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Original Research

A Qualitative Evaluation of Exercise Habits and Stress Management Strategies Among Exercise Physiology Freshmen

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ABSTRACT

Educational Practices in Kinesiology 4(1): Article 5, 2024. Transitional phases of life (i.e., the passage from high school to college) can promote heightened stress levels resulting in physical and mental challenges. College students are at an elevated risk for common mental health disorders with 20-45% of all college students being impacted within a given year. This may be, in part, due to their exposure to a multitude of new stressors related to academics, social challenges, personal concerns, and economic issues. Therefore, the purpose of this qualitative study was to examine exercise habits and stress management strategies among incoming freshmen in an exercise physiology program. The overall goal of this work was to identify potential programmatic strategies to support students in reducing stress, improving physical activity patterns, and reducing the incidence of mental health disorders. First-time, full-time freshmen (N = 266) majoring in exercise physiology completed a 200-word self-reflection activity responding to prompts on exercise and stress. A retrospective review of responses was thematically analyzed using standard qualitative analysis techniques. Three primary findings related to exercise habits and stress management strategies emerged: reduction of physical activity, engagement in high school sports, and talking with friends and family. Overall, the findings of this study confirm there is a high level of readiness at the start of college, but a decline in physical activity over the first semester. Recommendations moving forward are to explore options for first term interventions and education that incorporate both physical and social components while incorporating sport (i.e., integrating physical activity programs into first-year courses).

KEY WORDS: Fitness, mental wellness, college

INTRODUCTION

Stress is linked to a myriad of physical and mental health concerns; 60-80% of medical visits are associated with stress-related issues (Avey et al., 2003). Stress can manifest as a mental health disorder, including anxiety and depression, or a physical concern, such as headaches (Cathcart et al., 2010), obesity (van der Valk et al., 2018), or heart disease (Levine, 2022). Moreover, transitional phases in life, such as the passage from high school to college, can promote heightened stress levels resulting in physical and mental challenges (Gordon-Larsen et al., 2004; Qiao & Huang, 2022).

Indeed, college students are at an elevated risk for common mental health disorders with 20-45% of all college students being impacted within a given year (Auerbach et al., 2016; Blanco et al., 2008). This may be, in part, due to their exposure to a multitude of new stressors related to academics, social challenges, personal concerns, and economic issues (American College Health Association, 2009).

Despite the prevalence of mental health issues among college students, they commonly go untreated due to perceived stigmatization, negative attitudes towards treatment, time constraints, cultural values, lack of recognition, or preference for self-management (Ebert et al., 2019; Eisenberg et al., 2009; Han & Pong, 2015). Students in exercise physiology and related programs (e.g., exercise science) may have high perceived stress due to the rigorous course load and emphasis on academic performance to promote acceptance to professional programs.

Exercise has long been noted to decrease stress among various populations (Garber, 2017; Rostad & Long, 1996; Salmon, 2001), offering protective effects in relation to anxiety and depression (Bland et al., 2014; US Department of Health and Human Services, 1996). While physical activity may promote positive mental health in college students, activity levels within this cohort are low (Bland et al., 2014; Downs & Ashton, 2011). Physical health may deteriorate during the transition from high school to college (LaCaille et al., 2011) with physical activity levels showing a decline from a reported 65% of high school students being physically active to only 38% of college students (Grunbaum et al., 2004). The primary barrier associated with not participating in regular physical activity is "lack of time" and, within the present rigorous exercise physiology program, this barrier may be exacerbated due to programs' academic demands.

Exercise can serve as a profound coping mechanism for stress: it supports and promotes both physical and mental health, thereby reducing the overall impact of stress. Though exercise is a promising intervention, perceived stress can increase sedentary behaviors and reduce physical activity (Cruz et al., n.d.). Among students transitioning to college, the decrement in physical activity results in increased risk for cognitive, social, personal, and physiological risks (Qiao & Huang, 2022; Wallace et al., 2000). To understand this shift, motivational readiness should be explored and identifying planned and executed exercise-related coping mechanisms for stress management may be valuable.

The Transtheoretical Model (TTM) of behavior change has been used to describe motivational readiness to engage in physical activity and may assist in illustrating the reasoning behind shifts in exercise. The TTM depicts a continuum of behavioral change of precontemplation, contemplation, preparation, action, and maintenance (Prochaska & Diclemente, 1982). The TTM is one of the most extensively utilized and supported programs for health promotion, including exercise (Spencer et al., 2006). Importantly, understanding the readiness for individuals to begin or continue exercise programs at the onset of their freshman year could play an important role in adoption of physical activity. Therefore, the purpose of this qualitative study was to examine exercise habits and stress management strategies among incoming freshmen in an exercise physiology program. The overall goal of this work was to identify potential programmatic strategies to support students in reducing stress, improving physical activity patterns, and reducing the incidence of mental health disorders.

METHODS

Participants

This study received IRB approval (#1807211250) from West Virginia University (WVU) and followed procedures in accordance with the ethical standards of the Helsinki Declaration. At total of 288 first-time, full-time freshmen majoring in exercise physiology enrolled in a first-year seminar orientation course in the fall of 2020 were recruited into the study. The course is a requirement by the university and is overseen by the centralized Center for Learning Advising and Student Success (CLASS). While the learning outcomes are universal across the university, the assignments and teaching methods are at the instructor's discretion and may cater to the specific major. Exercise physiology is a science, technology, engineering, and mathematics (STEM) based program housed in the School of Medicine in the Health Science Center at a land grant R1 research institution. Students matriculating through the program often seek to apply to graduate programs within medicine, dentistry, physical therapy, and pharmacy. For these reasons, a focus on developing academic success skills as well as exposing students to career opportunities within the field of exercise physiology is emphasized within the seminar.

Procedures

The first assignment of the course, in the first week of the semester (pre), required students to complete a 200-word self-reflection activity responding to prompts. The first prompt assessed students' perceptions of their own exercise habits, *"Do you exercise on a regular basis? If so, will you continue this throughout the semester? How so? If not, do you intend to start? How so?"* The second prompt asked students to reflect on stress management, *"What strategies do you use to manage stress? How will you balance mental and physical health with a challenging major like Exercise Physiology?"*

The final assignment of the course, in the last week of the 15-week semester (post), required students to complete a 200-word self-reflection activity responding to prompts. The first prompt assessed students' perceptions of their own exercise habits, *"Did you exercise as much as you thought you would and on a regular basis throughout the entire semester?"* The second prompt asked students to reflect on what stress management strategies they used during the semester, *"What strategies did you use to manage stress? How was this successful? What will you incorporate moving forward in your undergraduate career?"*

Complete submissions were awarded full points by the course instructor regardless of the response (i.e., points for completion). Responses were exported in an Excel document and all identifying information was removed from the file. Research assistants retrospectively reviewed all de-identified submissions using the qualitative methodology described below.

Data Analysis

Written responses were submitted into the learning management platform due to the large data set, and then exported into a Microsoft Excel sheet. All identifying data were removed and the de-identified data were analyzed. Thematic analysis was used, and standard qualitative analysis

employed. Two independent researchers analyzed the compiled qualitative responses from the written reflections. An additional researcher was used as a tiebreaker when necessary. Themes in the data were identified independently by the researchers and then the results were compared for congruence and discussed to reach a consensus on all themes. Initially, each line of the text was analyzed to active, specific, and short codes using the grounded theory approach. Grounded theory is a qualitative research methodology that aims to generate or discover a theory that is grounded in the data systematically gathered and analyzed (Corbin & Strauss, 1990). More focused codes were derived from the initial codes to create categorical themes in the emerging findings. The specific methodology included: reviewing each written response and assigning numeric codes for all identified themes. The total number of responses that identified a given number code was summed using Microsoft Excel's "IF" function. Then, Conditional Formatting was applied to all numeric codes and Color Scales were applied using green, yellow, and red. Green numeric codes were identified as major themes and red numeric codes were identified as minor themes. The yellow codes represented themes that were neither major nor minor but fell in between.

■ RESULTS

A pre-post survey asking open-ended questions concerning stress management strategies and exercise was completed by 266 freshmen students entering an exercise physiology major. Major and minor themes were determined.

When asked about stress management strategies at the onset of the semester, exercise and movement were major themes (see Table 1). Commonly reported exercise-related activities included weightlifting, sports, dance, yoga, and walking. Example student responses included:

- *"To manage stress, I have found that working out and weightlifting help me to keep my mind off of different topics as well as a stress reliever. Working out has also helped me to balance my physical health all at once."*
- *"I have soccer to manage my stress because when I play everything else in the world doesn't matter."*
- *"My love of dance definitely helps my mental state and happens to be good physical exercise at the same time. Going into class and just concentrating on the different movements and music helps clear my head and give it a break from all the school material."*
- *"I love the peace it gives me. I like that I can meditate and reflect on many life events. I would argue that when I practice yoga, I am at my most peaceful."*
- *"If I am feeling stressed out, a nice walk around the block will surely decrease some stress."*

Other major themes included taking a nap and talking with friends or family. Sedentary behaviors were also represented as both major and minor themes concerning stress reduction strategies. Example responses included:

- *"Another strategy I have for dealing with stress is by going to talk to my parents or siblings, that way I can just clear my head for a bit and get to spend some time with some of the people I love and care about."*

- *"I feel that most of the time when I get stressed out, I am also tired as well. After taking a nap, I feel like I can accomplish a lot more."*

Table 1. Major and minor themes for stress management

Major Themes	
Pre	Post
Exercise ● Weightlifting ● Sports ● Dance ● Yoga ● Walking **Sedentary Behaviors** ● Napping **Talking with Family or Friends**	**Sedentary Behaviors** ● Taking breaks ○ Television ○ Nap ○ Eat ○ Video games ○ Pets ○ Crying ○ Self-care **Talking with Friends or Family**
Minor Themes	
Pre	Post
Sedentary Behaviors ● Watching television ● Playing video games ● Engaging in social media	**Exercise** ● Weightlifting ● Walking ● Running ● Yoga ● Sports **Hobbies**

Minor themes included watching television, playing video games, and engaging with social media. Examples of student comments include:

- *"One way I manage my stress is to stop what I am doing and take a quick TV break. I would say that TV is one of my guilty pleasures and when I am super stressed, that is my go-to."*
- *"To manage stress, I like to play random video games."*
- *"Social media can be a time sucker for many people but it puts my mind in a happier place when I am feeling sad or overwhelmed*."

The post-semester survey revealed the major themes for successful stress reduction strategies focused on engaging with friends or family and sedentary behaviors, including watching television,

napping, engaging with pets, playing video games, crying, and self-care, such as sleep. Example student statements include:

- *"I called my mom and friends a lot to talk when I was stressed. This was successful because they made me feel better and not so alone."*
- *"If I was just having a bad day and everything felt like it was going wrong, I would set a timer for however long I needed, and relaxed in my bed watching some TV to calm myself down."*
- *"The best strategy I used for managing stress was taking a nap. No longer than 20 minutes. It's just so refreshing."*
- *"I would play with my new puppy when I get stressed. It just made me happy because I love him."*
- *"To manage stress I play video games and hang out with my girlfriend or friends."*
- *"Honestly, I cried multiple times a week. It may not seem like the best relief of stress, but it genuinely helped me. Letting it all out was my way of showing that, 'hey it's tough right now but we will get through it.'"*
- *"I also fixed my sleep schedule to get consistent hours of sleep which allowed me to relieve some stress."*

Minor themes for stress management included physical activity, scholastic organization, and using mental health resources (see Table 1). Students indicated:

- *"I use the gym as my outlet for stress."*
- *"I planned my days in advance so that I would accomplish everything I needed to and would not get backed up on my work or any other responsibilities. I also attempted to keep a prioritized to-do list that helped me keep up and not get stressed and overwhelmed."*
- *"I have a therapist that I talk to on a regular basis, and it is very good because it helps me get things off my chest that I am worried about and stressed about."*

The incoming freshmen cohort were also asked about their exercise habits (see Table 2). The major themes included reflecting on participation in sports during their high school years. A student comment included:

- *"Throughout high school I always had something to keep me busy. I was a part of the marching band, cheerleading, track and field, and robotics. Those four things always kept me moving, whether it was practicing or competitions."*

Minor themes included exercising outside, not exercising due to barriers, participation in collegiate sports, and utilizing gym-based exercise. Example student statements include:

- *"Running has always been enjoyable for me, especially since it is hard to worry about life when you are focused on breathing."*
- *"Since school has started, I haven't been keeping up with physical activity as much as I did. It (school) has taken a lot of time on top of work."*
- *"I am very lucky that I am able to be a part of the women's soccer team here at West Virginia University. We practice 5 times a week, lift 2 times a week, have a game once a week, and then*

1 day off. The practices and lifts are always very intense, and these will help me stay in shape while still in college."

- *"I also enjoy lifting and I hope to get bigger muscles."*

Table 2. Major and minor themes for exercise habits

Major Themes	
Pre	Post
High School Sport	**Did not/Inconsistent with Exercise** ● Motivation ○ No Workout Partner ● Access ○ Facility Closed ○ No Membership ○ Cost ● Lack of Time ○ School ○ Sleep ● Fear of COVID-19 ● Planning ○ Next Semester **For Stress Relief**
Minor Themes	
Pre	Post
Outdoor Physical Activities **Did not/Inconsistent with Exercise** ● Choose not to participate ● Do not participate due to perceived barriers ○ Lack of time ○ Need for a routine ○ Access ▪ Cost ○ Motivation **Motivators** ● Weight loss ● Fitness and health ● Stress relief ● Self-esteem ● Exploration ● Boredom **Participating in Collegiate Athletics**	**Improved Exercise Participation** ● Improved exercise time ○ Lost weight ○ Better habits ● Break from academics ○ Refreshed ○ Stress management ● Participation in collegiate athletics ● Boredom ● Walking ● Running ● Weightlifting ● Recreational activities ○ Time with friends ● Yoga

Motivators and barriers were also minor themes that appeared when asked about exercise (see Table 2). Motivators included weight loss, fitness and health, stress relief, self-esteem, exploration, and boredom. Some example student statements follow:

- *"What I am hoping to accomplish during my time here is to finish my weight loss journey and becoming more active."*
- *"I know that exercising is beneficial to every aspect of my health for the present and future. Therefore I plan to set time aside at least five days a week to exercise in some form. It will only have positive impacts on my mental and physical health, so I feel like it is definitely needed that I do this."*
- *"I feel like exercising is a great way to release stress as well as stay healthy."*
- *"…it also helps improve my self-esteem and makes me feel as if I have accomplished something for the day that is for myself."*
- *"I do want to continue running and exploring campus and I do want to become even more active."*
- *"I'm thinking about starting to work out more and more the longer I'm here because I get bored."*

Noted barriers to exercise were lack of time, need for a routine, access, cost, and motivation (see Table 2). Students indicated:

- *"I do not exercise, mostly because I never really have the time."*
- *"I hope to get into a regular habit and schedule once I get more used to the school schedule."*
- *"I was going to start working out once I got to WVU considering they have a nice recreational building with a gym, but now it is closed."*
- "*I have thought about getting a gym membership, but at the same time I am not sure if I could afford that, nor do I know if I would have time."*
- *"I would love to start working out and exercising again during my time here at WVU, but I am not motivated to do it right now."*

At the conclusion of the semester, students answered a post-semester survey comprised of complimentary questions. In relation to the students' exercise habits, the major theme that emerged was that the students did not, or were inconsistent with, exercise. Reasons for this included motivation, lack of time, fear of coronavirus (COVID-19), and planning. Students provided these example responses:

- *"Everything has been so physically exhausting that I never had the motivation to do anything else,"* access "*It also didn't help that the rec center has been closed and so I have been without the equipment that I have grown used to using and have had a hard time adjusting to at home workouts.*"
- "*I did not find a lot of time to exercise throughout that semester*."
- *"I have been scared to go anywhere to stay active."*
- "*I would like to exercise more frequently next semester so that I can feel better about my health. Exercising is a great stress reliever for me and I think this would help with that next semester*."

Minor themes reflected improvements in exercise participation noting improved exercise time, a break from academics, participation in organized sport in college, boredom, as well as mentions of walking, running, weightlifting, recreational activities, and yoga (see Table 2). Example responses included:

- *"I ran more than I expected. I thought I would do it once every 2 days but I went running daily and I improved my mile time from 9 minutes to 7 minutes which is good."*
- *"By stopping and following this routine I also think this helped me obtain the knowledge more because I got a break and had some time to regroup before returning back to the material."*
- *"I exercised consistently this semester due to soccer practices and lifts."*
- *"I exercises more than I thought I would, because there was nothing else to do."*

DISCUSSION

This qualitative study aimed to examine exercise habits and stress management strategies among incoming freshman in an exercise physiology program. The overall goal of this work was to identify potential programmatic strategies to support students in reducing stress, improving physical activity patterns, and reducing the incidence of mental health disorders. There were two primary findings relating to shifts in physical activity engagement. First, the theme of "not participating in exercise" transitioned from a minor theme at the start of the semester to a major theme at the end of the semester. Second, exercise was noted as a major theme for stress reduction at the onset of the semester and transitioned to a minor theme at the culmination of the term. These findings are in congruence with other research noting a decline in physical activity during the transition to college; however, they do illustrate a motivational readiness to engage in exercise at the commencement of the semester.

The TTM of behavior change has been used to describe motivational readiness to engage in physical activity and may assist in clarifying the reasoning behind the shift in exercise participation from a major to a minor theme. While exercise was reported as a major theme during the preliminary survey, motivators were listed as a minor theme. These findings suggest that the incoming students were in the action or maintenance phases of the TTM prior to transitioning to college, yet their transition into the new lifestyle of college prompted a shift in their decisional balance. This shift led to a conversion from the action or maintenance phase towards a non-acting phase, such as contemplation or preparation, yielding more imposing barriers to adopting physical activity in college. The transition to college is associated with many new stressors, but this may also be an ideal opportunity to promote a transition, reintegration, or adoption of physical activity. To circumvent the current negative shift in physical activity, creating and delivering programming that provides information and resources to aid in continuance of action and maintenance is recommended. For example, first year courses or resident life programming could offer reflection-based activities that remind students of their motivation for physical activity and/or talk through potential barriers and strategies for overcoming these barriers in a collegiate setting.

Physical activity programs for incoming college students could be incorporated into mandatory freshman courses such as an orientation course. Required freshman orientation courses are common nationally and internationally and promote tools to assist first-year university students

with their transition to the college setting (Lamar & Ingamells, 2010). Integrating physical activity programs into such courses could potentially present the opportunities needed for the incoming student to sustain their level of readiness. In the first reflection, students intended to participate in physical activity, indicating a high degree of readiness, which, unfortunately, tapered by the end of the semester. If first-year classes incorporate physical activity, this could capitalize on the high readiness of freshmen and promote physical activity throughout the first semester of college. Indeed, students are more likely to engage in university life when institution staff take actions to help them engage (Ahlfeldt et al., 2005). If course directors were to integrate and showcase resources for physical activity in and around the campus, this may positively impact participation in exercise throughout the student's collegiate career and beyond.

Concerning the inclusion of exercise, student responses highlighted that their primary form of physical activity revolved around participation in high school sports. Upon transitioning to college, most of this cohort were no longer participating in organized sport, resulting in a decline in physical activity. While many avenues for sports participation exist on collegiate, club, or leisure levels, the likelihood of participating in organized sports in college declines from 71% in high school to 28% in college (Downs & Ashton, 2011). Further, a reduction in sports participation has been shown to negatively impact self-efficacy associated with exercise (Anderson & Cychosz, 1995). Intrapersonal barriers, including perceived skill, past experiences, and motivation associated with sports participation, may influence participation (Thomas et al., 2019). The present findings support the current literature on a global decline in sports participation during the first year of college (Thomas et al., 2019).

Participation in sports is a common extracurricular collegiate activity (Weese, 2022); however, merely offering the opportunity to participate does not always lead to participation. As stated, engagement increases when university staff create action steps to enhance student engagement (Ahlfeldt et al., 2005). These action steps may include sponsoring within-major intermural teams, the inclusion of a sports activity class as a major requirement for incoming freshmen, or simply clarifying the process of getting involved in campus-sponsored sports. A sponsored within-major intermural team could integrate both physical activity and social support, as sports participation has been noted to increase social connectedness (Hoye et al., 2015) and act as a buffer to stress (Kanters, 2000). By creating teams that are comprised of students within the same major, and even the same freshmen cohort, these classmates may construct a social support team.

Even with the intent to be physically active, the myriad of new stressors associated with starting college can act as a dominating barrier to exercise (American College Health Association, 2009). In the present study, at the start of the semester, many students intended to use physical activity for stress management, in addition to other sedentary strategies, including taking naps and talking with friends and family. Previous results concur with these findings, noting talking with family and friends, leisure activities, and exercise as the most often used positive activities for coping with stress (Pierceall & Keim, 2007). Moreover, talking with friends and family was the only major theme that persisted pre- and post-term. While positive, this behavior may be sedentary in nature; instead, encouraging students to incorporate simple changes could help reduce barriers to exercise. For instance, walking while talking on the phone with parents could increase physical activity outcomes. Additionally, many sedentary behaviors shifted from a minor theme to a major theme for stress management, including watching television, using social media, and playing video games. While

taking breaks is a useful strategy, these activities are also sedentary in nature and promote disengagement or distraction. Instead, encouraging students to take active breaks and adopt more positive stress management strategies could better support students' mental wellness.

Importantly, social components such as working out with a partner or in a group have been reported to lead non-exercisers to begin exercise (Ebben & Brudzynski, n.d.). Thus, integrating a social component into a physically active behavior may further improve stress reduction while promoting physical and mental health (Courneya & McAuley, 1995). Moreover, a greater commitment to exercise may be afforded by integrating a workout partner or group exercise component to promote social support (Toth et al., 2021). With these concepts in mind, initiating a workout partner program housed within the first-year seminar could assist with sustaining readiness levels of action and maintenance. This idea aligns with the shift in designing physical activity interventions to enhance both psychosocial factors and physical activity (Farren et al., 2017).

These three primary findings – reduction of physical activity, engagement in high school sports, and talking with friends and family – lend to the creation of an intervention that is both physical and social while incorporating sports. Integrating physical activity programs into first-year courses, sponsoring intramural teams within the major freshman cohort, and developing a workout partner program housed within freshmen seminars are promising potential programs that could incorporate these findings. There are many positive implications for physical activity and integrating a social component could promote an even greater means of stress management and accountability (Toth et al., 2021). Moreover, participation in organized sport promotes greater amounts of vigorous activity which has been associated with better mental health (Dunn & McAuley, 2000; Toth et al., 2021).

While this qualitative study further supports the decline in physical activity in association with the transition to college and the need for first-year intervention to aid in this challenging transition, it is not without limitations. This study was exploratory in nature. Thus, individual responses were not tracked pre- and post, which would have allowed for more comprehensive comparisons. Moreover, this qualitative study used guided, open-ended questions allowing freedom in response. More direct, structured measures of activity could be used to further identify and clarify levels of physical activity amongst the study population. Further, this study was conducted with a STEM-based exercise physiology program at a land grant R1 research institution in Appalachia. Findings may reflect regional characteristics and, therefore, not represent the general collegiate population.

This study identified a level of readiness and potential opportunity for preventative interventions. The students reported intending to use physical activity for stress reduction, which suggested a high level of readiness. This finding, in addition to the literature supporting the negative change in activity associated with the transition to college, may advocate including an intervention during the first semester of college. While most universities provide mental health services at little or no cost to students, preventative strategies may be a more effective means for universities to reach students prone to mental health issues (Brunner et al., 2014; Francis & Horn, 2017). Future research evaluating subjective and objective physical activity, social integration on campus, and first-time, full-time student retention could be done with many of the proposed strategies offered here, including integrating physical activity programs or developing a workout-partner program in first-year courses, sponsoring within-major freshman cohort intramural teams, showcasing resources

for physical activity in and around the campus, and educating students on the importance of motivators and overcoming barriers to physical activity, using active breaks for stress management, or small tips for increasing daily physical activity.

This qualitative study on first-semester freshmen exercise physiology students found that reported exercise participation negatively shifted from the onset to the culmination of the semester, with participation in high school sports dominating as a major preliminary theme. Additionally, the intention to utilize exercise as a coping mechanism for stress was present at the beginning of the semester, yet it was not utilized as much as intended. Moreover, talking with friends and family was the only major theme that persisted pre and post-term. Overall, the findings of this study support that there is a decline in physical activity yet a high level of readiness in the first semester of college among exercise physiology students. Moving forward, recommendations are to explore options for first-term interventions and education that incorporate both physical and social components while incorporating sports.

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