

Major Article

A Comparison of Motivational Factors and Barriers to Physical Activity Among Traditional Versus Nontraditional College Students

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Abstract. Objective: To investigate the motivational factors and the barriers to physical activity (PA) in traditional college students (TS) and nontraditional college students (NTS) and determine if differences exist between these 2 groups. **Participants:** A total of 746 college students; 628 were TS (19.1 ± 1.2 years), and 118 were NTS (31.2 ± 8.6 years). **Methods:** In fall 2010, students voluntarily completed a demographic questionnaire, Barriers to Being Active Quiz, and Exercise Motivations Inventory-2 (EMI-2). **Results:** EMI-2 revealed that TS and NTS differed on 8 of the 14 motivational factors for exercise. There was a significant difference between TS and NTS for the following barriers: fear of injury ($p = .001$), lack of resources ($p = .017$), and lack of skill ($p = .003$). **Conclusion:** Based on these findings, interventions can be developed for the varied needs of a diverse student population as it pertains to PA participation.

Keywords: barriers, college students, exercise, motivation, physical activity

Regular physical activity (PA) is vitally important for the health and well-being of individuals of all ages. Research has shown that PA is a key factor in reducing the risk of numerous diseases including cardiovascular diseases, type 2 diabetes, hypertension, and depression and helps in reducing the morbidity and mortality of these chronic conditions.¹⁻³ According to the American College of Sports Medicine (ACSM),^{4,5} exercise for healthy adults between the ages of 18 to 65 years should include (1) moderately intense cardiovascular exercise for ≥ 30 minutes a day, ≥ 5 days

a week, resulting in ≥ 150 minutes per week or vigorously intense cardiovascular exercise ≥ 20 minutes a day, ≥ 3 days a week, or ≥ 75 minutes per week and (2) 8 to 10 strength-training exercises, with 8 to 12 repetitions of each exercise 2 to 3 times a week.^{4,5} The minimum cardiovascular exercise recommendation can also be met through a combination of moderate and vigorous exercise bouts.⁵ These guidelines aim to increase PA in inactive adults, thereby decreasing risk of disease in these individuals. Although these recommendations by ACSM have been set as minimal PA levels, nearly half of the general population does not meet these guidelines.⁴ Additionally, college students are a specific subgroup of the population showing inadequate PA levels, with studies showing approximately 50% of college students not meeting the minimum recommendations.⁶⁻⁸ The most recent data from the American College Health Association National College Health Assessment II (ACHA-NCHA II) revealed that only 47.4% of college students were meeting current PA guidelines.⁹ With a positive correlation between PA history and maintenance of PA later in life, patterns of exercise and other leisure time activities during the college years may be important regarding future habits.⁶

Past research on college students and PA has focused mainly on traditional college students,⁶ this being defined as full-time students between 18 and 22 years of age, living on campus.¹⁰ Although this literature is important, the student population on college campuses is changing because more individuals are starting or returning to college later in life, with approximately 6.8 million nontraditional students on college campuses in recent years.¹¹ These nontraditional students are classified as those who are older (23 years and above), have returned to school, and commute to and from

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campus while holding a part- or full-time job and managing family and other "adult" responsibilities.^{10,12-14}

Various factors including personal, social, environmental, and cognitive variables are known to influence PA behavior.⁶ In terms of the cognitive factors associated with PA among college students, self-efficacy is an important variable associated with exercise behavior, with past studies showing high self-efficacy normally resulting in high levels of PA participation.^{6,15,16} Other variables such as perceived enjoyment of PA and self-motivation have also been investigated, though more research is needed to determine the impact of these variables on exercise behavior.^{6,17} Of the past research on self-motivation in college students, both males and females noted that physical appearance was a main motivator for participation in PA. However, sex differences occurred with men exercising for muscle gain and women for weight loss.^{6,17} It was also noted that college students do not frequently identify personal health as a reason for exercise and there was speculation that this may be due to fewer health issues being present in a young population.⁶ However, it is unknown whether these motivational factors would be different in non-traditional compared with traditional college students.

In addition to motivation and self-efficacy, several other cognitive factors such as beliefs, attitudes, and values about exercise are characteristics that may positively or negatively influence an individual's behavior. Perceived barriers, a main construct of the Health Belief Model and included in several other health behavior models, are defined as the obstacles that make it difficult to engage in behaviors such as exercise.¹⁸ Perceived barriers to exercise have been shown to have a negative correlation to perceived benefits of exercise among college students.¹⁸ Therefore, when increasing PA is the targeted behavior, determining the barriers and educating people on how to overcome them may be a key component to successfully increasing the amount of exercise in which college students regularly engage.^{18,19}

Of the research on barriers to PA in college students, lack of time has been the main obstacle identified that keeps individuals from exercising.¹⁸⁻²¹ However, with more nontraditional students enrolled in colleges and universities, identifying and understanding the barriers experienced by these students may provide additional insight on how to better promote PA based on campus resources and a detailed knowledge of the student population. Whether someone is starting college out of high school or later in life, major lifestyle adjustments are likely to occur that include but are not limited to new living arrangements, financial burdens, independence from family/parents, time away from family and friends, academic pressures, and time management challenges. With both types of students facing obstacles, the question remains whether barriers to being active differ between traditional and nontraditional college students.

With college students being an at-risk population for physical inactivity, it is important for health and fitness professionals to determine what motivates college students to exercise and the perceived barriers that keep them from exercising. The purpose of this study was to determine the motivational

factors to exercise in traditional and nontraditional college students and identify the perceived barriers to regular exercise in these students and determine if differences exist between groups.

METHODS

Participants and Procedures

Upon obtaining approval from our institutional review board, potential participants were recruited from several sections of a required core course about fitness and wellness at a large southeastern university during fall of 2010. Students were informed that their participation was voluntary with no penalty for not participating. If students decided to participate in the study, they gave consent and completed 3 surveys. Students were given time at the beginning or the end of class to complete the surveys and return them to the researchers. Questionnaires were completed anonymously, and students were advised that they could terminate their involvement in the study at any time. In order to recruit additional nontraditional students, surveys were administered with the help of faculty at the university's Lifelong Learning Center, a resource center designed for students returning to college or starting college later in life. The survey was also available online through a survey database for students who did not have time to fill out paper copies or were recruited outside of classes. If students decided to complete the survey online, their consent was obtained before beginning the survey.

Materials

Demographic Questionnaire

Participants were asked to complete a demographic questionnaire. The purpose of this questionnaire was to gather self-reported information on age, sex, race, academic major, height, weight, and employment status. From the self-reported height and weight, body mass index (BMI) was calculated for each individual and categorized into underweight, normal, overweight, or obese.

The Exercise Motivations Inventory-2 (EMI-2)

The Exercise Motivations Inventory-2 (EMI-2) is a 51-item scale that provides a measure of self-reported motives of why a person exercises.²² Whether a person currently exercises regularly or not, this instrument uses a 6-point Likert scale (0 to 5) to address if each statement is true for an individual personally or would be true personally if an individual did exercise, 0 being *not at all true for me* to 5 being *very true for me*. Upon completion of the EMI-2, scores were calculated using the 14 different subscales. The different subscales in this inventory are the following: appearance, nimbleness, strength and endurance, health pressures, ill-health avoidance, positive health, weight management, competition, affiliation, social recognition, challenge, enjoyment, revitalization, and stress management. After adding the 3 or 4 items associated with each subscale, averages were calculated for

TABLE 1. EMI-2 Subscale Reliability Statistics

Variable	<i>M</i>	<i>SD</i>	α
Stress management	3.169	1.29	.882
Revitalization	3.208	1.14	.728
Enjoyment	3.205	1.36	.908
Challenge	2.912	1.29	.829
Social recognition	1.995	1.33	.827
Affiliation	2.214	1.39	.889
Competition	2.414	1.66	.940
Health pressure	1.595	1.27	.655
Ill health avoidance	3.567	1.18	.839
Positive health	4.198	0.83	.838
Weight management	3.539	1.41	.886
Appearance	3.559	1.05	.764
Strength and endurance	3.871	1.02	.876
Nimbleness	3.383	1.18	.821

Note. EMI-2 = Exercise Motivations Inventory-2.

each motivational factor. All items had good distributions, with standard deviations ranging from 0.83 to 1.66. Cronbach's alpha was considered good at a value of .877,^{23,24} indicating overall internal consistency and reliability of the instrument in the current sample. Cronbach's alpha for each subscale is reported in Table 1.

Barriers to Being Active Quiz

The Barriers to Being Active Quiz is a 21-item scale that provides a measure of 7 self-reported barriers to being physically active.²⁵ This instrument uses a 4-point Likert scale for individuals to identify if they would say or think any of the statements would be true for them, with 0 being *very unlikely* to 3 being *very likely*. Per instrument instructions, each barrier has 3 items that are summed for scoring, with a range of 0 to 9 for each. In this instrument, the 7 perceived barrier categories are lack of time, social influences, lack of energy, lack of willpower, fear of injury, lack of skill, and lack of resources. A score of 5 or above in any category indicates that this specific category may be an important barrier for an individual to overcome. All items had good distributions, with standard deviations ranging from 1.22 to 2.92. Cronbach's alpha was considered good at a value of .849,^{23,24} once again indicating overall internal consistency and reliability of the instrument in the current sample.

Statistical Analyses

Statistical analyses were performed using SPSS 16.0 (SPSS, Chicago, Illinois). Descriptive statistics were calculated for traditional and nontraditional students, including age, sex, race, BMI, academic major, and employment status. For traditional and nontraditional students, a multivariate analysis of variance (MANOVA; with post hoc = Bonferroni alpha .05) was used to compare traditional and nontraditional students and the 7 perceived barriers to being active. Stepwise regression was also utilized for further analysis of traditional and nontraditional students and barriers to exercise.

For the EMI-2, MANOVA (with post hoc = Bonferroni alpha .05) was also run for each comparison with the 14 different motivational factors for exercise and traditional and nontraditional college students. Stepwise regression was again used for further analysis of traditional and nontraditional college students and the subscales of the EMI-2.

RESULTS

Participants

A total of 746 students aged 21.0 ± 5.7 years completed the surveys either online or in person. Of the health and wellness classes visited, 641 students of the possible 720 students completed the 3 surveys, administering a response rate of 89.0%. Lack of attendance on that particular day as well as voluntary involvement may have contributed to this response rate. Although the number of students that actually attended the Lifelong Learning Center during the time the survey was available is unknown, only 5 surveys were completed by students in this center. The final 100 surveys were completed online through the link provided. No significant differences were seen for sex, race, academic major, BMI category, or employment status between students completing the surveys in person or online ($p > .05$). Of the respondents, 628 were traditional students (19.1 ± 1.2 years) and 118 were nontraditional students (31.2 ± 8.6 years), representing 84.2% and 15.8% of the sample, respectively. Approximately 33% reported living on campus and of those who lived off campus, 30% reported living within 10 miles of campus, which is consistent with data from the ACHA-NCHA II.⁹ Table 2 provides the self-reported demographic characteristics for the traditional and nontraditional students in the study including sex, race, academic major, BMI, and employment status.

Results for the Exercise Motivations Inventory-2

Using MANOVA, a statistically significant difference ($p < .05$) was found between traditional and nontraditional college students in 8 of the 14 subscales of the EMI-2. Table 3 shows the differences in means between traditional and nontraditional college students for each of the 14 subscales. Statistically significant differences between groups were found for the following variables: challenge, social recognition, affiliation, competition, health pressure, ill health avoidance, appearance, and nimbleness. Stepwise regression indicated competition to be the only statistically significant motivational predictor ($p < .05$) for PA between traditional and nontraditional college students.

Results for the Barriers to Being Active Quiz

MANOVA revealed a statistically significant difference ($p < .05$) between traditional and nontraditional college students on 3 of the 7 perceived barriers to PA. Table 4 shows the differences in means between traditional and nontraditional college students for each of the 7 barriers. The groups had statistically significant differences for the following 3 barriers: fear of injury ($p = .001$), lack of skill ($p = .003$), and lack of resources ($p = .017$). Both traditional and nontraditional

TABLE 2. Demographic Characteristics of Participants (N = 746)

	Traditional students (N = 628)		Nontraditional students (N = 118)	
	n	%	n	%
Sex				
Male	249	39.6	46	39.0
Female	379	60.4	72	61.0
Race				
Caucasian	497	79.1	69	58.5
African American	55	8.8	29	24.6
Asian or Pacific Islander	17	2.7	7	5.9
Native American	4	0.6	0	0.0
Hispanic	32	5.1	7	5.9
Other	20	3.2	6	5.1
Academic major				
Undecided/Undeclared	99	15.8	6	5.1
Business	99	15.8	23	19.5
Education	71	11.3	22	18.6
Fine arts	24	3.8	3	2.5
Humanities and social sciences	120	19.1	23	19.5
Math and science	85	13.5	17	14.4
Health and human services	127	20.2	23	19.5
BMI category				
Underweight (BMI <18.5)	33	5.3	2	1.7
Normal (BMI 18.5–24.9)	417	66.4	56	47.5
Overweight (BMI 25.0–29.9)	128	20.4	39	33.1
Obese (BMI >30.0)	40	6.4	19	16.1
Full- or part-time employment				
Yes	365	58.1	71	60.2
No	261	41.6	46	39.0
Did not answer	2	0.3	1	0.8

Note. BMI = body mass index.

students reported the same top 3 barriers to exercise as lack of time, lack of energy, and lack of willpower. There was no statistically significant difference between groups ($p > .05$) for these barriers, but these were statistically higher than other reported barriers ($p < .05$). Stepwise regression showed fear of injury to be the only statistically significant predictive barrier to PA between traditional and nontraditional college students.

COMMENT

The purpose of this study was to determine what motivates college students to exercise as well as to identify the barriers that keep them from exercising and compare both motivational factors and perceived barriers to PA between traditional and nontraditional college students. The results of the study indicate that differences in motivation do exist between these 2 subgroups of a college student population.

TABLE 3. Comparison of the Means for Each of the 14 Subscales in the Exercise Motivations Inventory-2 Between Traditional and Nontraditional College Students

Variable	Traditional students		Nontraditional students		p value
	M	SE	M	SE	
Stress management	3.175	0.05	3.188	0.10	.921
Revitalization	3.226	0.05	3.145	0.11	.483
Enjoyment	3.248	0.05	2.994	0.13	.063
Challenge	2.993	0.05	2.519	0.12	.000
Social recognition	2.088	0.05	1.530	0.12	.000
Affiliation	2.315	0.06	1.665	0.13	.000
Competition	2.545	0.07	1.733	0.15	.000
Health pressure	1.529	0.05	1.957	0.12	.001
Ill health avoidance	3.521	0.05	3.823	0.11	.011
Positive health	4.200	0.03	4.183	0.08	.839
Weight management	3.556	0.06	3.472	0.13	.555
Appearance	3.593	0.04	3.372	0.10	.037
Strength and endurance	3.887	0.04	3.769	0.09	.251
Nimbleness	3.430	0.05	3.154	0.11	.020

Nontraditional students and traditional students differed significantly in 8 of the 14 subscales of the EMI-2. Traditional students were more motivated by challenge, social recognition, affiliation, competition, appearance, and nimbleness, whereas nontraditional college students were more motivated by health pressure and ill health avoidance. Although there is limited research on the motivational factors and barriers to PA in nontraditional students with which to compare these results, this investigation's findings on traditional students remain consistent with past research.^{6,17,20,26} Although some differences exist between the sexes, past research has consistently shown that appearance, competition, and challenge are all motivating factors in traditional undergraduate students.^{6,17,20} Keating and colleagues note in their meta-analysis of college students' PA behaviors that being healthy is not a main motivator for this population, but the researchers postulate that this may be due to the age of

TABLE 4. Comparison of the Means for Each of the 7 Perceived Barriers in the Barriers to Being Active Quiz Between Traditional and Nontraditional College Students

Variable	Traditional students		Nontraditional students		p value
	M	SE	M	SE	
Lack of time	3.76	0.11	4.10	0.25	.225
Lack of energy	4.00	0.11	4.00	0.26	.963
Lack of willpower	4.04	0.12	3.90	0.27	.604
Social influence	2.33	0.08	2.72	0.20	.065
Lack of resources	1.53	0.07	1.97	.017	.017
Lack of skill	0.99	0.07	1.49	0.15	.003
Fear of injury	0.55	0.05	0.94	0.11	.001

undergraduate students and a general lack of concern for health problems in this age group.⁶ Consistent with the predictions of Keating et al on self-motivation in college students, health was not a motivational factor for this sample of traditional students, but, interestingly enough, health concerns, particularly health pressures and ill health avoidance, were the 2 main motivators for the nontraditional students. These findings on nontraditional students suggest that health concerns may be an age-related determinant to PA. These data are similar to results from de Andrade Bastos et al²⁷ who examined motives for participation in PA in 238 Brazilian adults, aged 16 to 60 years. They too found that the young adults rated health and fitness motives to participation in PA of lower importance compared with the older adults. Additionally, the young adults rated enjoyment, social experience, and improvement in appearance as the highest motives for PA.²⁷ These findings may be beneficial to health and fitness professionals when developing and implementing PA interventions that target *all* students on college campuses.

Although there was a difference between the groups for some barriers, neither traditional nor nontraditional college students had a mean score greater than 5.0 on any of the barriers, which would indicate a major barrier for the sample. However, the 3 highest rated barriers did have means close to 4.0, which indicates that a large portion of the student population surveyed did view these as greater obstacles than the other possible barriers. Both traditional and nontraditional students reported the same top 3 barriers to exercise as lack of time, lack of energy, and lack of willpower. Although there was no difference between groups for these barriers, they were significantly higher than other reported barriers. As for the other perceived barriers, traditional and nontraditional college students were significantly different for 3 of the 7 barriers ($p < .05$). Fear of injury, lack of skills, and lack of resources were higher in nontraditional college students. If an individual feels that he or she does not possess the skills needed to complete an exercise or perform an exercise correctly, the likelihood of PA participation will decrease. Additionally, if these skills are not obtained, individuals may become or remain fearful of getting injured. A greater understanding of why these barriers emerged in nontraditional students is worth further investigation, as the underlying reasons for these barriers could help with overcoming these barriers. For example, nontraditional students may have concerns of an injury interfering with all aspects of daily life or they may not realize exercise options that require little skill such as brisk walking.

In this investigation, researchers found that overall, nontraditional students perceived significantly greater barriers than their traditional counterparts. These results suggest that when promoting exercise on a college campus, efforts should be made to market the benefits of regular PA while also offering realistic suggestions to combat known barriers for a diverse student population. It is also important to provide options for all students to acquire the skills they need to successfully and safely exercise. As mentioned previously, all students at this particular university are required to take a fit-

ness and wellness course. Although the course does provide vital information on lifelong fitness and wellness, teaching the physical skills necessary to exercise properly are not necessarily addressed.

Previous research by El Ansari and Lovell²⁸ investigated the barriers to exercise in younger and older women and found that the older nonexercising women reported significantly higher barriers to exercise compared with the younger women. In contrast, King's²¹ study on barriers in young female adults found that limited access to facilities was the main barrier keeping these individuals from exercising. Additionally, a study on female university students in the United Kingdom agreed most with the barrier "places for me to exercise are too far away," which represents lack of resources.²⁹ This was not the case for the younger people in the present sample who did not feel that they had limited resources for regular exercise, which may be due to the traditional students' awareness of on-campus resources, such as recreation and exercise facilities. It is interesting to note that every student at this southeastern university, as well as numerous other college campuses throughout the United States, pays for access to the exercise facilities in the form of required fees. Although it may be difficult for the nontraditional students to get to a facility because of other commitments such as work, family, and school, all of these students have the same resources available to exercise when on campus.

Limitations

Although this study adds to the literature on traditional and nontraditional college students, it is not without limitations. All of the data in this study were self-reported, which could somewhat affect the results if students did not understand a question or if false information was reported. Confounding variables such as employment status and income may also affect results. However, the purpose of this investigation was to compare motivation and barriers to exercise between traditional and nontraditional students and lack of time, lack of energy, and lack of willpower were equally identified as important barriers to overcome, suggesting that outside influences, regardless of the source, may play a role in exercise habits. Additionally, the sample in this study was recruited from 1 geographic area, which makes it difficult to generalize the findings to all college students. Also, most of the students were sampled from a fitness and wellness course. Although the sample was purposely taken at the beginning of the semester to reduce bias based on course content, even a brief exposure to this class could have influenced students' perceptions on these topics. The study also had a large number of traditional students compared with nontraditional students. However, these data appear to be representative of other campuses based on the ACHA-NCHA II data, which show that nearly 20% of students sampled were ≥ 25 years old with 9% being ≥ 30 years of age.⁹ Additionally, student demographic information for the term during which data were collected shows that total undergraduate enrollment was approximately 22,000 students and 10% of the undergraduate population was ≥ 35 years old, which was a

4% increase over the previous 5 years and 26% of incoming freshman were of a nontraditional age defined as ≥ 20 years old.³⁰

In spite of the limitations in this study, several strengths were seen in this research. The sample size of both traditional and nontraditional students was adequate. Additionally, the EMI-2 has been a valid and reliable instrument in determining motivational factors to PA in numerous populations.³¹ The majority of the surveys were administered face-to-face in a classroom, resulting in a favorable response rate and an opportunity for students to verify that they understood the questionnaires. This study is unique by providing insight into the motivational factors and barriers to PA in traditional college students compared with nontraditional college students, and these data may help campuses develop programs that address the needs of an entire student population.

Conclusion

Fitness and wellness professionals on college campuses face the challenge of trying to increase or maintain PA levels in all university students. Determining what motivates students to exercise is an essential component in increasing PA in any population. Our findings clearly demonstrate the difference in motivational factors between traditional and nontraditional college students. Interventions that focused on health concerns, including but not limited to a reduction in the risk of developing heart disease, hypertension, and type 2 diabetes and other positive aspects of exercise such as weight control and stress management, can be beneficial to all students on college campuses, though may be more of a possible motivator for nontraditional students. Meeting the needs of nontraditional students may require new considerations, which could involve offering additional exercise classes, forming walking groups, or designing circuits that are quick and efficient. Additionally, determining the common barriers to PA and how to overcome those barriers on college campuses is an important aspect in fitness promotion. These results also suggest that teaching time management skills may be an effective tool in helping to overcome the top 3 barriers of lack of time, lack of energy, and lack of willpower in a college student population. Further, teaching nontraditional students the physical skills needed to properly exercise may be a starting point in increasing this population's PA. With many known benefits of exercise participation, including psychological and physical benefits, future research should continue to focus on what motivates college students to be physically active as well as which barriers to overcome to ultimately increase PA. With the changing face of college campuses, future studies need to continually examine exercise determinants in traditional as well as nontraditional college students to best meet the needs of an increasingly diverse student population.

NOTE

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