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Changing Language and University Students' Exercise Motivations

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Typically, and without a pandemic, one-quarter of adults do not get appropriate physical activity. Amid government restrictions and public gathering closures associated with the COVID-19 pandemic, this study's objective sought to understand motivations for physical activity among university students. Participants of 147 undergraduate (n = 102) and graduate (n = 45), including most females (n = 118), completed the Rickel Value Inventory (RVI), which consisted of seventeen Likert-scale inventory questions and a ranking of top motivators for participation in physical activity. The results indicated that during the COVID-19 pandemic, participants preferred objective or extrinsic motivators for engaging in physical activity, such as weight management and maintaining physical health, than subjective or intrinsic motivators associated with self-fulfillment. University sports managers and physical activity leaders should incorporate language reflective of objective/extrinsic in addition to subjective/intrinsic motivation and methods in advertising, teaching, and scheduling to increase and maintain exercise motivation and adherence.

Keywords: exercise, intrinsic, extrinsic, motivation, college

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The benefits of regular participation in physical activity (PA) by adults have been shown to prevent and manage non-communicable diseases (NCD) in a multitude of ways, such as improved cardiovascular fitness, mental health, and cognitive function in addition to reducing arthritis symptoms, risk of high blood pressure, and weight gain (World Health Organization, 2022). The benefits of PA participation for healthy aging are equally compelling—improved sleep, balance, and joint mobility; reduced risk of falling in addition to delayed onset of cognitive decline, weak bones, and muscle loss, according to the Center for Disease Control and Prevention (Center for Disease Control and Prevention, 2022). These benefits have been accepted worldwide, as exemplified by World Health Organization (2022)'s recognition that physical activity is a global issue that needs to be addressed as a health topic. Similarly, in the United States, Center for Disease Control and Prevention (2022) has listed positive results related to PA for children, adults, and healthy aging. The impact of regular participation in PA goes beyond physical health. It can be viewed as a component of overall health and wellness, including social, emotional, intellectual, spiritual, and environmental health (Donatelle, 2019). Engagement in PA impacts and extends into individuals' psychological health and has been shown to positively affect mood and mental and social health (Glowacki & Faulkner, 2019; Lathia et al., 2017; Yzer & Gilasevitch, 2018).

The list of benefits and risk reductions of NCD from participating in PA is also coupled with the economic benefits to communities and countries. Annual medical costs of obesity associated with less than the recommended PA in the US were close to $173 billion (about $530 per person in the US). Physically active people are more productive and use fewer sick days (Center for Disease Control and Prevention, 2019). Overall, a healthier individual, community, and economy are the products of regular PA participation by costing less in

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medical issues and increasing productivity.

Recommendations and Reality

Center for Disease Control and Prevention (2019) and World Health Organization (2022) advocate for PA to include all types of movement, extending beyond traditional activities such as walking, cycling, running, rolling, and dancing. They emphasize that PA is optimal for all aptitude and skill levels. According to both organizations, adults aged 18–64 should achieve at least 150 minutes a week of moderate-intensity activity, such as brisk walking, and at least two days of strengthening muscle activities, such as weight training (Center for Disease Control and Prevention, 2019; World Health Organization, 2022).

Globally, the current estimate is that 25% of adults and 81% of adolescents aged 11–17 do not achieve appropriate physical activity (World Health Organization, 2022). In the United States, the statistics are that 75% of adults and 80% of high school students do not achieve the level of activity recommended for chronic disease prevention, such as heart disease, colorectal cancer, and diabetes: the latter of which about one in two adults have a chronic disease (Center for Disease Control and Prevention, 2022). As the numbers indicate, once people enter their young adult and college years, they are at a lower level of achievement in terms of physical activity participation. According to American College Health Association (2022), in the Spring of 2022, 69% of college students met the recommended levels for aerobic activity minutes in a week (150 moderate or 75 vigorous intensity). Only 43% met the aerobic guidelines and included two or more days of strength training (American College Health Association, 2022). This data is within the five percent range of the Fall 2020 participation and overall representative of collegiate physical activity participation dating back to Fall 2019 of 67% aerobic exercise only and 40% of students additionally engaging in two days of strength training (American College Health Association, 2022). Based on these statistics, more PA participation among college students is needed. Researchers and practitioners are well-positioned to understand and implement strategies encouraging college students to increase physical activity and maintain such levels as they enter adulthood.

Motivation

The motivation to participate in physical activity has been a research topic in many strands, from adherence to specific age groups. While creating the Exercise and Depression Toolkit, it was found that adults with depression experienced a lack of motivation, fatigue, and low mood when not exercising (Glowacki & Faulkner, 2019). What contributed to an increase in PA engagement were the attitudes of others, receiving emotional support, and ongoing support for the exercise itself. This relates directly to one's overall psychological health as part of the dimensions of wellness to include social health, which can serve to allow participants to relate to one another and draw support for motivation by shifting their thinking (mental health) to improve their emotional health (feeling), thus their ability to exercise or engage in PA and overall being (spiritual health) by an improved sense of peace, purpose, and connections (Donatelle, 2019).

Research examining the distinction between subjective and objective motivation has found that the more intrinsically motivated a person is, the more frequently they will engage in physical education and activity (Lulescu, 2020). Subjective factors include the perception of fun, personal challenge, and personal affiliation. At the same time, objective motivation focuses on outside factors and a reward, including health and weight, physical appearance, and pleasing others such as friends. Previous studies found a relationship between sport and friendship developed during middle adolescence and noticed this relationship dropped during late adolescence (Boiché et al., 2015). Additionally, as students became busier with school and their classes, their sports involvement decreased, impacting multiple health dimensions, including physical and social wellness.

One study found that university students preferred exercise to reduce stress, in addition to recognizing time constraints as a common barrier to exercise and seeking help for depression (Yzer & Gilasevitch, 2018). However, when surveyed on their beliefs about exercise, students listed getting fit as the most common advantage. The main distinctions from the study were the beliefs between exercise and help-seeking for depression and time constraints being a barrier for both exercise and help-seeking for depression. The preference for objective motivators for PA found in the present study gives insight into a general view of PA and is consistent with prior research.

High School to College Transition

When comparing motivation and PA levels between high school and university students, high school students reported more PA than university students (Sevil et al., 2018). The research suggests there could be an association with university students experiencing a big life transition, no required physical education classes, increased independence with decreased time, and lack of information and encouragement on how to fit PA into their new lives. The study also found a relationship between high school students and increased subjective motivation for PA and lower levels of amotivation (lack of motivation) compared to university students. A survey of first-year university students found changes in patterns, preferences, and motivation (Wilson et al., 2021).

Researchers have found that many factors determine exercise adherence, including time constraints, lack of motivation, fatigue, low mood for those diagnosed with depression, and lack of structured PA time for university students

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(Boiché et al., 2015; Glowacki & Faulkner, 2019; Yzer & Gilasevitch, 2018). Some research focused on understanding the different motivators, while others focused on what contributes to lack of involvement. The recurring themes for exercise adherence are the type of motivation (internal/subjective or external/objective), time constraints, and fatigue. Other researchers agreed and found that PA had a positive impact on reducing stress in college students and suggested that students should find ways to engage in PA (Meyer & Larson, 2018). Data show that exercise and PA are beneficial for us. Although there are barriers to engaging in exercise, we must continue to find ways to participate.

Exercise and COVID-19

In late 2019, COVID-19 entered the world and continued into 2022. The impact of the pandemic on our global population, as of early March 2021, resulted in more than 2.4 million deaths and 112 million confirmed cases worldwide, with 500 thousand deaths and 28 thousand confirmed cases in the US to date (World Health Organization, 2023). The recommendations and guidelines by the CDC to reduce and stop the spread of COVID-19 caused many to self-isolate and physically distance themselves, leading to the cancellation or closure of many fitness centers, parks, and recreation opportunities. During the spring and summer of 2020 in the US, people were discouraged from being outside and asked or mandated to stay home to varying extents. Due to the lack of in-depth knowledge and reality of this novel virus and how precisely contagious COVID-19 was, states and cities enacted differing restrictions such as the California Coronavirus Response (California All, 2021) and Washington State Department of Health (Washington State Department of Health, 2021) instructions for residents to stay home. As a result of such necessary precautions to slow the spread of this novel disease, people relied on their motivation and creativity to find ways to engage in PA.

Researchers analyzed data from more than 47,000 college students around the country and found that 65% of students reported that COVID-19 impacted their mental health, and 61% reported that it impacted their motivation or focus (Penn State University, 2021). According to data from the NPD Group (Guyduy, 2020), compared to sales from 2019, adult leisure bike sales increased 121%, free weight sales increased 181%, and yoga mat sales increased 146%. With the increase in sales of home exercise equipment, it became clear that COVID-19 affected how people approached and achieved the recommendations for PA.

The COVID-19 pandemic and the associated changes (e.g., shelter-in-place and other restrictions) have created a gap in the literature on exercise and PA, which the current research aimed to begin addressing. A better understanding of current motivations may assist university communities such as exercise and sports programmers, health centers, student life, and faculty and administrators in meeting the needs of students in the best manner during this unprecedented time.

Method

Participants

Participants were asked to provide information regarding their gender, grade level, college major, and age. Though the central goal of this research was not to distinguish differences between demographic categories on motivation to exercise during the COVID-19 pandemic, these data allowed researchers to better understand the survey participants. With detailed demographic information, the researchers provide additional context during the discussion of the findings.

Procedure

To analyze motivations for physical activity during the COVID-19 pandemic, the current research targeted university students at a private university located in the Pacific Northwest region of the United States. Once institutional review board approval was obtained, the research team posted an announcement to participate in the survey through the university's morning email bulletin from early September 2020 through early October 2020. The email was sent to all undergraduate and graduate students, and approximately 7,500 students at the university had an opportunity to participate. The message contained an explanation of the research study, a disclaimer concerning voluntary participation and anonymity, and a link to the survey hosted on Qualtrics. Upon following the link, participants were directed to a consent form followed by the survey.

The university policies from March 2020 were to stay home when possible, shift to remote classes and events, and cancel in-person activities. In Fall 2020, the university offered a mix of hybrid, virtual, and in-person classes depending on the nature of the course (labs, or lecture), and intramural sports and other outdoor activities were not available. At the time of the survey, students had not been on campus from March 2020 to August 2020, with most students not returning to campus from August 2020 to December 2020. During this time, it is unknown what the local government restrictions were for each of the students' hometowns (e.g., (California All, 2021); (Washington State Department of Health, 2021); (World Health Organization, 2023)). In addition to COVID-19, in Fall 2020, the US West Coast experienced wildfires, adding another barrier for students to be outside because of dangerous air quality.

Motivation

Motivation to exercise during the COVID-19 pandemic was measured using the Rickel Value Inventory (RVI), which was developed to assess objective (i.e., extrinsic) and subjective (i.e., intrinsic) motivations to exercise, and it has been

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utilized in multiple contexts (e.g., (Foster, 2022); (Gao et al., 2014); (Garrison et al., 2014); (Hasey et al., 2007); (Rickel et al., 2005)).

The tool is an 18-item Likert-scale inventory consisting of 11 objective and seven subjective statements. Participants were asked to state how much they agreed with the given statement regarding how they viewed and felt about exercise, PA, or play. The level of agreement with each of the 18 items was gauged by a five-point scale ranging from 5 (Great) to 1 (None).

The survey results showed good internal consistency for both the objective (11 items) and the subjective (7 items) motivations (Cronbach alphas objective .86; subjective .79). Sample items included "During the pandemic, I exercise, physically play, or move to control my weight" (objective) and "During the pandemic, I look forward to exercise, physical play, or movement activity" (subjective).

In addition to completing the standard RVI, participants were asked to rank their top three items (i.e., motivations) from the 18 statements, regardless of whether objective or subjective. By establishing a ranking, the researchers were then able to determine the most important singular motivations to exercise during the COVID-19 pandemic to these students.

Common Method Variance

Procedurally, as suggested by (Liu et al., 2017), common method variance was addressed in several ways. To promote response truthfulness, participants were assured of the confidentiality and anonymity of the study. To reduce discomfort or anxiety, the study explanation conveyed the nonexistence of "right" and "wrong" survey answers. Finally, survey items were displayed linearly to emphasize separation and encourage careful reading of each item (Podsakoff et al., 2003).

Data Analysis

Once data were collected, the first step was to compile and analyze descriptive statistics representing various groups of participants and their survey responses. This analysis was followed by a nonparametric Sign Test to check whether objective and subjective motivations, paired by survey participants, differed in the sample. The Sign Test was chosen for this analysis due to the presence of ordinal data (i.e., nonnormal distribution) and the violation of the assumption of a symmetrically shaped distribution of differences that must be satisfied for more powerful nonparametric methods (e.g., Wilcoxon Signed Rank; (Krzywinski & Altman, 2014)).

The final analysis addressed participants' top-three rankings of individual survey items. Like the methodology behind a poll ranking American college football teams (e.g., Associated Press Poll), participants provided their top three items that motivated them to exercise. The items ranked first were awarded three points, the items ranked second were awarded two points, and the items ranked third were awarded one point. After all points were assigned, totals were compiled for each item, and a ranked-order list was created ranging from the most points (i.e., highest ranked motivator) to least points (e.g., lowest ranked motivator).

Table 1: *Participant Demographics*

Gender	**N (%)**
Male	25 (16.7)
Female	118 (78.7)
Non-Binary	4 (2.6)
Age	**N (%)**
18–24	114 (76.0)
25–30	15 (10.0)
31–44	8 (5.3)
45+	10 (6.7)
Class Standing	**N (%)**
First-year student	21 (14.0)
Sophomore	18 (12.0)
Junior	29 (19.3)
Senior	34 (22.7)
Graduate	45 (30.0)

Note. n = 150; three participants did not complete demographic questions.

Results

After four weeks of data collection, the sample comprised 150 participants who completed the RVI. Of these, 147 completed the demographic questions, 78.7% of whom were female. These participants primarily fell in the 18–24 age range (76.0%) and were distributed evenly across all college class levels (first-year student to Graduate) and nine categories of college majors. Table 1 provides demographic frequency breakdowns for all four categories.

The RVI survey items explored subjective and objective motivations for exercise, with Q1–Q10 representing the objective component and Q11–Q17 comprising the subjective component. In comparison of the objective and subjective components, the objective component was shown to be a significantly higher-ranked motivator than the subjective according to the nonparametric sign test that was conducted. The participant frequencies, which show the relative ranking of objective versus subjective, are displayed in Table 2. The results show the participants' preferences for objective as compared to subjective. The resulting nonparametric sign test of related samples can be seen in Table 3.

Finally, the individual rankings of each motivator are presented in Table 4, showing a greater number of objective mo-

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Table 2: *Frequencies of Objective and Subjective Motivation Comparisons*

Objective – Subjective	N
Positive Differences[a]	61
Negative Differences[b]	20
Ties[c]	69
Total	150

Note. [a] Objective > Subjective. [b] Objective < Subjective. [c] Objective = Subjective.

Table 3: *Results of Related Samples Sign Test*

Measure	Value
Total *N*	150
Test Statistic	20.0
Standard Error	4.50
Standardized Test Statistic	-4.44
Asymptotic Sig. (2-sided test)	<.001*

Note. Significance level: .001.

tivators appearing at the top of the list than subjective motivators. This distribution aligns with the objective mean of 2.8, in contrast to the subjective mean of 2.5.

Discussion

The present study contributes to the current literature surrounding university students' motivation for exercise, physical play, and/or movement during the COVID-19 pandemic, exploring objective motivation versus subjective motivation using the RVI (Rickel et al., 2006). Knowing that people's motivation to engage in PA can vary throughout life, it is important to understand how impactful one's access to PA opportunities is while addressing the varying components of motivation subjectively and objectively. Exploring the barriers to PA can provide a foundation for future studies to understand how to change the language around PA. Research tells us that college students who do not engage in PA have poorer mental health and poor social adaptability (Honghai & Changliang, 2021), which were impacted by COVID-19 and the associated distancing and quarantine restrictions. Social wellness or networks contribute directly to one's overall well-being and potential to continue to develop and rely upon their motivation, as exemplified by students' ranking of variations of socialization as number five and six in the RVI.

With the present study's findings that students' objective (extrinsic) component was significantly more of a motivation for exercise during COVID-19 (as determined by Tables 2 and 3), we can see the negative impact of low exercise and movement on mental health. A survey of 2,086 college students by Active Minds found that 80% of students felt COVID-19 negatively impacted their mental health, and the most impacted was their stress or anxiety, with 91%, followed by 81% of them having disappointment or sadness. Additionally, 73% of these students struggled to get enough physical activity. Data from the Fall 2020 survey provided comparable results in that 56% of college students reported their daily PA had decreased, and 89% felt stress or anxiety because of COVID-19 (Active Minds, 2020). In our ranked order list (Table 4), the highest-rated items were all objective (extrinsic): #1, #4, and

Table 4: *Rank Order of RVI Questions During COVID-19*

#	Question Detail
1	I exercise, physically play, or move for physical fitness and/or health.
4	I exercise, physically play, or move to maintain or improve my figure.
2	I exercise, physically play, or move to control my weight.
12	During the pandemic, I look forward to exercise, physical play, or movement activity.
6	Socialization is important in my exercise, physical play, or movement program.
8	I have a planned daily time for exercise, physical play, or movement activity.
10	I am more motivated with an instructor or another person to stay on task in exercise, physical play, or movement activity.
7	I incorporate exercise, physical play, or movement into my day.
16	I lose myself in exercise, physical play, or movement activities, not knowing time and space.
9	I am committed to exercise, physically play, or move without letting work, school, or other activities cancel my plans.
15	I intentionally create rhythmic patterns during exercise, physical play, or movement activities.
3	I exercise, physically play, or move to delay aging.
5	I exercise, physically play, or move to meet new people or socialize with others.
13	I define my day by my exercise, physical play, or movement activities.
11	I define who I am by my exercise, physical play, or movement activity.
17	When I watch movement, dance, or physical play on television, I am inspired to try the activity.
14	I dream about exercise, physical play, or movement activity.

Note. n = 140.

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#2. The highest-rated subjective (intrinsic) item was #12 (4th place overall). Our findings show that students' reliance on objective motivation during COVID-19, students' PA being lower than pre-COVID-19 times, and having increased anxiety and depression aligns with previous studies. While the cause is not specified, students may have had limitations to exercise due to COVID-19 restrictions or lack of motivation to meet their objective motivators, such as improving their figure and less concern with weight management during lockdown.

The University of North Carolina's (UNC) Exercise Is Medicine® on Campus found that staff who maintained relationships and consultations with students virtually during COVID-19 improved students' follow-up appointments surrounding PA, and students felt school leaders could have more mental health resources, including coping resources (Stanford et al., 2020). During COVID, college students showed they were less active and that they experienced poorer mental health; by enhancing their subjective motivation toward PA, students could have viewed PA as a coping resource to improve their mental health. As one's reliance upon objective motivators continues, they may find themselves lacking in specific areas of wellness, such as their ability to find enjoyment in engaging in PA for the sake of subjective factors such as learning a new skill (intellectual health), surrounding themselves in nature (environmental health), and recognizing their improved mindset and overall sense of achievement (spiritual health) (Donatelle, 2019). In situations where there is low external or objective motivation, individuals should be encouraged to activate or rely more upon their subjective motivation and understanding of the positive effects of PA on mental health to continue or participate, as UNC students indicated.

School leaders can encourage more subjective motivation by changing the language around PA to reframe students' views to reduce stress and create a sense and internal locus of control (Snyder et al., 2017) to accompany their objective motivation. Although COVID-19 has strongly impacted university students' PA adherence or participation, it remains of utmost importance that students understand they have the ability and must have a sense of ownership and internal locus of control over their capacity and mastery to engage in PA. In particular, understanding that university students utilize and prefer objective motivators (Tables 2 and 3), it is important to properly select and recognize extrinsic motivation and the potential for perpetuating harmful ways of thinking about why one engages in PA. Leaders can emphasize the positive impact of exercise on mental health and subjective motivation to inform programming at the collegiate level. By addressing students' subjective motivations, institutions can create initiatives that effectively engage and support students in maintaining their motivation for physical activity.

Conclusion

The current findings show the potential to shift the messaging and language around PA to increase students' and future practitioners' subjective motivation for PA. Researchers and practitioners recognize the importance of subjective motivation, yet how to shift participants to this side, particularly to supplement their objective motivation, is the ever-elusive question. Suppose we can increase participants' perception of PA's purpose and overall benefits through different approaches such as curriculum, the marketing of courses to match the challenges of unique needs of participants, and instructor cues and language around PA. In that case, their motivation may be influenced on the subjective side. Future research can investigate how teaching and using different languages around PA can impact motivation and which language shift is the most motivating.

In previous studies, researchers have supplemented participants' PA with brief readings on the philosophy of movement and play with short reflections to increase subjective motivation while maintaining objective motivation (Rickel et al., 2005). Other researchers found that increasing Physical Education teachers' skills in building student autonomy for PA increased students' motivation for PA (Abula et al., 2018). These findings showed promising results by increasing participants' subjective motivation in addition to their objective motivation. If instructors and sports professionals utilize language referring to the subjective side of exercise and PA, such as play and the benefits to their overall wellness (spiritual, emotional, social, intellectual) in addition to the physical and objective benefits, then participants see, hear, and feel this as acceptable and can model and embrace their approach to the subjective values articulated.

Sport management administrators and programmers are the front line in marketing, creating the class names, accessing such classes, and hiring the sports leaders in direct contact with participants. Administrators can consider using language similar to the instructors' to incorporate wellness benefits and market these classes as recess and playtime alongside the objective motivation language of workout and physical results such as calories burned. When creating these opportunities, the messaging and wording can emphasize both components of teaching about objective and subjective motivation to allow participants to call upon what they need at that time. People do not realize what they lack specifically in terms of motivation, and motivational needs vary depending on circumstances: hourly, daily, weekly, and beyond. Consider New Year's resolutions and how motivated people might be on January 1st versus February 14th. If people know what is missing, they can be taught to seek out different motivational cues to improve their subjective motivation and not rely strictly on one end of the motivation spectrum. Still, we must call upon both types of motivation to enhance and facilitate our continued participation in PA, even if it means utilizing

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differentiated teaching and instruction. Just as instructors and leaders are adapting and adopting more inclusive practices and language in the classroom, so should exercise and sport professional leaders and administrators adapt to the varied motivational needs of their clientele (Tomlinson, 2017).

Additionally, language and cues should speak to all genders to relate to all participants, particularly as they age and go through unique stages in life (Louw et al., 2012; Portela-Pino et al., 2019). The relationship between students' motivation for PA and objective motivators allows future researchers to explore how to educate students on PA's impact and enhance both types of motivation in addition to competence in the benefits of increased activity (Kwon et al., 2019). Transitioning from adolescence to young adulthood has many changes, including a lack of structured PA time for most. Implementing a course curriculum to increase motivation, specifically the subjective, and scheduling PA would be a beneficial avenue for additional research (Garrison et al., 2014; Sevil et al., 2018). Hence, it is important to recognize how language impacts how students view motivation, just as in coaching athletes and explaining actions to individuals. It is more effective to articulate desired behaviors explicitly rather than to focus on prohibitions. This approach conveys the same underlying message while employing more positive language, which can enhance comprehension and motivation.

Limitations

Limitations found were the low response rate from males, a limited collection of demographic information, contact with students, different COVID-19 restrictions in different geographic locations, and the survey being sent out during the West Coast's fire season. Male university students responded at a rate of 16.7% versus 78.7% from females. Without collecting ethnic demographic information with the RVI, but with the university's Integrated Postsecondary Education Data System Report page, we gather that 70% of the student population identifies as "white" and are not first-generation college students (Gonzaga University, 2019). Students were made aware of the study through an email bulletin; while it is accessible to all students, it is unknown how many students check their school email. Additionally, data from Qualtrics showed that many students stopped the survey after the study information sheet, which leads us to believe it was too long for students to read; halfway through data collection, we put the study information on an additional link for students to access, which gave us greater participation. The survey was open for students between mid-September and mid-October, when the West Coast experienced many wildfires and poor air quality, potentially reducing the number of people exercising outside. Lastly, with many students living at home in the Fall, it is unknown what their area's COVID-19 restrictions were, which may have prevented some from outdoor activities.

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