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PHYSICAL ACTIVITY

Effects of Requiring Physical Fitness in a Lecture-Based College Course: Students' Attitudes Toward Physical Activity

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Abstract

In this study, we investigated students' attitudes toward physical activity (PA) when including a required PA component in a university-required personal wellness class. The study included (a) an experimental group of students enrolled in a personal wellness course in which there was a required PA requirement and (b) a control group of students enrolled in a personal wellness course in which there was no PA requirement. Subjects were tested using the Corbin Attitude Test. The students in the experimental group were exposed to an additional PA requirement in which they were to exercise at least twice per week at a perceived exertion level of 4 or above on the modified 1 to 10 scale. Students in the control group were only required to complete the university-required personal wellness course, which did not include a required PA component. A repeated measures ANOVA was used to determine if adding the PA component had an effect on students' attitudes and perceptions toward their personal health and to check for significance between gender and

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attitude toward physical activity. The analysis of the data showed no significant gain or decline in attitude for either group, suggesting that although specific required PA does not significantly improve attitude, it does not hurt it either. It could be surmised from this study and similar studies that choice of activity is the most important factor for improving attitude toward PA.

"Physical fitness is not only one of the most important keys to a healthy body; it is the basis of dynamic and creative intellectual activity" – John F. Kennedy (LaLanne, 1995).

Student attitude toward physical activity (PA) is not a new area of research. However, with trends in PA and health changing for the worse, it is a subject matter that should be revisited consistently to understand the current attitudes toward PA as they relate to current activity and health levels.

Currently, the adult recommendation for PA is at least 150 min of moderately intense aerobic activity each week, along with at least 2 days/week of strength training (American College of Sports Medicine, 2011). The recommendation for children and adolescents is 60 min or more of PA per day. As a part of the 60 min, aerobic activity, bone strengthening, and muscle strengthening are to be included (Centers for Disease Control and Prevention [CDC], 2014). What is being recommended, however, is not being followed. Currently, less than half of adults (48%) meet the activity levels and only 3 of 10 children and adolescents are meeting their recommended levels (CDC, 2014).

Healthy People 2020 (U.S. Department of Health and Human Services, 2013) reported that regular PA throughout life is important for maintaining a healthy body, enhancing psychological well-being, and preventing premature death. Physically active people live longer and have a better quality of life than do those with a sedentary lifestyle. A sedentary lifestyle is also a primary reason for overall loss of functional capacity (Hensley, 2000). Because lifetime PA is important to a longer and better quality of life, it is important to understand differences in motivational characteristics of those who are active versus inactive.

Researchers have suggested that one key to the differences between active individuals and inactive individuals is attitude

(Forrester, Arterberry, & Barcelona, 2006; Kahn et al., 2008; Mack & Shaddox, 2004; Mowatt, Depauw, & Hulac, 1988; Nelson, Benson, & Jensen, 2010; Pearman & Valois, 1997; Poobalan, Aucott, Clarke, & Smith, 2012). However, interventions and factors affecting attitude have not been as present in the literature. We will discuss various research concerning the relationship in attitude and PA and factors surrounding the topic.

To begin to understand the motivational characteristics and attitude toward PA, it is important to examine the factors contributing to attitude and PA in adolescence. Subramaniam and Silverman (2007) examined middle school students' attitudes toward physical education. The students had a moderately positive attitude toward physical education, yet this positive attitude declined with an increase in grade level. According to the authors, this decline in positive attitude may be related to the repetitive nature of physical education activities in Grades 6, 7, and 8 and consequently decreases enjoyment of physical education—a major indicator of student attitude toward physical education. Subramaniam and Silverman concluded that interventions at the middle school level—meaningful engagement in physical activities—can prepare students for lifetime PA participation.

Another cohort of children and adolescents was examined using an accelerated longitudinal analysis to depict trajectories of PA to investigate the activity levels from 1997–1999 of over 12,000 10- to 18-year-old males and females included in a previous study in the United States. In this study, Kahn et al. (2008) established that PA was affected by parental attitudes toward PA, personal attitudes about body image, and subsequent perceived peer attitudes toward body shape and fitness (not all-inclusive). In addition, Kahn et al. determined that age was the only element that forecasted change in PA over time. For instance, parental attitudes were positively associated with PA in both genders and in perceived peer attitudes about body shape—thin for females and muscular for males. Because activity levels seemed to decline during adolescence, Kahn et al. also suggested that interventions to increase PA should be in place prior to adolescence.

Conversely, it has also been found that interventions in young adulthood can also influence attitude toward PA. Mack and Shaddox

(2004) examined college students' attitudes toward PA during a required personal wellness course, which consisted of lecture and lab activities. For the lab portion, students had to choose between aerobic activities such as aqua aerobics, biking, aerobic cross-training, power walking/jogging, or cardio-kickboxing and skill-based activities such as dance, badminton, racquetball, volleyball, weight lifting, or yoga. Upon completion of the course, participants showed significant improvement in attitude toward PA at least in the short term. The variety of activities available may be a key element to increasing the positive attitude.

Even more significant, when considering lifetime PA, are the findings of Pearman and Valois (1997). They found that college students who participated in a required health and physical education course (College A) had a more positive attitude toward PA than college students who were not required to take such a course (College B). The choice of postgraduation PA was also evidence of continued active lifestyle in the study; College A alumni were more likely to choose jogging, an aerobic activity, as their preferred choice of PA, whereas the alumni from College B more often reported gardening, hunting, and fishing as the preferred activities of choice.

As depicted above and found by Mowatt et al. (1988), college students with a positive attitude toward PA are more likely to be active throughout their lives and, in turn, demonstrate more intense exercise behaviors than do those with a less positive attitude. This research included lecture and activity sessions as well, as the activity was already a part of the course; in the analysis, students who received lecture material indicated only a slightly more positive attitude toward PA than did those without the presentation of lecture material. In addition, although females had a more positive attitude toward PA than did males, the majority of the students indicated that PA was important.

Furthermore, despite the young adults knowing that PA is important, Poobalan et al. (2012) found that only 28% of 18- to 25-year-olds achieve recommended levels of PA; attitudes, motivators, and barriers were considered influential factors for the participants. They also concluded that positive attitudes that lead to an active lifestyle are associated with PA that is easy to do and enjoyable. In addition, despite an awareness of the benefits of exercise and good intentions,

young people found it difficult to increase PA (Poobalan et al., 2012). Reported barriers for increasing PA were few choices of activities and few concerns about their future health (Poobalan et al., 2012). These barriers may provide insight as to what interventions should entail when targeting young people.

Additionally, Forrester et al. (2006) found that the more importance a college student places on sport, fitness, and PA, the more importance they place on PA postgraduation. One major aspect of determining this importance was the perceived effect of the benefits of physical health and well-being. Such benefits included a sense of accomplishment, sense of adventure, fitness, physical strength, balance/coordination skills, and stress reduction; indeed, the strongest predictor of positive responses toward the importance of sports and fitness after graduation was the benefits of physical health and well-being.

Many studies show that a positive attitude is associated with PA; however, in many instances, a positive attitude is influenced by certain conditions. Therefore, although many individuals have a good attitude toward PA, a considerable number still have a negative attitude. This can create a barrier to participating in PA. According to Nelson, Benson, and Jensen (2010), negative attitudes stem from beliefs that exercise is unpleasant (painful) or has negative consequences; this may also be a stronger indicator of nonparticipation in PA than a positive attitude is toward participation in PA. They also concluded the importance of interventions to increase PA in children and adolescents.

Much of the research previously performed on attitude and PA is in reference to recreational activity and not required activity. Therefore, the outcomes of this study on attitude toward required PA among college students are important additions to the literature and may provide significant insight on how to promote and increase PA among college students.

Method

The purpose of this study was to compare the effect of adding a PA component to a university-required personal wellness course. To investigate the hypotheses, we used preliminary procedures and operational procedures. Preliminary procedures included the selec-

tion of subjects, instrumentation, research design, and statistical analysis to create a foundation and prepare for the study. The operational procedures, including the administration of the treatment and data collection and preparation, were used to explain the process by which the testing and investigation was conducted.

Participants and Procedures

The sample for this study consisted of 55 male and 38 female students enrolled in four personal wellness courses at a Midwestern university. The course was a required general education course. The students in the class participated voluntarily and were not eligible for the study if they were varsity student-athletes and/or health and human performance majors. The athletes were excluded from the study because they were already participating in mandatory exercise. Health and human performance majors were excluded because some of the courses they were taking already required PA. The participants were assigned to either the control group or the experimental group based on the personal wellness class in which they were enrolled. Before the test was given, students who were willing to participate completed the informed consent form. The researcher read instructions to all classes being tested to prevent variance in basic instructions. The study was administered in three phases: (1) pretest, (2) treatment (personal wellness class with the PA component for the experimental group), and (3) posttest. The experimental group was instructed during the class lecture, the same as the control group; however, the experimental group was also required to complete an added PA component. It consisted of PA/exercise at least two times per week, at an intensity of 4 or above on the perceived exertion scale (Figure 1). This component was to be completed on personal time in the university wellness center. To fulfill this requirement of their university-required personal wellness class, the students were instructed to sign in at the wellness center before working out and then after working out and record their rate of perceived exertion.

Rating = Descriptor

0 = Rest
1 = Very, Very Easy
2 = Easy
3 = Moderate
4 = Somewhat Hard
5 = Hard
6 = Hard
7 = Very Hard
8 = Very Hard
9 = Very Hard
10 = Maximal

Figure 1. Modified perceived exertion scale.

Instrumentation

The instrument used to measure the dependent variable was the Corbin Attitude Test. The test was taken from the text *Concepts in Physical Education* (Corbin, Dowell, Lindsey, & Tolson, 1981). The instrument was chosen because it has been shown to have a reliability of greater than 0.90 and validity in excess of 0.80 (Corbin et al., 1981). The test consisted of 16 statements. Students responded to these statements by choosing one of the following answers: *strongly agree, agree, undecided, disagree,* and *strongly disagree.* A Likert scale was used to assign a score of 1–5 to the individual questions. Attitude was evaluated with an overall composite score of the individual's responses.

Research Design

For the study, we used a pretest, posttest, group-at-hand design. More specifically, two groups were tested: (a) the control group, which consisted of two classes of personal wellness students not receiving the PA component, and (b) the experimental group, which consisted of two classes of personal wellness students receiving the PA component in which they were required to engage in exercise twice a week at a perceived exertion level of 4 or higher on the modified perceived exertion scale from 1 to 10 (Figure 1). The experimental and control groups were given the Corbin Attitude Test in

the second week of the semester and again on the 14th week of the semester. Means were compared from the posttest control group and experimental group and between males and females. This was done to investigate significant differences between the groups' attitudes toward PA and exercise and to investigate gender differences among students toward PA and exercise. A repeated measures ANOVA was used to determine if adding a PA component to a required college personal wellness class had an effect on students' attitudes and perceptions toward their personal health and to determine differences in attitude changes between males and females. The repeated measures ANOVA was used to analyze if the PA component affected students' attitudes toward PA and exercise and to compare differences between males' and females' attitudes toward PA and exercise pretest versus posttest. The independent variable was the PA component that two of the four classes received. The dependent variable, student attitude toward PA and exercise, was compared through the evaluation of scores obtained from each subject on the Corbin Attitude Test. The null hypothesis was tested at the 0.05 level of significance. To aid in the analysis process, SAS Software was used.

Results

The null hypothesis was formulated to test if there would be a significant difference in attitude between the control group pretest and the control group posttest and between genders.

The results of the repeated measures ANOVA are presented in Tables 1 and 2, indicating no significant effect in the treatment. Mean scores are displayed in Tables 3, 4, and 5 and illustrated in Figure 2. The mean scores support the findings of nonsignificance. This is illustrated in Figure 2, with the mean differences close among all groups. Therefore, the null hypothesis was accepted, and no significant differences were found in attitude between the pretest scores and posttest scores of students enrolled in personal wellness courses and no differences between attitude toward PA and gender.

Table 1
ANOVA Results for Within Subjects Effects

Source	*df*	SSw	*MS*	*F*	*p* > *F*
Pretest–Posttest Difference Overall	1	323.25	323.25	27.99	< .0001
Pretest–Posttest Difference in Gender	1	7.14	7.14	0.62	0.433
Pretest–Posttest Differences Experimental vs. Control	1	0.11	0.11	0.01	0.9208
Pretest–Posttest Difference in Gender and Experimental vs. Control	1	3.67	3.67	0.32	0.57
Error (Difference)	90	1039.33	11.55		

Table 2
ANOVA Results for Between Subjects Effects

Source	*df*	SSw	*MS*	*F*	*p* > *F*
Gender	1	18.69	18.69	0.22	0.64
Experimental vs. Control	1	9.07	9.07	0.11	0.74
Gender and Experimental vs. Control	1	317.94	317.94	3.83	0.05
Error	90	7497.67	83.107		

Table 3
Overall Means for Males and Females

Gender	Pretest	Posttest
Female	59.31	61.61
Male	59.56	62.67

Table 4
Overall Means for the Experimental Group and Control Group

Group	Pretest	Posttest
Control	59.64	62.39
Experimental	59.24	61.89

Table 5
Means for the Experimental Group and Control Group Males and Females

Gender/group	Pretest	Posttest
Female Control Group	61.00	63.07
Female Experimental Group	57.63	60.17
Male Control Group	58.28	61.72
Male Experimental Group	60.84	63.62

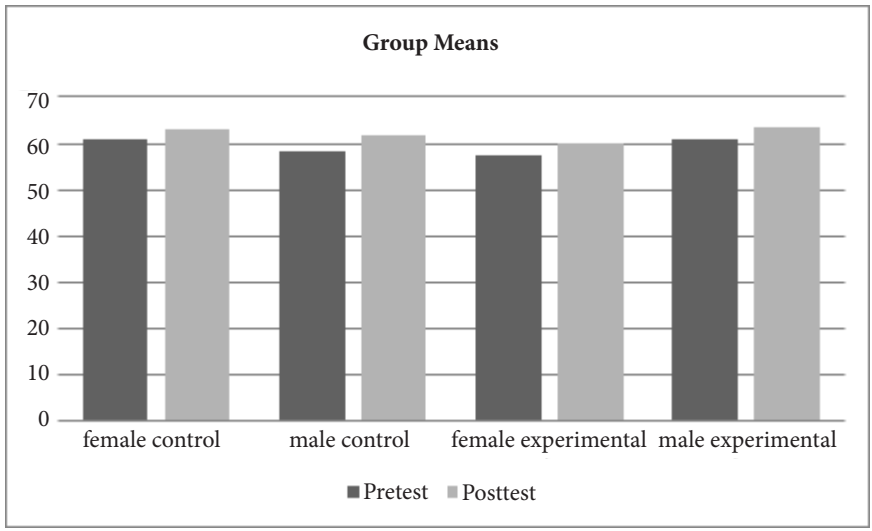

Figure 2. Group means for female and male control and experimental pretest and posttest scores.

Discussion

Based on the literature reviewed, physical inactivity is a serious problem among children, adolescents, and adults. This sedentary lifestyle has led 69.2% of adults in America to be overweight or obese (CDC, 2014). It is vital as a society to investigate ways of developing attitude to promote PA to improve the health of Americans.

Numerous attitudinal studies suggest that individuals with a positive attitude toward PA are more likely to be active throughout their lives and, in turn, demonstrate more intense exercise behav-

iors than are those with a less positive attitude (Forrester et al., 2006; Mowatt et al., 1988; Pearman & Valois, 1997; Poobalan et al., 2012).

Research also supports the notion that although a positive attitude is associated with PA, much of it seems to be related to the conditions in which individuals are active. It is also important to note that a considerable number of individuals have a negative attitude toward PA. This results in a barrier, hindering the individual from participating in PA (Nelson et al., 2010). Therefore, to find out how a positive attitude toward PA is established, it is important to understand which activities contribute to a positive attitude, negative attitude, and activities that do not seem to have any effect on an individual's attitude.

In this inquiry, we compared the effect of adding a PA component to a university-required personal wellness course. The results suggest the addition of an assigned PA component to university-required personal wellness courses did not significantly affect attitude toward PA and exercise among either the control or experimental groups tested. We also compared gender differences, and those results also suggest no significant differences. In 2004, Mack and Shaddox's research contradicted these findings. They found significant differences in attitude toward PA and exercise upon completion of an added PA component to a required personal wellness class. Our inquiry indicated some improvement in mean attitudinal scores, but it clearly did not have the results Mack and Shaddox found. However, a main difference in the research methods in our study compared to those of Mack and Shaddox is that their required PA component allowed variety and choices. This attitudinal comparison was also noted by Mowatt et al. (1988). They added lecture to activity courses; however, the activity courses were electives and students had a choice of the activity course they wanted to take. It seems this is a commonality in research of attitude toward PA. When individuals are given a choice, have a structured environment, and have time, their attitudes improve. However, in our inquiry, it can be reasoned that because the PA was prescribed and did not vary, it caused no effect on participants' attitudes. If students were given more options, they may have found physical activities more enjoyable, resulting in a greater increase in attitude toward PA.

Although the specific, required PA did not improve participants' attitudes, it also did not negatively affect the participants' attitudes. Knowing what does not work regarding improving attitude toward PA is as important as knowing what does work. Information such as this is important in that it provides a basic guideline for individuals in positions that can potentially affect attitude toward PA, specifically in situations when these individuals are looking for the participants to enjoy what they are doing and wanting to create a positive attitude in hopes they continue being active.

The results of this research can help with decision making concerning required PA, but it is important to acknowledge that this research did not have the same *N* as some of the others in the literature. Based purely on mean scores, participants in each group improved their attitudes toward PA, and the findings could have been significant if there had been a larger *N*. So it can also be deduced that if the only option is to require a specific type of PA, it will not harm participants' attitudes as this research suggests.

Although the findings of this study did not concur with findings in similar research, in which significant differences were found in attitude toward PA upon completion of required PA, research in this area is still essential in identifying indicators that will improve and promote PA and exercise, in turn improving overall health.

References

American College of Sports Medicine. (2011). ACSM issues new recommendations on quantity and quality of exercise. Retrieved on July 23, 2013, from http://www.acsm.org/about-acsm/media-room/news-releases/2011/08/01/acsm-issues-new-recommendations-on-quantity-and-quality-of-exercise

Centers for Disease Control and Prevention. (2014). How much physical activity do children need? Retrieved November 20, 2014, from http://www.cdc.gov/physicalactivity/everyone/guidelines/children.html

Corbin, C. B., Dowell, L., Lindsey, R., & Tolson, H. (1981). *Concepts in physical education.* Dubuque, IA: Wm. C. Brown.

Forrester, S., Arterberry, C., & Barcelona, B. (2006). Student attitudes toward sports and fitness activities after graduation. *Recreational Sports Journal, 30,* 87–99.

Hensley, T. (2000, October 6). Lower direct medical costs associated with physical activity. Retrieved October 25, 2005, from http://www.cdc.gov/media/pressrel/r2k1006a.htm

Kahn, J. A., Huang, B., Gillman, M. W., Field, A. E., Austin, S. B., Colditz, G. A., & Frazier, A. L. (2008). Pattern and determinants of physical activity in U.S. adolescents. *Journal of Adolescent Health, 42,* 369–377. http://dx.doi.org/10.1016/j.jadohealth.2007.11.143

LaLanne, J. (1995). *Revitalize your life after 50.* Mamaroneck, NY: Hastings House.

Mack, M. G., & Shaddox, L. A. (2004). Changes in short-term attitudes toward physical activity and exercise of university personal wellness students. *College Student Journal, 38,* 587–593.

Mowatt, M., DePauw, K. P., & Hulac, G. M. (1988). Attitudes towards physical activity among college students. *The Physical Educator, 45,* 103–108.

Nelson, T. D., Benson, E. R., & Jensen, C. D. (2010). Negative attitudes toward physical activity: Measurement and role in predicting physical activity levels among preadolescents. *Journal of Pediatric Psychology, 35,* 89–98. http://dx.doi.org/10.1093/jpepsy/jsp040

Pearman, S. N., III, & Valois, R. F. (1997). The impact of a required college and physical education course on the health status of alumni. *Journal of American College Health, 46,* 77–85. http://dx.doi.org/10.1080/07448489709595591

Poobalan, A. S., Aucott, L. S., Clarke, A., & Smith, W. C. S. (2012). Physical activity attitudes, intentions, and behavior among 18–25 year olds: A mixed method study. *BioMed Central Public Health, 12,* 640–650. http://dx.doi.org/10.1186/1471-2458-12-640

Subramaniam, P. J., & Silverman, S. (2007). Middle school students' attitudes toward physical education. *Teaching and Teaching Education, 23,* 602–611. http://dx.doi.org/10.1016/j.tate.2007.02.003

U.S. Department of Health and Human Services. (2013). Physical activity. Retrieved on July 25, 2013, from http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=33