



Unravelling Students' Attitudes Toward Lifelong Exercise

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Abstract

Background. A central purpose of learning in physical education (PE) is to facilitate students' physical development and competence that determine lifelong engagement in exercise. Therefore, exploring and understanding students' attitudes toward lifelong exercise contributes significantly to achieving it.

Objectives. Two studies examined students' attitudes toward lifelong exercise. The first study focused on using social and personal variables as predictors. The second study involved a repeated measures design to determine if there were differences in attitudes as students progressed to the next grade and between schools. Additionally, the study aimed to investigate whether there were variations in attitudes based on the students' physical activity levels.

Materials and methods. In the first study, 752 students of the 7th and 10th grades participated, representing 47 classes from 14 schools. Then, after conducting a repeated measures analysis one academic year later, from the initial sample, 460 students formed two cohorts, comprising Grades 7–8 and 10–11. All factors were internally consistent and well-defined by the variables. The first study used hierarchical linear regression to ascertain whether social and personal variables could be identified as predictors of students' attitudes toward lifelong exercise. The second study used a mixed ANOVA to assess differences in students' attitudes, measuring at two time points and between schools. Furthermore, a one-way ANOVA was performed to determine whether there were variations depending on students' physical activity level.

Results. According to the findings of this study, personal variables eliminated the significance of social variables, with task orientation having the highest beta (.33). The results also revealed a significant interaction between measurements in Grades 7 and 8, as well as between schools. Moderately and highly active students had more positive attitudes than sedentary students in both cohorts.

Conclusions. Task orientation and personal progress should be emphasized to increase students' motivation. Nevertheless, a task-supportive climate could improve their intrinsic motivation for lifelong exercise.

Keywords: attitudes, predicting, lifelong exercise, social variables, personal variables.

Introduction

In the last 20 years, the need to adopt lifelong exercise as a central goal for Physical Education (PE) has been crystallized (Wang & Chen, 2019). According to many countries' curricula, PE aims to develop students' knowledge, skills, and understanding to promote physical capacity and competence to maintain a lifelong engagement in PA and sports (MacNamara et al., 2011). This goal suggests that PE should emphasize physical activity (PA) promotion in and out of school (Wang & Chen, 2019). Physical education (PE) can significantly contribute to achieving these objectives by developing successful learners and competent individuals with the knowledge, skills, and understanding to participate

effectively and enjoy physical activities now and in the future (MacNamara et al., 2011). The World Health Organization specifically pinpointed schools as a key environment for promoting physical activity among children and teenagers, suggesting that schools should introduce opportunities and programs for physical activity and provide safe and suitable spaces that encourage participation in physical activity (WHO, 2021). Meanwhile, participation in physical activity is influenced by numerous factors to different extents, while behavioral changes can be attributed to both personal and social factors (Hu et al., 2021). Thus, while the value of lifelong exercise has been scientifically documented and accepted among physical education teachers (Polet et al., 2019), additional research is necessary to understand the factors that predict students' positive attitudes toward exercise and sports (Gut et al., 2020).

Students' attitude toward lifelong exercise reflects their tendency to act positively or negatively toward that concept

of interest (Fishbein & Ajzen, 2010). Its significance lies in correlating considerably with intention (Ajzen, 2005). The study of attitudes in the literature in recent years is explored through the theories of Fishbein and Ajzen (Atzen, 1985, 1988, 1993; Atzen & Fishbein, 1980) and their theoretical model that evolved with the following theories Theory of Reasoned Action (TRA), Theory of Planned Behavior and The Reasoned Action Approach (Silverman, 2017). Attitude is mainly investigated as a two-factor model, cognitive and affective (Mercier et al., 2022; Lima et al., 2018). The affective factor describes feelings related to their attitude and reflects the emotional attachment to the subject, while direct experience interactions often form it (Balga et al., 2019). On the other hand, the cognitive factor concerns beliefs (Donovan et al., 2015) and is linked to the logical evaluation of the object of an attitude, including what students know about the subject of their attitude. It includes their perceptions, thoughts, opinions, or evaluations about a topic, including perceived benefits of PE (Silverman, 2017) and positive and negative aspects (Balga et al., 2019). Additionally, motivation plays a critical role in identifying the potential of the school context to intervene and encourage young people to participate in physical activity during their free time (Polet et al., 2019) and later in life (Polet et al., 2020). Therefore, this research investigates potential social and personal variables of attitude theory and Achievement Goal Theory (AGT) concerning students' lifelong exercise. Social variables refer to motivation climate, and personal variables refer to perceived athletic competence, task and ego orientation in PE, perceived benefits of PE, and enjoyment in PE.

Social Factors

In the educational context, teachers regulate students' motivation through the motivational climate they create (Rodrigues et al., 2020). According to Achievement Goal Theory (AGT) (Nicholls 1984), the motivational climate perceived by the students refers to the environment created by what teachers say and do in the class context (Rodrigues et al., 2020), their teaching style, type of tasks, recognition of effort, feedback, and assessment procedures (Theodosiou & Papaioannou, 2006). Based on Ames (1992), two types of climates have been proposed: On one hand, a task-oriented climate perceives learning and personal progress as necessary, based on task and effort, while mistakes are crucial parts of the learning process (Rodrigues et al., 2020). Task-oriented climates are associated with enjoyment, interest, intrinsic motivation (Ferrer-Caja & Weiss, 2000; Papaioannou, 1994), and intention toward out-of-school sports participation (Rodrigues et al., 2020). On the other hand, there is an ego-oriented climate where teachers emphasize ego-referenced criteria (Rodrigues et al., 2020) and normative superiority (Theodosiou & Papaioannou, 2006). Ego-oriented climates are related to student comparison. Furthermore, students' perceptions of differential treatment and normative references are linked to unfavorable achievement outcomes (Rodrigues et al., 2020). Research shows that focusing on ego-oriented climates does not enhance student motivation or is not viewed as a desirable teaching strategy (Papaioannou, 1998), while it is negatively related to intrinsic motivation, interest, and perceived usefulness of lessons (Papaioannou, 1994).

Personal Factors

As AGT suggests, students' view of learning and the goals they choose to pursue are in an achievement setting and act as goals of action (Jaakkola et al., 2019), while individuals can demonstrate competence through two goal dimensions: Task and ego-orientated goals (Williams & Gill, 1995). Task-oriented students tend to adopt a positive, self-referenced perception of ability. Competence and subsequent satisfaction are obtained when they improve their performance, learn new skills, and do their best (Jaakkola et al., 2019; Williams & Gill, 1995). Students with a task orientation demonstrate positive or adaptive motivated behavior (Wang & Liu, 2007) and put significant effort into developing skills and self-improvement (Jakobsen, 2022). In research, holding a task-oriented goal is an essential predictor of youth sports and exercise participation (Papaioannou et al., 2006).

On the other hand, students holding an ego-oriented goal adopt a socially or normatively referenced perception of ability (Jaakkola et al., 2019) and evaluate success by comparing their ability with that of others (Jakobsen, 2022; Zourbanos et al., 2014). For instance, students feel successful when they demonstrate superior ability, outperform others (Smith et al., 2015), and are evaluated as top performers (Papaioannou, 1994), exert less effort than others while still being socially acceptable (Jaakkola et al., 2019). In addition, they are likely to demonstrate adaptive or maladaptive motivational responses depending on their level of perceived competence (Wang & Liu, 2007).

Furthermore, physical competence in PE influences students' motivation and affects students' physical performance and behavior (Kokkonen et al., 2020). It is among the most relevant contributors to PA during adolescence (Kokkonen et al., 2020), with physical educators playing an essential role in students' perceptions of physical competence (Wallhead & Buckworth, 2004). When students think they have demonstrated competence, they experience success (Williams & Gill, 1995), while students who perceive themselves as more competent in PE participate more in out-of-school PA (Wallhead & Buckworth, 2004).

Another vital mediator in PE that is positively and invariably associated with students' PA and out-of-school PA is enjoyment (Jaakkola et al., 2019; Huhtiniemi et al., 2019). The concept of enjoyment reflects an affective construct connected to enthusiasm, competence, and excitement for an activity like school PE (Jaakkola et al., 2019). It expresses the emotions of happiness, liking, pleasure, and fun (Jaakkola et al., 2019), while it implies that students participate in physical education when they are happy and enjoy it (Zhou & Wang, 2019).

Furthermore, students' perceived benefits of PE are a crucial factor that correlates with PA among youths and is significantly associated with 60 minutes or more of PA per day (Roth et al., 2019). They relate to the actions to be taken and explain the positive benefits expected from participating in PE (Standage et al., 2003b). Students willingly participate, even though the various actions may not be perceived as inherently pleasurable (Standage et al., 2003b). Students tend to emphasize the perceived benefits of PA in PE, including enjoyment, social advantages (like spending time with friends), psychological benefits, and improved athletic performance (Lyu & Gill, 2011).

Moreover, research indicates that participation in organized sports is a strong predictor of future physical activity (Kjønniksen et al., 2009). Students who participated in organized out-of-school physical activity programs had more favorable cognitions, enjoyed learning, made friends, and worked hard in physical education classes. Additionally, they exhibited higher motivation (Shen, 2012), while long-term involvement in organized sports during adolescence significantly impacts adult physical activity levels (Telama et al., 1997). Students' participation in organized out-of-school sports was controlled as an out-of-school context variable that strongly affected students' attitudes toward lifelong exercise (Kjønniksen et al., 2009).

This research aimed to examine several variables in school PE that support students' motivation and predict their attitudes toward lifelong exercise. By understanding the factors influencing students' positive attitudes toward it, we can better tailor our PE lessons to apply the lifelong exercise goal, the core of the PE curriculum. Therefore, the research questions were: a) whether social and personal variables in PE predict students' attitudes toward lifelong exercise while controlling for out-of-school organized sports participation. Furthermore, a second study, with repeated measurement, examined b) whether there were differences between schools in students' attitudes toward lifelong exercise in the amount of change that occurs over time as students progressed from Grades 7 to 8 and Grades 10 to 11 and c) whether there were differences according to their physical activity level.

Materials and Methods

Study 1

Participants and Procedure

This research initially involved 752 students (389 boys and 363 girls). The students attended Grades 7 ($n = 339$) and 10 ($n = 412$). They were aged 12 and 15 ($M = 13.67$, $SD = 1.5$). Fourteen schools were selected from different municipal districts of Athens, the capital city of Greece, and represented 47 classes.

One of the authors distributed the questionnaires to the students and informed them about the study's purpose. The students were instructed: "In the following sentences, circle what best matches what you think of..." and the response alternatives were explained. They were further informed that there were no right or wrong answers and that they were free to ask questions.

The research was approved by the Institute for Educational Policy, and data collection was conducted after approval from the University Institutional Research Ethics Committee. Participants were fully informed of the study's nature, and their participation was voluntary. Written consent was obtained from all participants and their parents/guardians.

Measures

Students' attitudes towards lifelong exercise: Students' attitudes toward lifelong exercise were evaluated after adapting the corresponding factor of the Physical Education Teachers' Self-efficacy scale (Gorozidis et al., 2012) to appeal to students. Following the stem "How significant is it for you in the Physical

Education class..." students responded to the five items of the scale (e.g., "...to learn ways of developing, maintaining, improving, and assessing your physical condition") on an 11-point Likert scale ranging from 100% (absolutely significant) to 0% (not significant at all). The content validity was assessed by two experts in attitudes, motivation, and questionnaire development, with many publications in peer-reviewed journals. However, indices obtained from the confirmatory factor analysis indicated a model accepted with caution ($\chi^2_{(5)} = 76.136$, $p < .001$, $TLI = .936$, $CFI = .968$, $RMSEA = .138$, 90% $RMSEA = .111 - .166$).

Perceived Classroom Climate Measures: The scale of Papaioannou's "Learning and Performance-Oriented Physical Education Climate Questionnaire" (LAPOPEQ; Papaioannou, 1994) was used to evaluate students' perceived motivational climate in their physical education class. LAPOPEQ consists of two sub-scales measuring task and ego-involving climate in PE. More specifically, task-involving climate refers to students' perceptions of the PE teacher's emphasis on learning (7 items; e.g., "The PE teacher is most satisfied when every student learns something new"), while ego-involving climate refers to their perceptions of the PE teacher's emphasis on performance orientation (6 items; e.g., "During the lesson, students try to outperform each other") (Papaioannou, 1994, 1998). The internal consistency of the task and ego-involving sub-scale was $\alpha = .84$ and $.79$, respectively. In addition, indices obtained from confirmatory factor analysis indicated the appropriate fit of the model with the data ($\chi^2_{(64)} = 288.718$, $p < .001$, $TLI = .908$, $CFI = .924$, $RMSEA = .069$, 90% $RMSEA = .061 - .077$).

Perceived competence: The Sport Competence Scale from the Physical Self-Perception Profile (PSPP-PC; Fox & Corbin, 1989) was used to measure perceived athletic competence in PE. It consists of six items (e.g., "Some people feel that they are good when it comes to participating in PE"). Students responded on a 5-point scale (5 = Very much like me to 1 = Not at all like me). The internal consistency of the scale was $\alpha = .83$. In addition, indices obtained from the confirmatory factor analysis indicated the appropriate fit of the model with the data ($\chi^2_{(8)} = 54.946$, $p < .001$, $TLI = .944$, $CFI = .970$, $RMSEA = .087$, 90% $RMSEA = .066 - .110$).

Task and Ego Orientation in Physical Education: The Task and Ego Orientation in Physical Education Questionnaire (TEOPEQ) (Duda & Nicholls, 1992) assessed students' dispositional goal orientation. Following the stem, "I feel most successful in physical education when ..." students responded to seven items referring to task orientation (e.g., "I learn something that is fun to do") and six items referring to ego orientation (e.g., "Others cannot do as well as me") on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The internal consistency of the two sub-scales was $.84$ for task orientation and $.88$ for ego orientation, respectively. In addition, confirmatory factor analysis showed acceptable goodness-of-fit indices ($\chi^2_{(64)} = 301.006$, $p < .001$, $TLI = .927$, $CFI = .940$, $RMSEA = .070$, 90% $RMSEA = .063 - .079$).

Perceived Benefits of PE: A short version of the "Perceived Benefits Scale" (Robbins et al., 2008) was used to measure students' perceived benefits in PE class. The scale was adapted for the PE lesson and translated with a reverse translation process to suit Greek students. Following the stem "A major reason for me to participate or work out in

PE class is to..." students responded to the four items of the scale (e.g., "...take care of myself, stay in shape, and be healthier"), on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The internal consistency of the scale was $\alpha = .76$. In addition, indices obtained from the confirmatory factor analysis indicated a perfect fit of the model with the data ($\chi^2_{(2)} = 2.226$, $p = .329$, TLI = .999, CFI = 1.000, RMSEA = .012, 90 % RMSEA = .000 - .074).

Enjoyment: A scale of the Intrinsic Motivation Inventory (IMI) (McAuley et al., 1989) was used to evaluate students' enjoyment in the PE class. A 4-item questionnaire assessed enjoyment (e.g., "On this physical education class, I enjoy very much"). The items were measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The internal consistency of the scale was $\alpha = .77$. In addition, confirmatory factor analysis indicated acceptable goodness-of-fit indices ($\chi^2_{(2)} = 11.601$, $p < .01$, TLI = .967, CFI = .989, RMSEA = .079, 90 % RMSEA = .039 - .126).

Statistical Analyses

Confirmatory factor analysis (CFA) was initially conducted on all scales to assess the factor structure before the main analyses. Descriptive statistical analyses were conducted to describe the study variables. The internal consistency coefficients of the scales were computed. IBM SPSS Statistics 29 was used, while descriptive statistics (means and standard deviations) were obtained for all variables.

Hierarchical linear regression as the basic analysis of covariance problem in regression was used to determine if the addition of information regarding task-involving climate and ego-involving climate (social variables) and then perceived athletic competence, task, and ego orientation in PE, perceived benefits of PE and enjoyment in PE (personal variables) improved the prediction of students' attitude towards lifelong exercise after differences in out-of-school organized sports participation were statistically eliminated. Motivation theories postulate that social factors influence motivation, so a specific motivational sequence (social

factors > personal factors > consequences) was proposed (Theodosiou & Papaioannou, 2006). The Theory of Planned Behavior also recognizes the potential influence of background factors (Ajzen, 2005). So, in the first steps, it was entered the social factors (task and ego-involving climate) and then the personal factors (perceived competence, task and ego orientation, perceived benefits of PE, enjoyment in PE) to see how each group of variables contributed to the prediction.

Results

Descriptive statistics, reliability analysis, and correlations

Means and standard deviations, Cronbach's α reliability index, and correlations of the examined variables are presented in Table 1.

Hierarchical regression analysis

In step 1, when out-of-school organized sports participation was entered alone significantly predicted students' attitude towards lifelong exercise, $F_{(1,750)} = 69.99$, $p < .001$, adjusted $R^2 = .08$. As indicated by the R^2 , only 8 % of the variance in students' attitude towards lifelong exercise could be predicted based on their participation in out-of-school organized sports.

When in step 2, task-involving climate and ego-involving climate were added to the prediction, R^2 reached .186 (adjusted $R^2 = .182$), which was statistically significant, $F_{(2,748)} = 46.08$, $p < .001$. The addition of a task involving climate to the equation significantly improved the prediction, resulting in a substantial increment in R^2 , which now predicts 19 % of the variance. According to Cohen (1988), this is a moderate effect. The ego-involving climate did not significantly improve the prediction, while out-of-school organized sports participation remained a significant predictor.

In step 3, with perceived athletic competence, task, and ego orientation in PE, perceived benefits of PE, and

Table 1. Means, standard deviations, Cronbach's α reliability index, and intercorrelations for Students' attitudes toward lifelong exercise and predictor variables (n = 752)

Variable	1	2	3	4	5	6	7	8	9
1. Attitudes toward lifelong exercise	-	-.29**	.36**	-.005	.03	.52**	.16**	.49**	-.36**
<i>Predictor Variables</i>									
2. Out-of-school organized sports participation		-	-.16**	-.02	.07*	-.15**	-.13**	-.18**	-.22**
3. Task-involving climate			-	-.12*	-.02	.56**	.08*	.49**	.49**
4. Ego-involving climate				-	.03	.04	.40**	.10*	-.02
5. Perceived competence					-	-.02	-.006	-.03	-.04
6. Task orientation						-	.25**	.62**	.48**
7. Ego orientation							-	.20**	.14**
8. Benefits of PE								-	.53**
9. Enjoyment in PE									-
Means	7.64	1.4	3.75	2.55	3.17	3.75	2.71	3.81	3.86
Standard deviations	2.14	.48	.70	.78	.85	.71	.99	.72	.69
α	.90		.84	.79	.83	.84	.88	.76	.77

Notes. α = Cronbach's α reliability index; * $p < .05$; ** $p < .01$

Table 2. Hierarchical multiple regression analysis summary predicting students' attitude towards lifelong exercise from task-involving climate, ego-involving climate, perceived competence, task orientation, ego orientation, perceived benefits of PE enjoyment in PE when controlling for out-of-school sports participation (n = 752)

Variable	B	SEB	β	R ²	ΔR^2
Step 1				.08	.09
Out-of-School organized Sports participation	-1.30	.16	-.29**		
Constant	9.41	.23			
Step 2				.19	.10
Out-of-School organized Sports participation	-1.07	.15	-.24**		
Task-involving climate	.99	.10	.32**		
Ego-involving climate	.07	.09	.03		
Constant	5.18	.55			
Step 3				.36	.18
Out-of-School organized Sports participation	-.87	.14	-.20**		
Task-involving climate	.02	.12	.007		
Ego-involving climate	-.16	.09	-.06		
Perceived competence	.16	.07	.06*		
Task orientation	.98	.12	.33**		
Ego orientation	.05	.07	.03		
Benefits of PE	.70	.12	.24**		
Enjoyment in PE	.09	.11	.03		
Constant	1.80	.60			

*p < .05; **p < .01

enjoyment in PE added to the prediction, R² reached .36, which was statistically significant, $F_{(2,743)} = 41.07$, $p < .001$. Adding perceived athletic competence, task orientation in PE, and perceived benefits of PE to the equation resulted in a significant increment in R², now predicting 32% of the variance. According to Cohen (1988), this is a large effect. Ego orientation in PE and enjoyment did not significantly improve the prediction. Out-of-school organized sports participation was still a significant predictor, while task and ego-involving climate were no longer significant.

This pattern of results suggests that over a third of the variability of students' attitudes towards lifelong exercise is predicted by out-of-school organized sports participation, perceived athletic competence in PE, task orientation in PE, and perceived benefits of PE.

The entire group of variables significantly predicted students' attitudes towards lifelong exercise, $F_{(8,743)} = 52.70$, $p < .001$, adjusted R² = .36. This is a large effect, according to Cohen (1988). The beta weights and significance values, presented in Table 2, indicate which variables contribute most to predicting students' attitudes towards lifelong exercise from task and ego-involving climate, perceived athletic competence, task and ego orientation in PE, benefits of PE participation, enjoyment in PE when controlling for out-of-school sports participation. With this combination of predictors, task orientation has taken the highest beta (.33) and, following that, perceived benefits (.24). In contrast, task and ego-involving climate and enjoyment in PE add no further to the prediction.

Study 2

This second study examined students' attitudes over time with a follow-up measurement. Differences were inspected in-

dividually, per school, and according to students' physical activity levels (sedentary, less active, moderately active, very active).

Participants and Procedure

A repeated measurement was conducted approximately one academic year later. From the initial sample, 460 students (210 boys and 250 girls) provided data for the follow-up measurement. So, two cohorts were formed, Grade 7 and 8 (n = 225) with seven schools, and Grade 10 and 11 (n = 235) with six schools. This second study followed the same procedure described for the first study (i.e., ethical consent and data collection). Data were entered and matched according to students' date of birth, class, and school since the questionnaire was anonymous. Students who did not provide data for the follow-up measurement were excluded, and missing values were deleted.

Measures

Students' attitudes toward lifelong exercise were evaluated using the previously validated scale "Students' attitudes toward lifelong exercise" (Gorozidis et al., 2012). This scale included five items (e.g., "How significant is it for you in Physical Education class to set goals for regular out-of-school exercise and to carry them out") on an 11-point Likert scale ranging from 100% (absolutely significant) to 0% (not significant at all).

Physical activity level: Students were grouped into four levels (sedentary, less active, moderately active, very active) according to their self-reported physical activity levels based on a single question using an 8-point response scale ("Think about your typical week. How many days do you exercise for at least 60 minutes during which you are short of breath?").

Statistical Analyses

A mixed ANOVA was used to assess differences in students' attitudes toward lifelong exercise in the two-time measurements and their school. Additionally, a one-way ANOVA was used to assess whether there were differences in students' attitudes toward lifelong exercise depending on their physical activity level (sedentary, less active, moderately active, very active)

Results

A mixed ANOVA was conducted to assess whether there were differences between schools in students' attitudes toward lifelong exercise regarding the amount of change in the repeated measurement of the two cohorts of Grades 7-8 and Grades 10-11. Results indicated a significant interaction of Grade 7 and 8 students' attitudes toward lifelong exercise and between schools $F_{(6, 223)} = 2.69$, $p = 0.15$, $R^2 = .07$, $\eta^2 = .07$. For students of Grade 10 and 11, there was not indicated a significant difference in their attitude toward lifelong exercise $F_{(1, 229)} = 1.15$, $p = .19$ nor a significant interaction between their attitude and school $F_{(5, 229)} = 1.18$, $p = .67$. The means and standard deviations for students' attitudes toward lifelong exercise in the two times measurement are presented in Table 3.

Table 3. Means and standard deviations of two times measurement

Variable	Grade 7-8		Grade 10-11	
	M	SD	M	SD
Time 1	7.98	1.84	7.62	2.11
Time 2	7.69	1.85	7.60	2.08

Furthermore, in the one-way ANOVA, a statistically significant difference was found in the mean of the two measurements in students' attitudes toward lifelong exercise among the four groups of students depending on their physical activity level (sedentary, less active, moderately active, very active) for Grades 7-8, $F_{(3, 221)} = 7.71$, $p < .001$. Likewise, for Grades 10-11, a statistically significant difference was found in the mean of the two measurements in students' attitudes toward lifelong exercise among the four groups of students depending on their physical activity level (sedentary, less active, moderately active, very active) $F_{(3, 231)} = 11.62$, $p < .001$. Table 4 shows mean and standard deviations for students' attitudes toward lifelong exercise according to their level of physical activity. Post hoc Tukey

Table 4. Means and standard deviations

Variable	Grade 7-8			Grade 10-11		
	n	M	SD	n	M	SD
Sedentary	26	7.27	1.67	49	6.56	1.83
Less active	84	7.5	1.33	76	7.62	1.42
Moderately active	66	7.99	1.21	64	8.14	1.23
Very active	49	8.52	1.38	46	7.98	1.62
Total	225	7.83	1.41	235	7.61	1.61

Tests indicate that in Grades 7-8, sedentary and less active students' attitudes differed significantly with very active students ($p = .001$ or less). Likewise, for Grades 10-11, sedentary students' attitudes differed significantly with less active, moderately active, and very active students ($p < .001$).

Discussion

The present study investigated attitudinal and motivation variables in PE that predict students' attitudes toward lifelong exercise. Identifying these factors can help PE teachers tailor their lessons more effectively to promote lifelong exercise. Factors were entered into a hierarchical linear regression with a specific sequence as outlined in the AGT theory (Lavigne et al., 2009; Standage, 2003a). Social variables were entered first and then followed by personal variables. The study revealed that personal variables play a crucial role while eliminating the effects of distal variables (Theodosiou & Papaioannou, 2006).

Participation in out-of-school organized sports was already verified as one of the strongest predictors of later physical activity in young adults (Kjønniksen et al., 2009). As this study aimed to test variables related only to PE, out-of-school sports participation was entered first to work as a covariate and control its effects. So, in this study, out-of-school organized sports participation remained a significant predictor at all steps. This highlights the critical role of PE teachers in designing a lesson that encourages students to engage in extra-curricular PA (Zhou & Wang, 2019) with the hope of fostering a more positive attitude toward lifelong exercise. According to the literature, students with experience in organized sports tend to have higher scores in both task and ego orientation, mastery, and performance-oriented motivational climate compared to students with no such experiences (Papaioannou, 1997).

The social environment mediates social-cognitive constructs such as goal orientations (Papaioannou et al., 2008). It is suggested that how students perceive indications expressed by the PE teacher significantly affects student investment (Standage et al., 2003a). An encouraging teacher committed to supporting students was more crucial to their success in the future than having high ability (Walling & Duda, 1995). Compatible with previous research, task-oriented motivation climate promoted exercise intentions (Papaioannou et al., 2004) and should be pursued at the school level (Papaioannou et al., 2006) as it is associated with lower class anxiety (Huhtiniemi et al., 2021), increased levels of enjoyment, and intentions toward leisure-time sports participation (Rodrigues et al., 2020). A class environment associated with personal development and improvement, effort, and learning instead of social and normative comparison is critical for students' positive experiences in PE (Jaakkola et al., 2019).

On the contrary, the ego-involving climate did not significantly improve the prediction. In previous studies, ego-involving motivational climates have increased anxiety and reduced enjoyment in PE (Jaakkola et al., 2019). However, personal variables eliminated the motivational climate's significant role. This result is compatible with previous research, as individual factors moderate the effects of social factors (Ferrer-Caja & Weiss, 2000).

The most crucial factor in predicting lifelong sports participation emerged as task orientation. According to AGT, task orientation significantly predicts adolescent sports and

exercise participation. The results confirm the positive role of task orientation while supporting the opinion that this salient predictor of youth sport and exercise participation should be a priority of the educational system (Papaioannou et al., 2006). Task-oriented students are intrinsically motivated and adopt self-regulatory behaviors in PE (Theodosiou & Papaioannou, 2006). On the other hand, ego orientation in research appears to be a temporary effect, a way to show ability, and not a cause of involvement in sports and exercise (Papaioannou et al., 2006).

Furthermore, perceived athletic competence contributed significantly with a small effect size. Students are more likely to enjoy the physical education lesson and stay motivated if it allows them to feel confident and competent (Evangelou & Digelidis, 2018). In previous research, perceived competence and task orientation positively impacted physical activity and determined adolescents' future participation in sports and exercise. High perceived ability motivates students to continue with physical activity involvement while predicting sport and exercise 7 and 14 months later (Papaioannou et al., 2006). Physical competence at Grade 7 predicted later PA engagement (Timo et al., 2015).

Another factor that significantly contributed to the prediction was the perceived benefits of PE. These represent beliefs that students perceive as important for their participation in PE and PA. According to this, the activities are performed freely but represent a means for some benefit, e.g., fitness gains and friends. (Standage et al., 2003b). Perceived benefits are proven crucial correlates of PA among middle school adolescents (Roth et al., 2019).

In recent literature, enjoyment has been strongly correlated with participation in physical activity during PE and leisure time (Huhtiniemi et al., 2021) and increased or maintained future participation (Harris et al., 2018). Among the factors that lead to enjoyment in PE are perceptions of students' competence, success, game involvement, and perceptions of control (MacNamara, 2011). Although most students enjoy physical activity, some have reported negative perceptions and anxiety that may arise from social evaluation, low competence, and peer comparison (Huhtiniemi et al., 2021). Enjoyment's significance to the prediction in this study was eliminated, which probably happened due to the contribution of task orientation (Ferrer-Caja & Weiss, 2000). In a longitudinal study, enjoyment in PE did not predict later PA engagement (Timo et al., 2015). Yet, an examination of PE research in children and adolescents indicates no documented studies exploring the lasting effects of perceived motivational climate on enjoyment in PE (Gråsten et al., 2012). To increase PE enjoyment, teachers should implement appropriate teaching strategies that promote a mastery climate (Huhtiniemi et al., 2021; Ferrer-Caja & Weiss, 2000) and modify activities to students' abilities and self-directed tasks (Zhou & Wang, 2019).

For a more comprehensive study of students' attitudes toward lifelong exercise, a second study with repeated measurement was conducted to determine differences in students' attitudes over time with the transition to the next grade. Two cohorts were formed: Grades 7-8 and 10-11. The attitudes of the two measurements were examined within and between schools. The results showed a decrease in the students' attitudes as they moved from Grade 7 to 8. Furthermore, the significant interaction between students' attitudes and the different schools revealed that differences were not attributed only to time but also to schools' differences. This confirms

the importance of the school's effect and influences early in school life. Besides, a school-supportive PA culture/environment was emphasized in studies to enhance PA in adolescents (Fernandez-Prieto et al., 2019). For Grades 10 and 11, neither the main effect nor the interaction was significant. It seems that students in that grade level have solidified their attitude.

Additionally, differences in students' attitudes were examined according to their level of physical activity. Students were divided into four groups based on their physical activity level: sedentary, less active, moderately active, and very active. In middle and high school, moderately and highly active students displayed more positive attitudes than sedentary students, confirming that increased physical activity led to a more positive attitude toward lifelong exercise. In a study, physically active university students engaged less in sedentary behaviors (Carballo-Fazanes et al., 2020).

Strengths and Limitations

Strengths of this study include the large, representative samples for both studies, with an initial sample of 752 male and female students in Grades 7 and 10. Furthermore, several predictor variables were tested according to theory, using confirmed psychometrically valid and reliable measures to evaluate variables of interest. The hierarchical analysis evaluated a group of predictors and, as a covariance analysis, evaluated the predictor's contribution while controlling for the influence of out-of-school sports participation. Additionally, with the repeated measurement of 460 students in Grades 7-8 and 10-11, valuable knowledge was provided on changes over time in two different grade levels and according to students' physical activity levels. Further research could improve the scale that measures "Students' attitudes towards lifelong exercise" for a better fit. Additional interventional studies on students' motivation towards lifelong PA can confirm results while providing further helpful knowledge.

Conclusions

The current study concludes that the students' personal goal orientations and perceived benefits of PE are essential in their positive attitudes toward lifelong exercise. Personal progress should be emphasized if we want students to increase their motivation. However, students' high PA level from early school life, out-of-school sports participation, and a perceived supportive teaching climate in PE through positive motivational experiences could improve their intrinsic motivation toward lifelong exercise. School physical education should revise its content, context, and structure to motivate students, enhance their enjoyment, and meet their needs as they progress to higher grade levels. Increasing students' physical activity in physical education and encouraging extracurricular activities is a significant goal of the school and the curricular programs implemented.

Conflict of Interest

The authors reported no potential conflict of interest.

References

- Wang, Y. & Chen, A. (2019). Two Pathways Underlying the Effects of Physical Education on Out-of-School Physical Activity. *Research Quarterly for Exercise and Sport*, 91(2), 197-208. <https://doi.org/10.1080/02701367.2019.1656325>

- MacNamara, A., Collins, D., Bailey, R., Toms, M., Ford, P., & Pearce, G. (2011). Promoting lifelong physical activity and high level performance: Realising an achievable aim for physical education. *Physical Education and Sport Pedagogy*, 16(3), 265-278. <http://doi.org/10.1080/17408989.2010.535200>
- Promoting physical activity through schools: a toolkit. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO.
- Hu, D., Zhou, S., Crowley-McHattan, Z. J., & Liu, Z. (2021). Factors That Influence Participation in Physical Activity in School-Aged Children and Adolescents: A Systematic Review from the Social Ecological Model Perspective. *International Journal of Environmental Research and Public Health*, 18(6), 3147. <https://doi.org/10.3390/ijerph18063147>
- Polet, J., Hassandra, M., Lintunen, T., Laukkanen, A., Hankonen, N., Hirvensalo, M., Tammelin, T., & Hagger, M. S. (2019). Using physical education to promote out-of-school physical activity in lower secondary school students – a randomized controlled trial protocol. *BMC Public Health*, 19(1). <https://link.springer.com/article/10.1186/s12889-019-6478-x>
- Gut, V., Schmid, J., & Conzelmann, A. (2020). The interaction of behavioral context and motivational-volitional factors for exercise and sport in adolescence: patterns matter. *BMC Public Health*, 20, 1-14. <https://doi.org/10.1186/s12889-020-08617-5>
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: the reasoned action approach*. Psychology Press. New York: Hove. <https://doi.org/10.4324/9780203838020>
- Ajzen, I. (2005). *Attitudes, Personality, and Behavior* (2nd ed.). Berkshire England: Open University Press.
- Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 11–39). New York, NY: Springer. https://doi.org/10.1007/978-3-642-69746-3_2
- Ajzen, I. (1988). *Attitudes, personality and behavior*. Chicago, IL: The Dorsey Press.
- Ajzen, I. (1993). *Attitude theory and the attitude-behavior-relation*. In D. Krebs & P. Schmidt (Eds.), *New directions in attitude measurement* (pp. 41-57). New York, NY: de Gruyter.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Silverman, S. (2017). Attitude research in physical education: A review. *Journal of Teaching in Physical Education*, 36, 303-312. <https://doi.org/10.1123/jtpe.2017-0085>
- Mercier, K., Simonton, K., Centeio, E., Barcelona, J., & Garn, A. (2022). Middle school students' attitudes toward physical activity and physical education, intentions, and physical activity behavior. *European Physical Education Review*, 29(1), 40-54. <https://doi.org/10.1177/1356336x221106051>
- Lima, R. F., Clemente, F. M., & Vale, R. F. (2018). Attitudes toward physical education in Portuguese schools: Middle and high school students. *Human Movement*, 19(4), 64-70. <https://doi.org/10.5114/hm.2018.77327>
- Balga, T., Antala, B., & Argajová, J. (2019). Attitudes of elementary school pupils towards physical education and their differentiation from the point of view of age, sporting level and gender. *Journal of Physical Education and Sport*, 19(1), 552-559. <https://doi.org/10.7752/jpes.2019.01081>
- Donovan, C. B., Mercier, K., & Phillips, S. R. (2015). Investigating Attitudes Toward Physical Education: Validation Across Two Instruments. *Measurement in Physical Education and Exercise Science*, 19(2), 91-98. <https://doi.org/10.1080/1091367X.2015.1012511>
- Polet, J., Lintunen, T., Schneider, J. & Hagger, S. M. (2020). Predicting change in middle school students' leisure-time physical activity participation: A prospective study of the trans-contextual model. *Journal of Applied Social Psychology*, 50(9), 512-523. <https://doi.org/10.1111/jasp.12691>
- Rodrigues, F., Monteiro D., Teixeira D., & Cid L. (2020). Understanding motivational climates in physical education classes: How students perceive learning and performance-oriented climates by teachers and peers. *Current Psychology*, 41, 5298-5306. <https://doi.org/10.1007/s12144-020-01047-x>
- Nicholls, J. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, 91(3), 328-346. <https://doi.org/10.1037/0033-295X.91.3.328>
- Theodosiou, A., & Papaioannou, A. (2006). Motivational climate, achievement goals and metacognitive activity in physical education and exercise involvement in out-of-school settings. *Psychology of Sport and Exercise*, 7(4), 361-379. <https://doi.org/10.1016/j.psychsport.2005.10.002>
- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, 84(3), 261-271. <https://doi.org/10.1037/0022-0663.84.3.261>
- Ferrer-Caja, E., & Weiss, M. R. (2000). Predictors of intrinsic motivation among adolescent students in physical education. *Research quarterly for exercise and sport*, 71(3), 267-279. <https://doi.org/10.1080/02701367.2000.10608907>
- Papaioannou, A. (1994). Development of a Questionnaire to Measure Achievement Orientations in Physical Education. *Research Quarterly for Exercise and Sport*, 65(1), 11-20. <https://doi.org/10.1080/02701367.1994.10762203>
- Papaioannou, A. (1998). Students' Perceptions of the Physical Education Class Environment for Boys and Girls and the Perceived Motivational Climate. *Research Quarterly for Exercise and Sport*, 69(3), 267-275. <https://doi.org/10.1080/02701367.1998.10607693>
- Jaakkola, T., Barkoukis, V., Huhtiniemi, M., Salin, K., Seppälä, S., Lahti, J., & Watt, A. (2019). Enjoyment and anxiety in Finnish physical education: achievement goals and self-determination perspectives. *Journal of Physical Education and Sport*, 19(3). <https://efsupit.ro/images/stories/septembrie2019/Art%20235.pdf>
- Williams, L., & Gill, D.L. (1995). The role of perceived competence in the motivation of physical activity. *Journal of Sport and Exercise Psychology*, 17(4), 363-378. <https://doi.org/10.1123/jsep.17.4.363>
- Wang, C. J., & Liu, W. (2007). Promoting enjoyment in girls' physical education: The impact of goals, beliefs, and self-determination. *European Physical Education Review*, 13(2), 145-164. <https://doi.org/10.1177/1356336X07076875>
- Wallhead, T. L., & Buckworth, J. (2004). The role of physical education in the promotion of youth physical activity. *Quest*, (56)3, 285-301. <https://doi.org/10.1080/00336297.2004.10491827>
- Jakobsen A. M. (2022). The relationship between motivation, goal orientation, and perceived autonomy support from

- the coach in young Norwegian elite hockey players. *Frontiers in Psychology*, 13(811154).
<https://doi.org/10.3389/fpsyg.2022.811154>
- Papaioannou, A., Bebetos, E., Theodorakis, Y., Christodoulidis, T. & Kouli, O. (2006). Causal relationships of sport and exercise involvement with goal orientations, perceived competence and intrinsic motivation in physical education: A longitudinal study. *Journal of Sports Sciences*, 24(4), 367-382.
<https://doi.org/10.1080/02640410400022060>
- Zourbanos, N., Papaioannou, A., Argyropoulou, E., & Hatzigeorgiadis, A. (2014). Achievement goals and self-talk in physical education: The moderating role of perceived competence. *Motivation and Emotion*, 38, 235-251. <https://doi.org/10.1007/s11031-013-9378-x>
- Smith, N., Tessier, D., Tzioumakis, Y., Qusted, E., Appleton, P., Sarrazin, P., Papaioannou, A., & Duda, L. J. (2015). Development and Validation of the Multidimensional Motivational Climate Observation System. *Journal of Sport & Exercise Psychology*, 37(1), 4-22.
<https://doi.org/10.1123/jsep.2014-0059>
- Kokkonen, J., Grästen, A., Quay, J. & Kokkonen M. (2020). Contribution of Motivational Climates and Social Competence in Physical Education on Overall Physical Activity: A Self-Determination Theory Approach with a Creative Physical Education Twist. *International Journal of Environmental Research and Public Health*, 17(16) 5885. <https://doi.org/10.3390/ijerph17165885>
- Zhou, Y., & Wang, L. (2019). Correlates of physical activity of students in secondary school physical education: a systematic review of literature. *BioMed Research International*, 2019(1), 4563484.
<https://doi.org/10.1155/2019/4563484>
- Huhtiniemi, M., Sääkslahti, A., Watt, A. P., & Jaakkola, T. (2019). Associations among Basic Psychological Needs, Motivation and Enjoyment within Finnish Physical Education Students. *Journal of Sports Science and Medicine*, 18(2), 239-247.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6544006/>
- Roth, E. S., Gill, M., Chan-Golston, A. M., Rice, N. L., Crespi, M. C., Koniak-Griffin, D., Cole, L. B. & Prelip, L. M. (2019). Physical activity correlates in middle school adolescents: Perceived benefits and barriers and their determinants. *The Journal of School Nursing*, 35(5), 348-358. <https://doi.org/10.1177/1059840518780300>
- Standage, M., Duda, J. L., & Ntoumanis, N. (B) (2003). Predicting motivational regulations in physical education: the interplay between dispositional goal orientations, motivational climate and perceived competence. *Journal of Sports Sciences*, 21(8), 631-647.
<https://doi.org/10.1080/0264041031000101962>
- Lyu, M., & Gill, D. L. (2011). Perceived physical competence, enjoyment and effort in same-sex and coeducational physical education classes. *Educational Psychology*, 31(2), 247-260. <https://doi.org/10.1080/01443410.2010.545105>
- Kjønniksen, L., Anderssen, N., & Wold, B. (2009). Organized youth sport as a predictor of physical activity. *Scandinavian Journal of Medicine and Science in Sports*, 19(5), 646-654.
<https://doi.org/10.1111/j.1600-0838.2008.00850.x>
- Shen, B. (2012). Outside-school physical activity participation and motivation in physical education. *British Journal of Educational Psychology*, 84(1), 40-57.
<https://doi.org/10.1111/bjep.12004>
- Telama, R., Yang, X., Laakso, L., & Viikari, J. (1997). Physical activity in childhood and adolescence as predictor of physical activity in young adulthood. *American Journal of Preventive Medicine*, 13(4), 317-323.
[https://doi.org/10.1016/S0749-3797\(18\)30182-X](https://doi.org/10.1016/S0749-3797(18)30182-X)
- Goroizidis, G., Papaioannou, A., & Diggelidis, N. (2012). Physical Educators Self-efficacy in the Implementation of the New Curriculum for the “New School- the School of the 21st Century.” *Inquiries in Sport & Physical Education* 10(2), 91-101. <http://research.pe.uth.gr/emag/index.php/inquiries/article/view/20> [In Greek]
- Fox, K., & Corbin, C. B. (1989). The Physical Self-Perception Profile: Development and Preliminary Validation. *Journal of Sport & Exercise Psychology*, 11(4), 408-430.
<https://doi.org/10.1123/jsep.11.4.408>
- Duda, J. L., & Nicholls, J. G. (1992). Dimensions of achievement motivation in schoolwork and sport. *Journal of Educational Psychology*, 84(3), 290-299.
<https://doi.org/10.1037/0022-0663.84.3.290>
- Robbins, L. B., Wu, T. Y., Sikorskii, A., & Morley, B. (2008). Psychometric assessment of the adolescent physical activity perceived benefits and barriers scales. *Journal of Nursing Measurement*, 16(2), 98-112.
<https://doi.org/10.1891/1061-3749.16.2.98>
- McAuley, E., Duncan, T., & Tammen, V. V. (1989). Psychometric Properties of the Intrinsic Motivation Inventory in a Competitive Sport Setting: A Confirmatory Factor Analysis. *Research Quarterly for Exercise and Sport*, 60(1), 48-58.
<https://doi.org/10.1080/02701367.1989.10607413>
- Lavigne, L. G., Hauw, N., Vallerand, J. R., Brunel, P. Blanchard, C., Cadorette I., & Angot, C. (2009). On the dynamic relationships between contextual (or general) and situational (or state) motivation toward exercise and physical activity: A longitudinal test of the top-down and bottom-up hypotheses. *International Journal of Sport and Exercise Psychology*, 7(2), 147-168.
<https://doi.org/10.1080/1612197X.2009.9671897>
- Standage, M., Duda, J. L., & Ntoumanis, N. (A) (2003). A model of contextual motivation in physical education: Using constructs from self-determination and achievement goal theories to predict physical activity intentions. *Journal of Educational Psychology*, 95(1), 97-110. <https://doi.org/10.1037/0022-0663.95.1.97>
- Papaioannou, G. A., Ampatzoglou, G., Kalogiannis, P., & Sagovits, A. (2008). Social agents, achievement goals, satisfaction and academic achievement in youth sport. *Psychology of Sport and Exercise*, 9(2), 122-141.
<https://doi.org/10.1016/j.psychsport.2007.02.003>
- Walling, M. D., & Duda, J. L. (1995). Goals and their associations with beliefs about success in and perceptions of the purposes of physical education. *Journal of teaching in physical education*, 14(2), 140-156.
<https://doi.org/10.1123/jtpe.14.2.140>
- Papaioannou, A., Marsh, H. W., & Theodorakis, Y. (2004). A Multilevel Approach to Motivational Climate in Physical Education and Sport Settings: An Individual or a Group Level Construct? *Journal of Sport & Exercise Psychology*, 26(1), 90-118. <https://doi.org/10.1123/jsep.26.1.90>
- Huhtiniemi, M., Salin, K., Lahti, J., Sääkslahti, A., Tolvanen, A., Watt, A., & Jaakkola, T. (2020). Finnish students' enjoyment and anxiety levels during fitness testing classes. *Physical Education and Sport Pedagogy*, 26(1), 1-15. <https://doi.org/10.1080/17408989.2020.1793926>

- Evangelou, E., & Digelidis, N. (2018). Students' attitudes and predispositions toward physical education in Greece. *Journal of Physical Education and Sport*, 18(3), 1624-1631. <http://doi.org/10.7752/jpes.2018.03238>
- Harris, J., Cale, L., Duncombe, R., & Musson, H. (2018). Young people's knowledge and understanding of health, fitness and physical activity: issues, divides and dilemmas. *Sport, Education and Society*, 23(5), 407-420. <https://doi.org/10.1080/13573322.2016.1228047>
- Gråstén, A., Jaakkola, T., Liukkonen, J., Watt, A., & Yli-Piipari, S. (2012). Prediction of enjoyment in school physical education. *Journal of sports science & medicine*, 11(2), 260.
- Fernández-Prieto, I., & Giné-Garriga, M. (2019). Barriers and motivations perceived by adolescents related to physical activity. Qualitative study through discussion groups. *Revista española de salud pública*, 93, e201908047-e201908047.
- Carballo-Fazanes, A., Rico-Díaz, J., Barcala-Furelos, R., Rey, E., Rodríguez-Fernández, J.E., Varela-Casal, C., Abelairas-Gómez, C. (2020). Physical Activity Habits and Determinants, Sedentary Behaviour and Lifestyle in University Students. *International Journal of Environmental Research and Public Health*, 17(9), 3272. <https://doi.org/10.3390/ijerph17093272>

З'ясування ставлення учнів до виконання фізичних вправ впродовж життя

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Авторський вклад: А – дизайн дослідження; В – збір даних; С – статаналіз; D – підготовка рукопису; Е – збір коштів

Реферат. Стаття: 10 с., 4 табл., 58 джерел.

Історія питання. Головною метою навчання фізичного виховання (ФВ) є сприяння фізичному розвитку та формуванню компетентності учнів, що визначає залученість до занять фізичними вправами впродовж усього життя. Тому вивчення та розуміння ставлення учнів до занять фізичними вправами впродовж життя суттєво сприяє досягненню цієї мети.

Мета дослідження. У двох дослідженнях вивчалось ставлення учнів до занять фізичними вправами впродовж усього життя. Перше дослідження було зосереджено на використанні соціальних та особистісних змінних як предикторів. Друге дослідження передбачало застосування методу повторних вимірювань задля визначення того, чи існують відмінності у ставленні учнів при переході до наступного класу та між школами. Крім того, дослідження мало на меті з'ясувати наявність відмінностей у ставленні до зазначеної діяльності на основі рівня фізичної активності учнів.

Матеріали та методи. У першому дослідженні взяли участь 752 учні 7-х і 10-х класів, які представляли 47 класів із 14 шкіл. Згодом після проведення аналізу повторних вимірювань через один навчальний рік із початкової вибірки 460 учнів було сформовано дві когорти, що склалися з 7-8 та 10-11 класів. Усі фактори були внутрішньо узгоджені та чітко визначені змінними. У першому дослідженні використовували ієрархічну лінійну регресію з метою встановлення можливості визначення соціальних та особистісних змінних як предикторів ставлення учнів до занять фізичними вправами впродовж життя. У другому дослідженні застосовувався змішаний дисперсійний аналіз щодо оцінки відмінностей у ставленні учнів, що визначалася у двох часових точках і між школами. Крім того, проведено односторонній дисперсійний аналіз з метою визначення того, чи існують відмінності залежно від рівня фізичної активності учнів.

Результати. Згідно з результатами дослідження, особистісні змінні нівелювали значущість соціальних змінних, при цьому орієнтованість на завдання мала найвище бета-значення (.33). Отримані дані також виявили значну взаємодію між вимірюваннями у 7 та 8 класах, а також між школами. В обох когортах учні із помірною та високою активністю мали більш позитивне ставлення до занять фізичними вправами, ніж учні, які ведуть малорухливий спосіб життя.

Висновки. Задля підвищення мотивації учнів слід наголосити на важливості орієнтованості на завдання та особистісного прогресу. Однак сприятливий клімат для виконання завдань може покращити їхню внутрішню мотивацію до занять фізичними вправами впродовж усього життя.

Ключові слова: ставлення, прогнозування, фізичні вправи впродовж життя, соціальні змінні, особистісні змінні.

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