, but most commonly noted are differences in living arrangements, financial burdens, independence from parents, and time management struggles (Kulavic et al., 2013) Another study comparing traditional and nontraditional students found students perceived barriers that included fear of injury, lack of skill, and lack of resources (Kulavic et al., 2013).

The Pandemic and its Effects on College Students

The COVID-19 pandemic has affected the mental health and wellbeing of college students, leading them to maladaptive coping behaviors. Son et al. (2020) found that 71% of college students indicated increased stress and anxiety due to the COVID-19 outbreak. Approximately one-third (29%) of students used positive coping methods such as meditation and breathing exercises. The study also found that 44% of participants reported experiencing an increased level of depressive thoughts, and 8% reported having suicidal thoughts associated with the COVID-19 pandemic (Son et al., 2020). Similarly, Kecojevic et al. (2020) found that undergraduate college students reported a number of academic and everyday difficulties and high levels of mental health distress during the COVID-19 pandemic.

During lockdowns, due to efforts to mitigate the spread of COVID-19, people modified their lifestyles, with an increase in sitting time (from 5 to 8 h per day) due to spending more time at home, and there was also a reduction in the amount of time spent on physical activity (Ammar et al., 2020). The results from the same study show a 35% reduction in number of days per week walking. However, the most prominent change was in sitting behavior. During the COVID-19 pandemic and because of stay-at-home orders and shutdowns, students reported getting less exercise (Nelson et al., preprint). The closure of gyms and workout spaces, lack of workout equipment and space, and being more sedentary in general were the main reasons for the declines in physical activity in students during quarantine. However, Nelson et al. (preprint) found that students who were not engaging in physical activity reported “lack of time” (usually due to schoolwork) or mental/emotional impacts (such as lack of motivation) as primary barriers to exercise. A study done with U.S. adults found that participants who met the physical activity guidelines prior to COVID-19-related restrictions decreased their physical activity by 32%, on average, with those in self-isolation reporting the greatest decrease of 43% (Meyer et al., 2020). Sedentary time and leisure-time screen activities have also increased during the COVID-19 pandemic (Meyer, et al. 2020). A study conducted with Spanish university students before and after lockdowns found that students slightly decreased the time spent on moderate and vigorous physical activities, but time spent on walking and doing sports during the lockdowns decreased considerably (Rodríguez-Larrad et al., 2021).

Even though many universities took action in promoting physical activity during the pandemic, the lack of motivation coupled with other concerns or demands might have been major barriers to engaging in physical activity (Maher et al., 2020). Current research suggests that physical activity promotion efforts during the pandemic are needed to enhance health and well-being.

Social Cognitive Theory (SCT) Overview

The Social Cognitive Theory (SCT), developed by Bandura (1998), specifies a core set of determinants of health behaviors, the mechanisms through which they work, and the optimal ways of translating this knowledge into effective health practices. The core determinants include self-efficacy that one can have control over one's health habits, outcome expectations about the expected costs and benefits for different health habits, the health goals people set for themselves and the concrete plans and strategies for realizing them, and the perceived facilitators and social and structural impediments to the changes they seek (Bandura, 1998). This theory assumes that knowledge of health risks and benefits create preconditions for change. However, Bandura states that additional influences are needed to overcome the impediments to adopting new lifestyle habits (Bandura, 1998).

Figure 1.1.

Social Cognitive Model (Bandura, 2004)

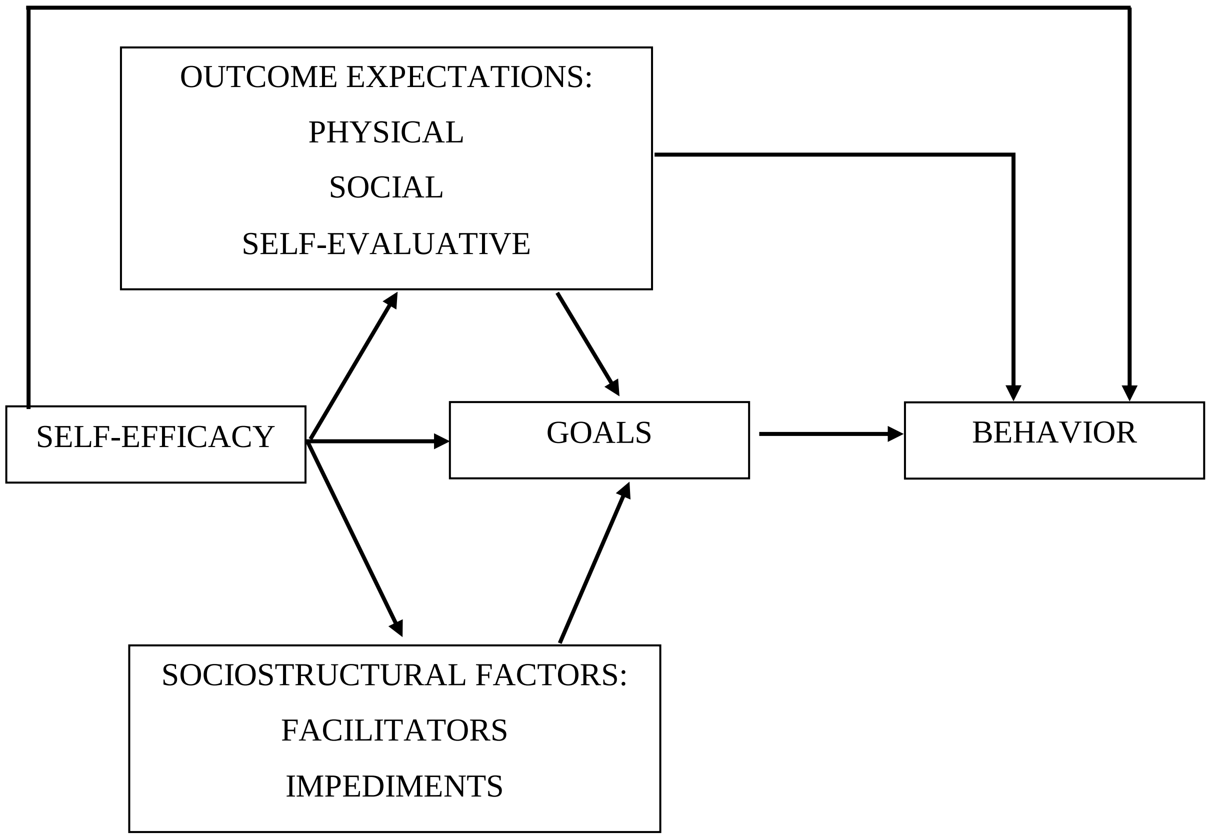


Figure 1.1 displays the full SCT model. The SCT has four main constructs: self-efficacy, outcome expectations, goals, and sociostructural factors. Self-efficacy is considered to be the active agent in the behavior change process because it affects health behavior both directly and by its influence on the other determinants. This construct is a consistent predictor of behavior, especially complex or difficult behaviors. The stronger the perceived self-efficacy, the higher the goals people set for themselves and the firmer their commitment to them (Bandura, 2004). As stated by Petosa et al. (2003), self-efficacy has been operationalized as the perceived ability to overcome barriers to physical activity. Self-regulation is a function of beliefs in our own capabilities to be in control of health habits. The construct of self-regulation in this theory addresses the fact that we can influence our own behavior by setting goals, monitoring progress, rewarding ourselves and facilitating

environmental changes such as social support. Self-regulation skills may be increased through instruction and applied "real-life" experiences (Petosa et al., 2003).

Bandura (2004) states that health behavior is also affected by the outcomes people expect their actions to produce. These expectations are based on the assumption that people act to maximize the benefits and minimize the costs of engaging in a behavior. Also, the ability to see long-term benefits allows people to discount immediate costs in pursuit of goals. According to Luszczynska & Schwarzer (2005), outcome expectancies are beliefs about the consequences of one's actions. One's behavior may provoke bodily changes, responses from others, feelings about oneself such as less stress, or better sleep. Some examples of expected outcomes from physical activity are improved physical appearance, weight management, fun, and social benefits (Petosa et al., 2003). Finally, the SCT takes into account sociostructural factors that impact the behavior change process. These can be external barriers and facilitators that either deter performance of health habits or make the behavior easier to accomplish. Some examples of these are the lack of resources such as closure of gyms and workout spaces and lack of workout equipment and space (Nelson et al., preprint).

Self-Efficacy

Exercise self-efficacy appears to be a critical variable for exercise behavior regardless of population. Bandura (2004) also states that states that self-efficacy beliefs determine how obstacles and impediments are viewed. People of low efficacy are easily convinced of the futility of effort in the face of difficulties. They quickly give up trying. Those with high self-efficacy view impediments as surmountable by improvement of self-management skills and perseverant effort. Wallace et al. (2000) found exercise self-efficacy was the most significant predictor of stage of exercise behavior change among females. College students with higher levels of self-efficacy participated in greater levels of physical activity two months later (Nehl et al., 2012).

Outcome Expectations

Previous research has shown the association between positive outcome expectancy and physical activity to be stronger among older adults than among young to middle-aged adults (Williams et al., 2005). However, the types of expected outcomes may be important. A study by Conner et al. (2011) showed that in particular, an affective message (e.g., a message highlighting benefits such as reduced stress and anxiety) was more effective than either a cognitive message (e.g., a message highlighting benefits such as reduced chronic disease risk) or a no-message control in increasing levels of self-reported exercise behavior in two independent studies. The study demonstrates the potential for highlighting affective outcomes in health promotion messages for college students.

Goals/Self-Regulation

Self-monitoring, goal setting, and feedback can be used to increase the daily physical activity level of healthy adults at a level that might prevent weight gain that is typically observed as individuals age (Normand et al., 2008). For example, goal setting made a significant and positive contribution to predicting physical activity in college students over a two-month interval (Nehl et al., 2012). A meta- regression with 122 evaluations (N = 44,747) found that the technique, "self-monitoring," explained the greatest amount of among-study heterogeneity (13%), with a pooled effect size of 0.41 (95% CI = 0.29-0.52) for interventions including this technique compared to an effect size of 0.26 (95% CI = 0.21-0.30) for interventions not using self-monitoring. Furthermore, interventions that included self-monitoring and at least one of four other self-regulatory techniques were significantly more effective than interventions not including these techniques (0.42 vs. 0.26), for interventions designed to promote both physical activity and healthy eating (Michie et al. 2009). In a study conducted to understand how goal-setting, rewards, self-monitoring, and sharing can encourage physical activity, participants from the general public reported it was beneficial to have secondary and primary weekly goals and to receive non-judgmental reminders (Munson & Consolvo, 2012).

Perceived Community Support

Aspects of an individual's environment can affect the amount of physical activity that a person engages in. Availability of perceived community support and community resources are part of the sociostructural facilitators component of the SCT (Bandura, 2004). The relationship between facility awareness and physical activity is particularly important for women in college, such that women who had a greater sense that facilities were available for their use were more likely to participate in physical activity (Nehl et al., 2012). Brownson et al. (2001) found that nearly every access variable investigated showed a positive association with physical activity after adjustment for potential confounders. Self-reported estimates of levels of access were generally higher among men. Between 23% and 34% of individuals who had used a range of environmental supports such as walking trails reported increases in physical activity.

Overall, research suggests the variables within the SCT model are strongly associated with physical activity. Targeting these variables in interventions may be an effective strategy for promoting physical activity among college students. Designing health promotion programs with a SCT approach in colleges and universities as students are transitioning from adolescence will be helpful for them to form lifelong physical activity behaviors.

Exercise is Medicine

The vision of Exercise is Medicine (EIM), a global health initiative managed by the American College of Sports Medicine (ACSM), is to make physical activity assessment and promotion a standard in clinical care, connecting health care with evidence-based physical activity resources for people everywhere and of all abilities. EIM encourages physicians and other health care providers to include physical activity when designing treatment plans and to refer patients to evidence-based exercise programs and qualified exercise professionals. EIM is committed to the belief that physical activity promotes optimal health and is integral in the prevention and treatment of many medical conditions (Exercise is Medicine, 2021).

Exercise is Medicine On Campus (EIM-OC) calls upon universities and colleges to promote physical activity as a vital sign of health. EIM-OC encourages faculty, staff and students to work together toward improving the health and well-being of the campus community by making movement a part of the daily campus culture, assessing physical activity at every student health visit, providing students with the tools necessary to strengthen healthy physical activity habits that can last a lifetime, and connecting university health care providers with university health fitness specialists to provide a referral system for exercise prescription (Exercise is Medicine, 2021). At Kansas State University, EIM-OC is a collaborative effort between the Kinesiology Department and the Kinesiology Student Association.

Kansas State University was one of 167 universities and colleges around the world to be honored by Exercise is Medicine for its efforts to create a culture of wellness on campus during a virtual ceremony on June 12th, 2020. EIM-OC launched its recognition program in 2014 to honor campuses for their efforts to create a culture of wellness. Schools earn gold, silver or bronze status based on their activities. More information about the EIM-OC Recognition Levels is provided at: https://www.exerciseismedicine.org/assets/page_documents/EIM-OC%20Recognition%20Levels.pdf.

Silver-level campuses engage students, faculty and staff in education initiatives and make movement part of the daily campus culture while promoting and generating awareness of the health benefits of physical activity. Activities hosted throughout EIM-OC month in October 2019 earned the Kinesiology department silver level designation for the second straight year (EIM-OC). President Myers also signed a proclamation declaring October as Exercise is Medicine on Campus month at Kansas State University.

Throughout the month of October, the Kinesiology Department at K-State hosts activities for the campus community. These activities include promotion of physical activity and wellbeing. Over the last few years, EIM-OC has incorporated health and fitness assessments, and an annual campus walk, which features Willie the Wildcat and a prize giveaway. The distinguished lecture series also includes hosting a recognized professor or professional outside of the K-State community. In 2020, EIM-OC at K-State took a different approach due to the COVID-19 pandemic. Most activities took place in a virtual setting and promotion of the campaign was mostly through social media, emails and announcements. In 2020 Kansas State University was one of the 150 schools who were proudly recognized by EIM-OC with the "COVID Conqueror" badge, as it demonstrated creative adaptations to physical activity programming due to challenges presented by the COVID-19 pandemic (Exercise is Medicine, 2021).

Thus far, only a handful of studies have examined optimal approaches for implementing EIM-OC, or evaluated the effects of EIM-OC on outcomes of interest. A study by Bopp et al. (2015) evaluated the outcomes of participation and awareness during Exercise is Medicine (EIM) week and it was found successful in engaging a large, diverse population on a college campus. The implementation of exercise stations drew large number of individuals to engage and participate in the EIM week events (Bopp et al.). A study assessing EIM-OC implementation and outcomes at various academic institutions found that campus recreation departments, campus health providers, and student organizations/clubs emerged as the most important partners (Wilson et al., 2018).

The University of North Carolina at Chapel Hill (UNC) EIM-OC, who was awarded “gold status” by the ACSM, had to make some changes in order to adapt to the COVID-19 restrictions that were implemented in 2020. They found the most important contribution to the success of UNC EIM-OC was the development and maintenance with partners across and beyond campus, including the Department of Sport and Exercise Science, Campus Health, Campus Recreation, and an EIM-OC undergraduate club. Research states that EIM-OC may play a critical role by helping students start or reestablish and exercise routine when they return to campus. Identifying resources close to the participant’s location, such as trails, and complimenting with virtual options, including Campus Recreation’s fitness classes are some recommendations for the upcoming school years (Stanford, 2020).

EIM-OC month has been celebrated for four years at K-State but the impact that this campaign has on the K-State campus’s physical activity has never been evaluated. The purpose of this study was to evaluate the reach and effectiveness of the virtual EIM-OC campaign and its effects on college students' physical activity behaviors and SCT determinants of physical activity. As a secondary aim, we also wanted to evaluate physical activity behavior and barriers among college students during the COVID-19 pandemic.

Chapter 2 - Methods

Study Design

This pre-post descriptive study was designed to evaluate EIM-OC month and college students' physical activity perceptions and behaviors when living through a pandemic. The length of this study was designed to be during the month of October at Kansas State University. Students were asked to complete an online baseline survey/questionnaire at the end of September 2020 and a follow up survey at the beginning of November 2020. Both surveys were available for one week for students to complete. Survey data were collected through Qualtrics, and the study was approved by the university's institutional review board (IRB approval # 10251).

Exercise is Medicine On Campus month

Throughout October 2020, the EIM-OC committee, comprised of faculty and students within the department of Kinesiology, implemented a variety of initiatives to promote awareness of physical activity resources and participation in physical activity in the campus community. Events were modified to be virtual due to the COVID-19 pandemic. EIM-OC had weekly virtual events, such as social media challenges with prize drawings for participating students (Figure 2.1), lunch and learns with faculty (see presentation titles in Figure 2.2), a month-long bingo challenge (Appendix B), and the participation of Dr. Robert Zarr in the distinguished lecture series (Appendix C).

Figure 2.1.

Physical Activity Challenges

Figure 2.2.

Lunch and Learns

Promotion of the EIM-OC Campaign

The EIM-OC committee partnered with Counseling Services and Campus Recreation (the Rec) to promote physical activity and wellbeing. Counseling services provided a guided walking meditation audio to encourage the campus community to take a mindfulness walk. An Instagram account was created in order to reach more students by making daily posts on this platform as well as on the Kinesiology Facebook page. Content was designed to target SCT variables; examples of social media posts are included in Appendix D.

In addition, the EIM-OC committee updated the EIM-OC website by adding resources about parks and trails around Manhattan and posted about the virtual classes being offered by the Rec. Additionally, individuals who participated in the social media challenges were encouraged to share their physical activity challenge participation on social media using the corresponding hashtag in order to enter the prize drawing. Participants in these challenges also had the opportunity to email a picture to the EIM-OC committee who was in charge of keeping record of them. However, these pictures were only used as participation and for the EIM-OC committee to keep track of participation.

Study Procedures

Survey Recruitment

We recruited participants by sharing information about the survey with university professors and instructors to be posted on course Canvas pages for their students. The survey information was strategically shared with professors from large lecture classes from different colleges to reach a more diverse sample. It was also advertised through K-State Today and college/department social media pages. The inclusion criteria involved being enrolled in classes at K-State either virtually or in person and being comfortable completing the questionnaires in English. Upon completion of the screening questionnaire, those who met inclusion criteria were invited to complete the baseline survey. A follow-up email was sent to students who completed the baseline survey with information about EIM-OC events and activities. At the beginning of November, a follow-up survey was sent to students who completed the baseline survey. Participants were informed that they would be entered into a $20 gift card drawing after each survey was completed, one at baseline and another gift card drawing at follow-up.

Measures

Six survey instruments were used to evaluate EIM-OC month and college students' physical activity perceptions and behaviors when living through a pandemic.

Demographics

Demographic information collected included the following: gender, race, ethnicity, year in school, major, where they currently lived, if they had classes that required them to be physically present on campus that semester, and if they have been required to quarantine due to a COVID-related concern at any time during the fall semester.

Self-efficacy

Self-efficacy was assessed using a modified version of Barriers-Specific Self-Efficacy scale (BARSE) initially developed by McAuley (1992). This scale is designed to assess subjects' perceived capabilities to exercise three times per week for the next month in the face of commonly identified barriers to participation. This study utilized five items from the BARSE scale that were relevant to barriers that the college aged population faces (e.g., weather, stress, lack of resources, and school/work responsibilities). For each item, participants indicated their confidence to execute the behavior on a 100-point percentage scale comprised of 10-point increments, ranging from 0% (not at all confident) to 100% (completely confident). A total score was calculated by taking the average of the five items. Internal consistency for the self-efficacy scale was good (baseline a = 0.82, follow-up a = 0.86).

Outcome Expectations

Outcome expectations were assessed using the Multidimensional Outcome Expectations for Exercise Scale (MOEES) developed by Wójcicki et al. (2009). The original measure consists of three subscales: physical outcome expectations, social outcome expectations and self-evaluative outcome expectations. This study utilized the self-evaluative outcome expectation subscale to assess the expected psychological outcomes from exercise engagement (e.g., stress, mood, mental alertness) that are likely to be more sensitive to change and were the focus of EIM-OC messages. Participants were asked to rate how strongly they agreed with each of the items on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items were summed for a total score, with higher scores indicating higher levels of outcome expectations for exercise. Internal consistency for the outcome expectations scale was good (baseline a = 0.89, follow-up a = 0.92).

Self-regulation

Self-Regulation was assessed using the Exercise Planning and Scheduling Scale (EPS) developed by Rovniak and colleagues (2002). This 10-item questionnaire asks questions that refer to how the participant fits exercise into their lifestyle (e.g., I never seem to have enough time to exercise; I plan my weekly exercise schedule). Participants rated each item on a 5-point scale ranging from 1 (does not describe) to 5 (describes completely).

This scale is scored by summing all the items and the range of total scores = 10 to 50. The EPS scale has exhibited good internal consistency and score stability over time on a study done with university students (Rovniak et al., 2002). Internal consistency of the EPS in the present study was good (baseline $a = 0.88$, follow-up $a = 0.88$).

Perceived Community Support

Perceived community support was assessed using a 6-item scale. The items were developed by examining previous questions that have been used to examine environmental factors associated with adults' participation in physical activity (Humpel et al., 2002). For the present study, we wanted to assess the community and the resources available in the community that facilitated physical activity. Participants were asked to rate how strongly they agreed with each of the items on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). Items were summed to create a total score, and internal consistency for the scale was acceptable (baseline $a = 0.72$, follow-up $a = 0.72$). The specific questions included:

It is easy for me to access places to be physically active indoors in my community.

It is easy for me to access places to be physically active outdoors in my community.

My campus promotes physical activity.

I often see others being physically active in my community.

I have friends to be physically active with in my community.

If I want to be physically active in my community, I can.

Physical Activity

This study utilized the International Physical Activity Questionnaire (IPAQ) Short-form, developed between 1997 and 1998 by an International Consensus Group, to assess physical activity behavior (Booth et al., 2000). Within this questionnaire, participants reported their daily physical activity in terms of frequency and duration of vigorous, moderate, and walking activities over the last seven days. Behaviors were described as the following to participants: Vigorous (activities that take hard physical effort and make you breathe much harder than normal), Moderate (activities that take moderate physical effort and make you breathe somewhat harder than normal), and Walking (this includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure). Metabolic equivalent minutes (MET-minutes) per week were calculated for each variable by multiplying the total minutes per week by the MET value for each activity. Also, participants were classified as engaging in low, moderate or high physical activity according to published scoring instructions (Booth, et al., 2000). In addition, participants reported time spent sitting on weekdays during the last 7 days in hours per day and minutes per day. Participants could include time spent at work, at home, while doing course work and during leisure time. The IPAQ's validity and reliability is comparable to other self-report measures, making it accepted world-wide (Craig et al., 2003).

Open Ended Questions

Physical activity barriers were assessed by the question "List the top 3 physical activity barriers that have made it challenging for you to stay active during the past month." Physical activity resources were assessed with the question "What physical activity resources have you used in the past month? (e.g., Rec Center, online workouts, local parks, etc.) Please be specific." Barriers and resources were assessed at both baseline and follow-up.

Program Evaluation

To obtain feedback regarding the EIM-OC campaign at Kansas State University, a brief program evaluation consisting of yes/no questions and open-ended questions was given to participants as part of the follow-up survey. The evaluation first asked, "Did you know that October was Exercise is Medicine On Campus month at K-State?" to determine if they were aware of EIM-OC or not. Participants were asked to describe how their physical activity behaviors changed during the month of October as well as whether they heard about or participated in any of the EIM-OC events. They also were asked how they heard of EIM-OC and if they thought the campaign had any impact on their physical activity beliefs or behaviors. Recommendations for improvements to EIM-OC were also collected with this survey.

EIM-OC Participation

The number of individuals who attended the Lunch and Learns were gathered by counting the total people who participated in the Zoom meetings. Additionally, the primary investigator kept track of the number of individuals who participated in the physical activity challenges every week.

Data Analysis

Data were analyzed using SPSS version 25 (IBM Corp, 2017). First, we examined the frequencies of respondents who said they had heard about EIM-OC month and its various components. Next, we conducted chi square analyses to determine whether EIM-OC awareness differed by major or year in school. To determine whether SCT variables changed from baseline to follow-up in the full sample, we conducted paired t-tests. Subsequently, we conducted repeated measures analyses of variance (ANOVAs) to examine whether changes in the SCT variables differed as a function of EIM-OC awareness. Because the IPAQ data were highly skewed, we conducted non-parametric Wilcoxon signed rank tests to examine changes in physical activity outcomes from baseline to follow-up. We repeated these analyses in subsamples of participants who had and had not heard of EIM-OC to determine whether physical activity changes were moderated by EIM awareness. The primary investigator read through all participants' reported barriers and resources and created numerical codes to categorize similar responses. The frequencies of all barriers and resources were then calculated at baseline and follow-up. The primary investigator also organized the qualitative feedback collected from the EIM-OC program evaluation and suggestions for improvement into key ideas by reading all comments and identifying common themes reported by multiple participants.

Chapter 3 - Results

Participant Characteristics

A total of 708 individuals clicked on the baseline survey but only 469 participants completed the survey. For the follow-up survey, 358 individuals clicked on the survey but of these, 337 participants actually completed the survey (71.85% of baseline sample). Demographic characteristics of the participants at baseline are presented in Table 3.1. A majority of the participants (77.2%) were female (n = 362), white (88.3%, n = 414), and part of the College of Health and Human Sciences (HHS; 50.5%, n = 237). The largest group (17.5%, n = 82) were kinesiology majors. Participants who completed the survey were relatively evenly distributed across year in school. A majority of participants (59.7%, n = 280) reported they were currently living off campus in Manhattan, 281 (59.9%) said they had to be physically present on campus this semester and 134 (28.6%) reported they were required to quarantine due to a COVID-related concern this semester.

Table 3.1.

Demographics of the Participants at Baseline

	Frequency
Gender	
Male	99 (21.1%)
Female	362 (77.2%)
Race	
Asian	14 (3.0%)
Black or African American	24 (5.1%)
American Indian or Alaskan Native	9 (1.9%)
Native Hawaiian or other Pacific Islander	3 (0.6%)
White	414 (88.3%)
Other	14 (3%)
Ethnicity	
Hispanic or Latino	44 (9.4%)
Not Hispanic or Latino	400 (85.3%)

Major	
Kinesiology major	82 (17.5%)
Not Kinesiology major	376 (80.2%)
College	
HHS	237 (50.5%)
Non-HHS	221 (47.1%)
Year in School	
Freshman	97 (20.7%)
Sophomore	89 (19%)
Junior	100 (21.3%)
Senior	89 (19%)
Graduate Student	86 (18.3%)
Current residence	
On campus	114 (24.3%)
Off campus in Manhattan	280 (59.7%)
Off campus outside of Manhattan	67 (14.3%)
In person classes	
Yes	281 (59.9%)
No	180 (38.4%)
Required to quarantine this semester	
Yes	134 (28.6%)
No	321 (68.4%)
Prefer not to answer	6 (1.3%)

Reach and Awareness of EIM Campaign

Table 3.2 displays the total number of individuals that attended the five Lunch and Learn presentations, including faculty and staff members. Attendance ranged from 21 to 60.

Table 3.2.

Lunch and Learn Participation

Topic	Date	Duration (minutes)	Participants
Health benefits of exposure to nature and nature-based physical activity	10/05	50	21
Staying active during the COVID-19 pandemic	10/15	51	23

Exercise, immune function and the COVID-19 pandemic	10/21	73	48
Multimodality imaging during cardiovascular stress testing	10/23	60	23
Exercise, COVID-19 and the physiology of masks	10/27	80	60

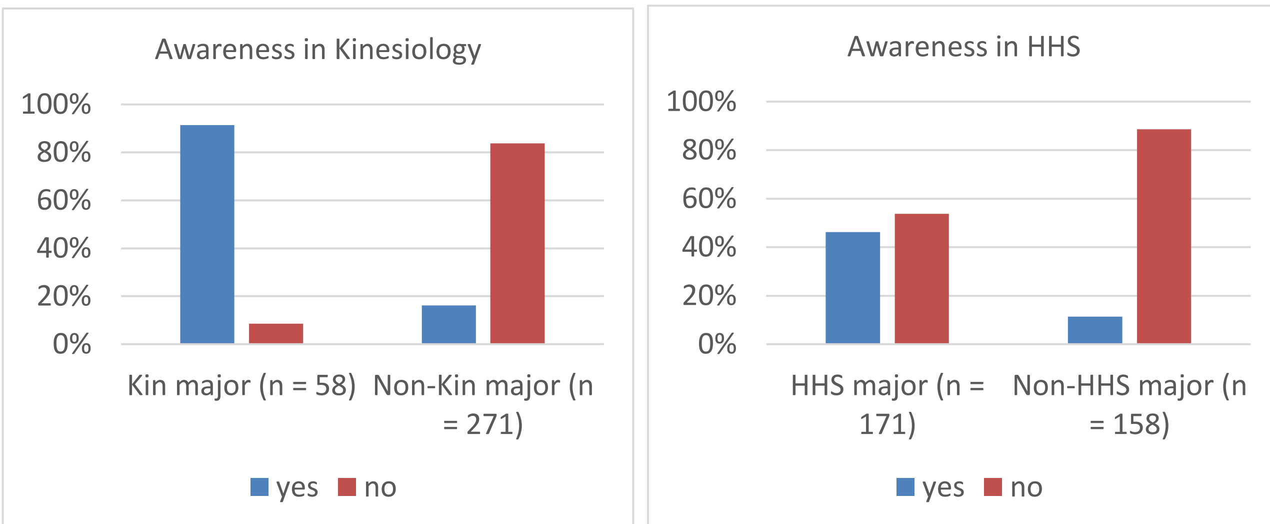
For the weekly physical activity challenges promoted on social media, a total of four individuals participated in the week 1 physical activity challenge “Rock it at the Rec”. Week 2 had only one participant who completed the “Step Away the Stress” challenge, for week 3 a total of 17participants completed the “Emoji Exercise Story” challenge, and week 4 had only two people complete the “Fill your Park Prescription” challenge. There were no submissions for the month-long bingo challenge.

Of the 337 participants who completed the follow up survey, 97 (28.8%) said they had heard of EIM-OC month at K-State. Regarding the EIM-OC events, 62 (18.4%) participants said they had heard of the distinguished lecture series, followed by 60 (17.8%) participants who said they had heard about the weekly challenges. A total of 33 (9.8%) participants who completed the survey said they viewed the distinguished lecture series presentation. When asked how they had heard about EIM-OC month, 63 (18.7%) participants said they heard about it from K-State today, 57 (16.9%) said they heard about it from an announcement in classes, and 54 (16.0%) said they heard about it in other emails.

Chi-square analysis showed that participants’ major was significantly associated with the likelihood that they had heard of EIM-OC. Specifically, 91.4 % of kinesiology majors who completed the follow-up survey had heard of EIM-OC, compared to 16.2% of non-kinesiology majors ($\chi^2 = 129.8$, $p < 0.001$). There was also a significant association with the college they were part of; 46.2% of HHS majors had heard of EIM-OC compared to 11.4% of non-HHS majors ($\chi^2 = 47.9$, $p < 0.001$) (see Figure 3.1). However, whether they had heard of EIM did not vary as a function of their year in school, ($\chi^2 = 1.4$, $p = 0.85$).

Figure 3.1.

Awareness of EIM-OC Campaign



Overall changes in Physical Activity and SCT variables pre and post EIM-OC month

Social Cognitive Theory variables

Descriptive statistics for the Social Cognitive Theory variables at the beginning and end of EIM-OC month are presented in Table 3.3. Results of the paired t-tests revealed there was a small but significant increase in participants' perceived community support score from baseline to follow-up ($t = -3.2$, $p = .002$). There were no significant changes in self-efficacy, outcome expectations, or self-regulation.

Table 3.3.

Social Cognitive Theory Variables at the Beginning and End of EIM-OC Month

Variable	Baseline *M (SD)*	Follow-up *M (SD)*	*p*
Self-Efficacy	53.7 (24.3)	52.4 (26.1)	0.16
Outcome Expectations	22 (3.1)	22.1 (3.4)	0.47
Self-Regulation	24.7 (9.0)	24.4 (9.0)	0.30
Perceived Community Support	23.1 (3.7)	23.6 (3.6)	0.002

Repeated measures ANOVAs examining whether changes in the SCT variables differed by EIM awareness showed that there were no significant group by time interaction effects for self-efficacy (F (1,330) = 2.57, p = 0.11), outcome expectations (F (1,331) = 0.50, p = 0.48), self-regulation (F (1,331) = 0.02, p = 0.89) or perceived community support (F (1,331) = 0.97, p = 0.33).

Physical Activity

Results of the Wilcoxon Signed Rank tests revealed that vigorous activity (Z = -2.78, p = 0.005), and total activity (Z = -3.08, p = 0.002) were significantly lower at follow-up compared to baseline. There were no significant differences between baseline and follow-up scores for moderate activity (Z = -1.13, p = 0.26), walking (Z = -0.27, p = 0.80), or sitting (Z = -0.17, p = 0.87). Descriptive statistics for each physical activity variable at the beginning and end of EIM-OC month are presented in Table 3.4.

Table 3.4.

Physical Activity Variables in the Total Sample and by EIM Awareness

Variable	Baseline *M (SD)*	Follow-up *M (SD)*	*p*
Vigorous PA overall	**1198 (1407)**	**1033 (1274)**	**0.005**
EIM aware	1254 (1432)	1134 (1298)	0.17
EIM unaware	**1221 (1437)**	**992 (1271)**	**0.01**
Moderate PA overall	880 (1467)	800 (1352)	0.26
EIM aware	1174 (1740)	962 (1296)	0.48
EIM unaware	855 (1518)	739 (1381)	0.39
Walking overall	1212 (1615)	1173 (1629)	0.79
EIM aware	1008 (1000)	1208 (1573)	0.40

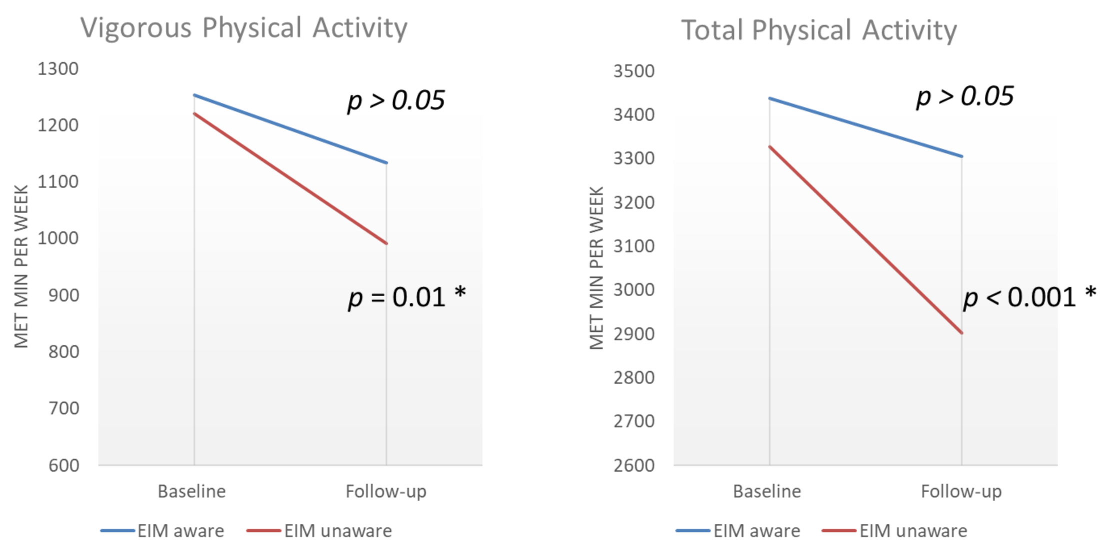
EIM unaware	1251 (1675)	1171 (1665)	0.43
Total overall	**3290 (3099)**	**3006 (3124)**	**0.002**
EIM aware	3437 (2919)	3306 (3007)	0.57
EIM unaware	**3328 (3195)**	**2902 (3188)**	**<0.001**
Sitting overall	430 (201)	431 (185)	0.87
EIM aware	406 (177)	389 (170)	0.21
EIM unaware	452 (197)	452 (188)	0.48

Note: Baseline n = 469 and Follow-up n = 337

We repeated the Wilcoxon tests in subsamples of participants who were aware and unaware of EIM-OC month. Vigorous activity (Z = -2.51, p = 0.01), and total activity (Z = -3.31, p <0.001) declined significantly in those who had not heard of EIM-OC, but did not change significantly among those who had heard of EIM-OC (see Figure 3.2).

Figure 3.2.

Changes in Vigorous and Total Physical Activity by EIM Awareness



An additional survey question asked participants to report whether their physical activity had increased, decreased, or stayed the same during the past month. Of those who completed the follow-up survey, 78 (23.1%) said their physical activity increased, 113

(33.5%) said it decreased, and 114 (33.8%) said there were no changes in their physical activity. Most people who reported increased physical activity said it was because they were becoming more active during quarantine, they started going to the Rec more, and they included exercise in their daily routine. Some common things participants reported to justify their decline in physical activity were the weather, stress, lack of motivation and being busy with school.

Recommendations for Improving EIM-OC

The recommendations for improvements to EIM-OC are summarized in Table 3.5 along with some participant quotes. Most of the recommendations were focused on ways to promote the awareness of the campaign. Key categories for improvement included: 1) greater variety of promotion strategies, 2) reach out of the Kinesiology department, 3) offer more incentives and prizes to increase attendance and participation (food or items), and 4) offer events that breed competition/bigger and more events.

Table 3.5.

Recommendations for Improvements to EIM-OC

Improvement Category	Participant quotes
Greater variety of promotion strategies	"With everyone being on campus less this semester I have noticed that there is a lack of knowledge about upcoming events." "It's hard to get the message out to students, especially with Covid. Maybe try and set up events in the future and mail out a schedule or a reminder. Or sending email reminders out that the events were happening." "Post about it in campus and be a guest speaker in class on zoom." "I would recommend improving outreach and maybe even as much as an endorsement and promotion coming from President Richard Myers's office." "You can probably ask some professors or advisors to let their students know."

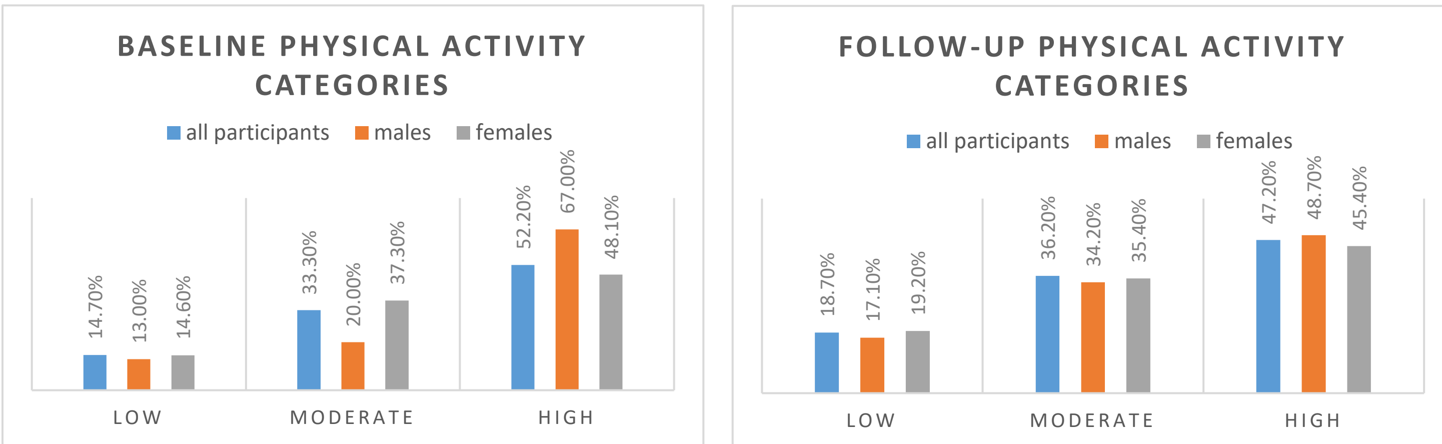
Reach out of the Kinesiology department	"I think to make it more well-known; I do not think people hear about it unless they are kinesiology majors." "Heavier publications, making sure people outside of the communities closest to being fit are also as aware of what is going on." "The inclusion of the "Faculty Lunch and Learns" is a great way to reach undergrads within the Kinesiology Department. However, finding a way to reach students outside of the department of Kinesiology may go a long way in promoting exercise is medicine campus wide."
Offer more incentives and prizes to increase attendance and participation (food or items)	"I would recommend perhaps a stand or small prizes give away? Maybe an activity where people would turn in exercise points for something small like a keychain or sticker at the kinesiology office?" "People love prizes so I would incorporate more of those and maybe partner with the rec more."
Events that breed competition/ bigger and more events	"Since I'm not on campus maybe some kind of motivational game for those of us doing online school?" "Incorporate fun exercise challenges like a 5k, strength competition, relay race, and other group activities." "Workshops to help engage people in different kinds of exercise they may enjoy." "I like exercise routines that fit in with another activity. For example, every time your professor says ____do 10 push-ups."

Physical Activity Behaviors, Barriers and Resources during COVID-19

Overall, roughly half of the sample was classified as high active. Chi-square analysis showed that there was a significant association between gender and activity level at baseline. Males were more likely to be classified as high active than females (χ^2 = 12.5, p = 0.002). However, gender was no longer associated with physical activity level at follow-up (χ^2 = 0.304, p = 0.86). The chi square analysis indicated that there were no significant association between physical activity level and year in school. Frequencies of participants' activity levels at baseline and follow-up based on their gender are presented in Figure 3.3 below.

Figure 3.3.

IPAQ Activity Classifications at Baseline and Follow-up by Gender



*Baseline n = 469 and Follow-up n = 337

The top five most common barriers reported at baseline and follow-up are summarized in Table 3.6 below. Being busy, having lack of time, school and motivation were commonly reported barriers at both baseline and follow-up; however, weather was the third most common barrier at follow-up and COVID-related restrictions went from being the most common barrier to exercise at baseline to being the fifth most common barrier at follow-up. Other barriers mentioned less often included work, mental health (stress/depression, mood), tired/lack of sleep, lack of energy, illness/injuries or physical disability, not having someone to exercise with, family issues and others.

Table 3.6.

Most Common Barriers Reported at Baseline and Follow-up

Baseline	Follow-up
COVID-related restrictions (n = 299)	Busy/Lack of time (n = 153)
Busy/Lack of time (n = 164)	School (n = 131)
Motivation/Laziness (n = 147)	Weather (n = 124)
School (n = 136)	Motivation/Laziness (n = 99)

Lack of resources / Distance (n = 87)	COVID-related restrictions (n = 81)

The top 5 most common physical activity resources at baseline and follow-up are summarized in Table 3.7 below. Park/ outdoors/ neighborhood/sidewalks/trails were the most common resources at baseline but at follow-up, K-State resources such as the Rec, memorial stadium, and K-State CrossFit were more common. However, the same resources remained in the top five at baseline and at follow-up. Other resources mentioned less often included apartment/ home equipment, and work

Table 3.7.

Most Common Physical Activity Resources at Baseline and Follow-up

Baseline	Follow-up
Park/ outdoors/ neighborhood/sidewalks/trails (n = 166)	Rec/memorial stadium/ CrossFit (n = 108)
Rec/memorial stadium/ CrossFit (n = 138)	Park/ outdoors/ neighborhood/sidewalks/trails (n = 92)
Online workouts/apps (n = 110)	Online workouts/apps (n = 68)
YMCA/Gym (n = 20)	None (33)
None (n = 17)	YMCA/Gym (n = 15)

Chapter 4 - Discussion

This study was designed to evaluate the reach and effectiveness of the virtual EIM-OC campaign at Kansas State University and its effects on college students' physical activity behaviors and selected social cognitive theory (SCT) variables. Overall, results showed decreases in total physical activity, which appeared to be attenuated by awareness of EIM-OC. However, those aware of EIM-OC were primarily Kinesiology and Health and Human Sciences majors. There were no changes in the SCT variables studied other than a small increase in perceived community support.

The relative lack of changes can likely be explained by the limited reach and awareness of the campaign. Over 70% of participants had not heard of EIM-OC, and participation in EIM-OC activities was low. Similar to our study, Melton et al. (2106) found that about 6% of the campus population participated in EIM®-OC events. In comparison, a study by Bopp et al. (2015) found that 54% of 100 randomly surveyed students had heard about EIM at Pennsylvania State University, compared to our study where only 28% had heard of EIM-OC. This could be explained by the fact that exercise stations were one of the most important components in the Penn State campaign, as they drew large numbers of individuals to engage in short bouts of activity as well as to hear educational messages about the importance of exercise for health. We suggest a combination of both in-person and virtual events in the future when it is safe to do so.

The awareness of EIM-OC at Kansas State University was high within, but not outside of the Kinesiology department. Kinesiology students were significantly more likely to have heard of EIM-OC than non-Kinesiology students. Additionally, participation in the social media challenges was minimal and there was low engagement in many of the virtual activities. Because the EIM-OC campaign took place more than six months into the COVID-19 pandemic, students may have been reluctant to spend more time on a screen doing virtual activities. Together, these results suggest additional strategies should be implemented to improve the promotion of EIM-OC across campus. Indeed, many of the participants' suggestions for improvements were focused on ways to promote the awareness of the campaign. Some of the recommended strategies involved sending out more email reminders, creating a schedule, and advertising activities and events happening during the month of October. Research from other universities also suggests building partnerships may help with awareness of EIM-OC. At the University of North Carolina at Chapel Hill (UNC), the most important contribution to the success of EIM-OC was the development and maintenance of partnerships across and beyond campus such as the Department of Sport and Exercise Science, Campus Health, Campus Recreation, and an EIM-OC undergraduate club (Stanford, 2020). The study also recommended identifying resources local to the participant's location, such as trails, and complimenting with virtual options, including Campus Recreation's fitness classes (Stanford). Similar to these findings, we found that promotion of the resources and options that are available is very important because they are only effective if students know about them.

There were small improvements in the students' perceived community support from the beginning to end of EIM-OC month. Overall, the campaign helped increase awareness of campus resources for physical activity. Addy and colleagues (2004) found that increasing awareness and use of environmental supports already available in neighborhoods may be cost-effective for increasing physical activity and walking. Marketing programs could be utilized to promote the availability of trails that are within close proximity to large populations of residents (Reed et al., 2004). In this study, the top physical activity resources that participants reported using the most included outdoor and campus spaces such as parks, neighborhood sidewalks, trails, the Rec center, memorial stadium, gyms, and online resources. Students' choices to prioritize use of outdoor resources was likely influenced by the COVID-19 pandemic. We recommend regularly updating the website where information regarding EIM-OC activities and community resources can be posted and easily accessed by students. As well as featuring EIM-OC on the ksu.edu landing page.

Overall decreases in vigorous and total physical activity were reported at follow-up. Not surprisingly, weather was reported to be a common barrier at follow-up as well as an increase in academic demands at that time in the semester. Some of the most common things participants reported to justify their decline in physical activity were the weather, stress, lack of motivation and being busy with school. Some participants reported that their levels of physical activity did not decline from baseline to follow-up. Previous research found lack of time, laziness, motivation and other priorities as the most common barriers to exercise in college aged populations (Ebben & Brudzynski, 2008). Similar barriers were found in this study, although students also discussed some barriers specific to COVID-19. However, COVID-related barriers went down as students reported other barriers at follow-up, which suggests that students were more comfortable with COVID restrictions and found other ways to be active as the semester went on. Awareness of EIM-OC may have helped attenuate declines in physical activity, but this could be explained by the fact that those aware of EIM-OC were primarily kinesiology students. These students may have a better understanding of challenges related to physical activity behaviors, but they also have the knowledge of how to overcome some of them. Kinesiology departments have a mission to promote physical activity, and one method of doing so is to educate students and provide them with the knowledge and experiences to influence individuals to be active (Lagally et al., 2019).

Overall, about half of the participants were classified as high active. Because these activity levels are higher than those typically reported in college students, this suggests that this sample may have been more active or inclined to be active than the general college aged population. An estimated 40 to 45% of college students engage in fitness activities regularly (≥3 days/week) (CDC, 1997). Unlike these findings, results from a study by Huang et al. (2003) showed that high proportion of college students' physical activity levels remain below recommended standards. Also, when using the IPAQ questionnaires people tend to over report their physical activity (Rzewnicki et al., 2003), so this may also have contributed to the high reported activity levels. Despite extensive testing, there is a likelihood of misreporting physical activity on the IPAQ due to challenges in recall and cross-cultural differences in reporting total physical activity (Bauman, et al 2009).

There are several limitations of this study to be acknowledged. Promotion of EIM-OC on social media was not as effective as anticipated, and engagement on social media was low. The social media accounts related to EIM-OC were not very well known by the students at K-State as they were created for this year's virtual campaign. We recommend staying active on social media platforms throughout the year and starting to promote the EIM-OC events days or even weeks before the month of October. Also, the information gathered was self-reported and the sample might not be representative of all college students, or the K-State population. To improve the validity of the data, objective measures of physical activity will be needed. Other limitations to be noted include: the surveys did not ask about quarantine at the time of survey completion, there were no images of EIM-OC content included in follow-up awareness questions to prompt recall, and the study did not evaluate faculty/staff awareness of or participation in EIM-OC. Additionally, the fact that we were living through a pandemic may have impacted participation in the study. The EIM-OC campaign could have been competing with students' other priorities and low participation could be explained by the presence of virtual program fatigue. Despite these limitations, study strengths include the fairly large sample size and, as mentioned before, the EIM-OC campaign has never been evaluated at K-State. This is the first step and valuable information was gained that can be used to improve the campaign in the future. This study can be repeated and different measures can be taken to evaluate the future reach and effectiveness of the campaign.

Future Directions

As a recommend next step, we recommend collaborating with the university's student health center to create a referral program that links health care professionals to the exercise practitioners. A referral program implemented at Slippery Rock University, includes the campus health center adding physical activity to their vital signs and treatment paradigm (Lynn et al., 2015). They refer patients to exercise practitioners (senior exercise science interns) who provide individualized exercise programs using the recreation center as the venue. The process of this program involves screening students for physical activity participation (the new vital sign), when visiting the health center for non-emergent care (Lynn et al., 2015). Based on the reported physical activity, students not meeting the physical activity guidelines are counseled on physical activity and offered a referral to receive personalized guidance for their own physical activity program. The program was successful as individual patients have made improvements in exercise self-efficacy, healthy behaviors, and health-related physical fitness (Lynn et al., 2015).

Many studies have shown the need for exercise and physical activity promotion at universities. Noting the limitations of our study, better promotion and outreach by the kinesiology department may help improve the reach of the EIM-OC campaign. As stated by some participants, “finding a way to reach students outside of the department of Kinesiology may go a long way in promoting exercise is medicine campus wide.” Other suggestions include offering more incentives and prizes to increase attendance and participation as well as incorporating events that breed competition. “Incorporate fun exercise challenges like a 5k, strength competition, relay race, and other group activities,” a student suggested.

Similar to findings previously discussed, we believe that partnering with more campus organizations such as the university’s health center and counseling services will have a bigger impact on students’ awareness of EIM-OC. The EIM-OC committee partnered with Counseling Services this year and has partnered with Lafene Health Center in previous years. However, stronger connections and partnerships should be created to have these organizations more actively involved in the campaign for physical activity promotion (e.g., incorporating physical activity recommendations and referrals during appointments). Additionally, the promotion of the campaign should start sooner than a week before October to build a social media network and have a greater outreach to students as well as focusing on faculty and staff. Getting more students to volunteer and help promote EIM-OC early on will be beneficial, and inviting more ambassadors from different colleges to get involved will have a greater impact on the participation as well. Wilson et al. (2018, found that less than half of institutions that had registered for EIM-OC had an EIM certified ambassador. Therefore, we emphasize the need to get more ambassadors involved in the EIM-OC campaigns. Additionally, we recommend trying to examine the relationships between participation in EIM-OC events and outcomes such as physical activity participation.

Conclusion

Overall, we were able to creatively adapt to the COVID-19 pandemic to deliver and evaluate the EIM-OC campaign, but future studies will need to consider implementing some changes to have a better impact on students' physical activity behaviors. Evaluating the campaign for the first time at K-State creates new opportunities to improve in the upcoming years. Better promotion strategies will also be needed to reach more students outside of the kinesiology department.

Chapter 5 - References

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Appendix A - Weekly Physical Activity Challenge Flyers

Figure 5.1.

Week 1 Challenge: Rock it at the Rec

Figure 5.2.

Week 2 Challenge: Step Away the Stress

Figure 5.3.

Week 3 Challenge: Emoji Exercise Story

Figure 5.4.

Week 4 Challenge: Fill Your Park Prescription

Appendix B - Bingo Card

Exercise is Medicine On Campus

KANSAS STATE UNIVERSITY | Department of Kinesiology

E	I	M	O	C
Complete a workout from a fitness app	Attend a free Intro to CrossFit class at K-State CrossFit	Call a friend or family member while you walk	Walk or jog a lap around City Park	Air-squats at Ahearn
Play a sport with a friend or family member	Try a Zoom class from the Rec	Stand during your next Zoom class or meeting	Try the Fit Trail at CiCo Park	Burpees on Bosco Plaza
Rake or make a pile of leaves and jump into it	Participate in an EIM-OC weekly challenge	FREE ★	Walk or bike to an errand when you would normally drive	Jumping Jacks by Justin
Go for a walk in your neighbor-hood and find a Powercat	Try a new type of physical activity	Try a mindfulness meditation	Get at least 30 min. of physical activity every day for a week	Lunges by the Library
Walk or jog a lap at the WWI Memorial Stadium	Stretch for 15 minutes	Park in the farthest spot from your destination	Break a sweat	Mountain climbers by McCain

Directions: For each item completed, record what you did and the date and time you completed the activity. By Monday, 11/2/2020, submit a picture of your EIMOC card with completed squares marked off along with your list of activities to eim.oc.ksu@gmail.com.

We will have a grand prize drawing for those who complete the entire card (blackout) and additional prize drawings for those who have at least one EIMOC (horizontal, vertical, or diagonal). *As you complete the squares, sharing with us on social media is encouraged!*

@KStateKines kstatekines eim.ksu

Appendix C - Distinguished Lecture Series Flyer

Appendix D - SCT Variables Related Materials

Figure 5.5.

SCT Construct: Self-Efficacy 1

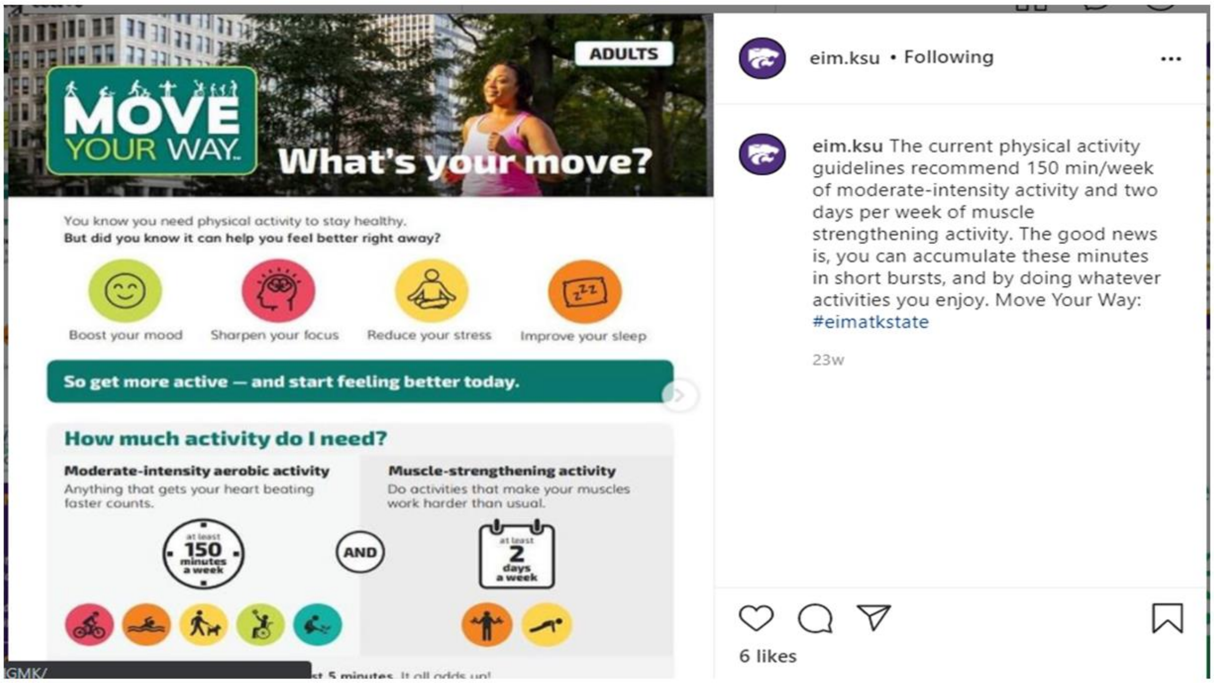


Figure 5.6.

SCT Construct: Self-Efficacy 2

Figure 5.7.

SCT Construct: Goals/Self-Regulation 1

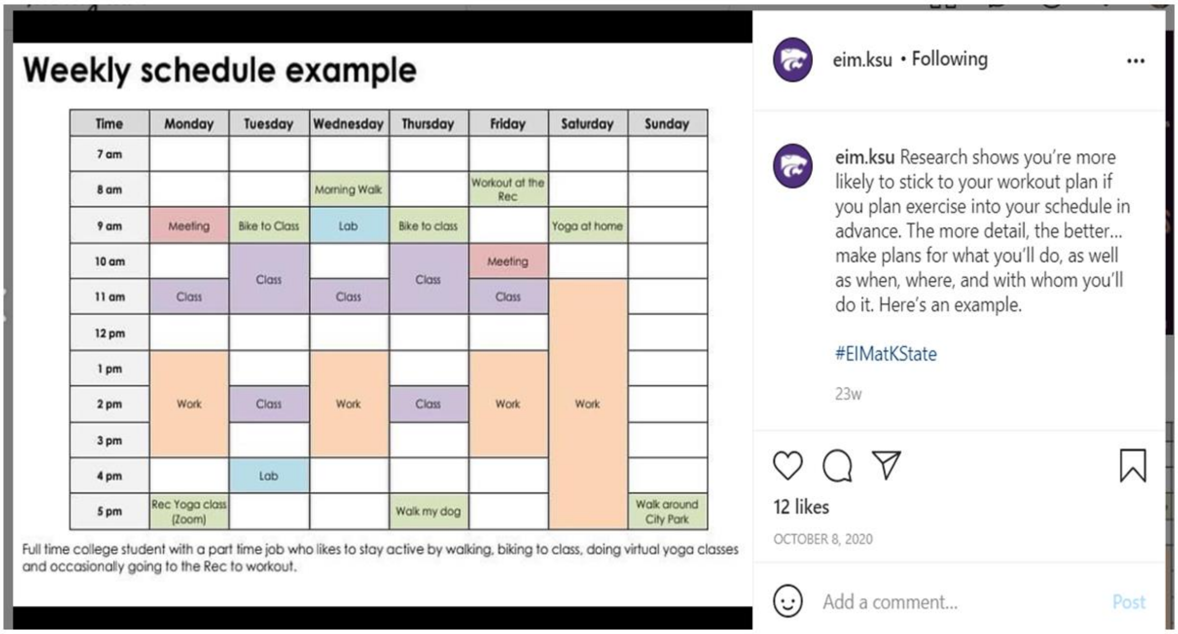


Figure 5.8.

SCT Construct: Goals/Self-Regulation 2

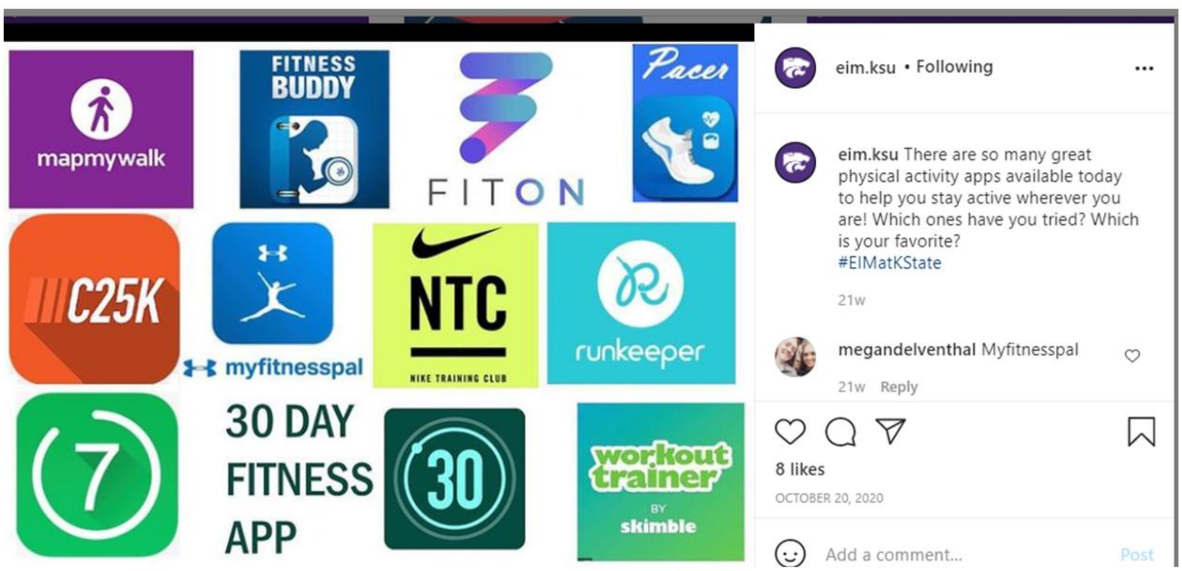


Figure 5.9.

SCT Construct: Sociostructural Factors

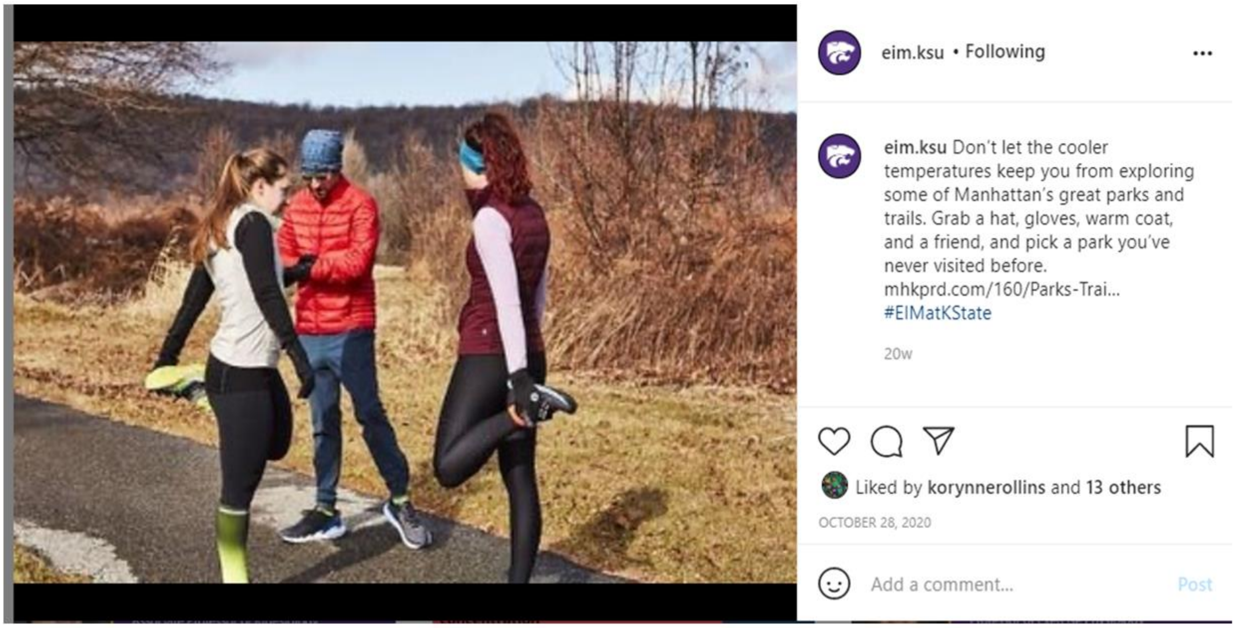


Figure 5.10.

SCT Construct: Outcome Expectations 1

Figure 5.11.

SCT Construct: Outcome Expectations 2

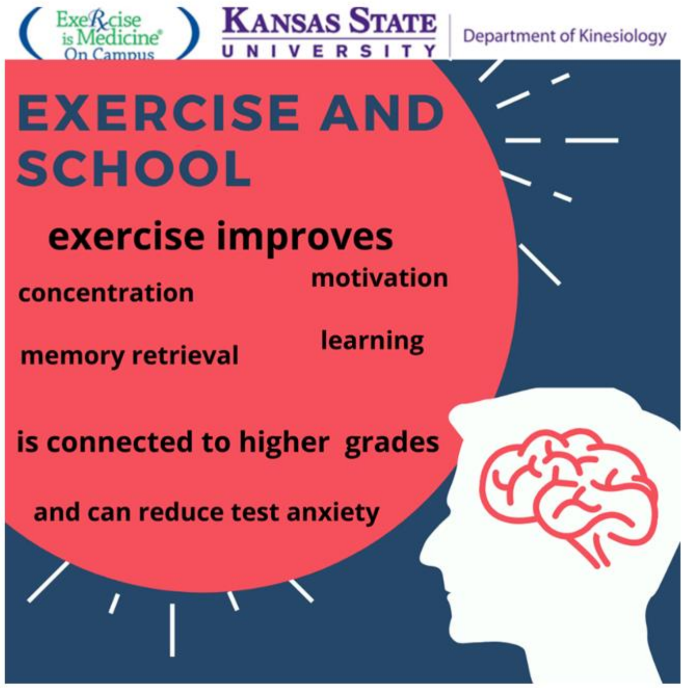
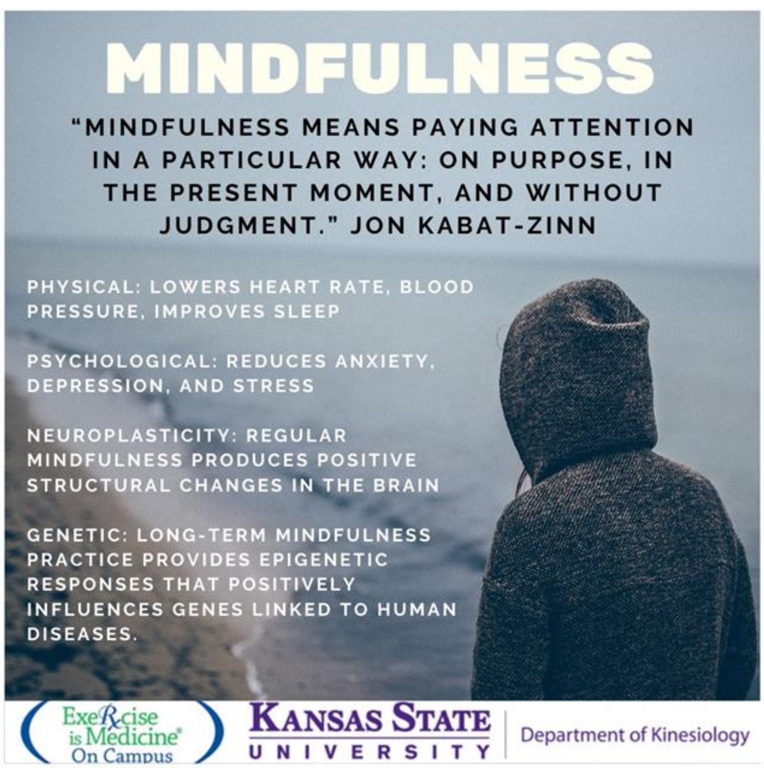


Figure 5.12.

Mindfulness Walk



Appendix E - Baseline Survey Flyer

How has COVID-19 impacted your behaviors?

Complete the survey by Oct. 4th to be entered in a drawing to win one of ten **$20 gift cards**!

All Kansas State students are invited to take this survey:

LINK: https://bit.ly/338b9qb

QR CODE:

KSU IRB Approval #: 10251

ExeRcise is Medicine On Campus

KANSAS STATE College of Health and Human Sciences