

Retrospective attitudes towards the assessment system in physical education in the former Soviet Republic of Lithuania: Differences with regard to gender, education, age, and physical activity

Authors' Contribution:

- A Study Design
- B Data Collection
- C Statistical Analysis
- D Data Interpretation
- E Manuscript Preparation
- F Literature Search
- G Funds Collection

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abstract

Background: The study aimed to determine differences between retrospective attitudes of adults towards the assessment system in PE in the former Soviet Republic of Lithuania (SRL) according to gender, education, age, and physical activity.

Material and methods: Randomised and cross-over study design. The research sample comprised 1,115 participants (510 male and 605 female, 524 35–45 years old 591 46–55 years old; 603 with secondary education and 512 with university education) representing the population of the Republic of Lithuania.

Results: 35–45-year-old participants displayed more positive attitudes towards the suitability of assessment in PE in the former SRL and attitudes towards the influence of assessment on motivation to enjoyment than 46–55-year-old participants, but 46–55-year-old participants reported higher scores of attitudes towards the social characteristics of assessment by an individual and a teacher and attitudes towards the influence of assessment on physical activity than younger participants.

Conclusions: AThis study revealed significant differences in retrospective attitudes of 35–45-year-old and 46–55-year-old adults towards the assessment system in physical education in the former SRL. Retrospective attitudes of participants towards the assessment system in PE in the former SRL differed also with respect to educational level.

Key words: physical education, physical activity, gender, age.

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INTRODUCTION

Typically, in the former Soviet Republic of Lithuania (SRL) physical education (PE) classes differed from those in Western European countries. PE (officially in the Soviet Union 'Physical Culture and Sport') was politicised; it was more imposed than provided with emphasis on mass participation to foster labour productivity and defence capability. Physical culture and sport had its roles to play, especially in building national conscience and consciousness and preparing the citizens for labour and defence in which fitness and military undertones were prevalent [1]. The system of PE in the Soviet Union called *fizkultura* was employed in schools, which influenced the organization and teaching methods for a long time. Due to political demands (e.g., expectations of medals to prove supremacy of one political system over the others), PE classes at schools tended to be more of a sport/physical training than a real PE teaching and learning process [2]. Sport and education were combined in sports-oriented day schools and sports boarding schools. These institutions were obliged to arrange education so as to pay special attention to athletes' training requirements and schedules in which fitness and military undertones were prevalent [3]. PE in the SRL was regarded as a decisive component within the Soviet Union educational system and was characterized by certain features including its mandatory status, its being strictly bound to fitness norms and standards based on age and gender, its fitness and skill (rather than health) orientation based on the learning of skills of various sports, and its use of highly trained graduate PE teachers [4]. This led to the development of biological- and physiological-based research and training methods, which in some countries (e.g., the former East Germany) slipped out of legal, and moral, control, causing social and cultural damage in those societies in the long run and often led to the misuse and abuse of sport and its role in the life of individuals and whole societies [2].

The post-1991 politico-ideological changes concomitantly produced societal and school education changes, which essentially ousted the cult of performance achievement results to be replaced by a broader health-related programme aiming to promote an active and healthy lifestyle, in which attention was paid to pupils' interests [1] and autonomous motivation in respect with self-determination theory [5]. Thus, educational objectives and content have changed and the evaluation (formerly limited to assessment) of educational results as a component of the educational process is changing from education for evaluation into evaluation for successful education. Normative assessment of performance achievement in physical education classes in the former SRL reduced autonomous motivation and influenced the present lifestyle and physical activity engagement [1].

The main tasks for the physical education teacher are to gauge the schoolchildren's potential to learn and understand, to differentiate and individualize work and to choose appropriate and innovative content activity and learning-teaching methods (for instance, adventure education) [6]. The main tasks for the schoolchildren are self-knowledge, recognition of own strengths and weaknesses and evaluation of own progress and achievements [7]. It is important to answer which retrospective attitudes towards the social characteristics of assessment by the individual and teacher in the former Soviet Union times (more than 20 years ago) today's adults have.

The formation and development of attitudes to physical education is a complex psychological process that evolves continuously to include the various experiences of physical activity during the school-age years [8]. In the former SRL 'militarised' classes and preparation for the normative "Ready for Labour and Defence" tests were predominant; and team games such as basketball or football were seldom featured [9].

Several studies suggest that schoolchildren often have a positive attitude to physical education [10, 11]. Physical education classes offer schoolchildren different experience from that provided in academic disciplines [10]. Physical education classes are very often outside the classroom in a different recreational context, and mastering of physical skills may contribute to the schoolchildren's sense of achievement. McKenzie found that physical education provides opportunities for schoolchildren to engage in enjoyable physical activity [11]. Negative attitudes towards physical education are usually related to programmes offering little variety, for instance, when team games dominate over other activities [12].

Gender also plays an important mediating role in attitudes toward physical education. Many studies have compared the attitudes of girls and boys [13, 14]. Biddle and Mutrie documented several studies that have reported gender differences in participation in physical education, which reflects different attitudes [15]. Girls' negative attitudes towards physical activity are mostly related to stress, feeling unsafe and being given too difficult tasks during the classes [16]. Boys have more positive attitudes toward physical activity than girls, which may reflect the observation that the physical education agenda favours boys more than girls. So, retrospective attitudes to physical education in the former SRL may differ with respect to gender.

Data on tracking differences in attitudes to physical education between people with different educational levels are limited but indicate that a higher level of vocational education is associated with a higher level of physical activity in adulthood [17]. Several studies suggest that a low level of vocational education was associated with physical inactivity at 31 years of age in both sexes, regardless of other covariates [18]. Because higher education seems to be an important pathway to a healthier lifestyle [18], it is very important to explore retrospective attitudes to physical education and the assessment system in physical education in the former SRL not only with respect to gender but also with respect to the educational level.

Age also plays an important mediating role in attitudes toward physical education. Attitudes to physical education may change during the years. General levels of physical activity decline steeply from about the age of 15 years [19, 20, 21], and this decline may cause a corresponding decrease in a positive retrospective attitudes to physical education. For instance, positive attitudes were maintained from age 10 to 18 years in boys because of the perceived association between physical education and sports [22].

The results obtained from several studies [23] reveal that attitudes to physical education classes might also be significant for later activity, because for many people physical education classes provide an opportunity to engage in systematic physical activity and develop a positive attitude to physical activity [8]. Positive attitudes to physical education in school directly affect behaviour and may increase the probability of being physically active in

adulthood [24, 25]. When schoolchildren feel that they are 'protected' during physical education classes, there is a strong possibility that their physical activity engagement will increase in adulthood [26]. Such research evidence provides further reasoning for our assumption that in the former SRL physical education classes, designed to inculcate preparation for labour productivity and home defence, were not conducive to encouraging or sustaining individual's participation in physical activity in adulthood.

The aim of this study is to investigate differences in adults' retrospective attitudes towards the assessment system in physical education in the former SRL with regard to gender, education, age, and physical activity.

MATERIAL AND METHODS

PARTICIPANTS

The research sample comprised 1,115 participants (510 male and 605 female, 524 35–45 years old and 591 46–55 years old; 603 with secondary education and 512 with university education) representing the population of the Republic of Lithuania. Personal data used for statistical analysis of results met the research requirements: the sample subjects voluntarily agreed to participate in the research and responded to all the questionnaire items.

INSTRUMENTS

All subjects were provided with the Rapid Assessment of Physical Activity (RAPA) and the Questionnaire about Evaluation System in Physical Education in the former SRL.

The RAPA was intended to establish individual's present physical activity engagement. The nine-item questionnaire RAPA was developed to provide an easily administered and interpreted means of assessing levels of physical activity among adults [27]. According to RAPA scores, participants were divided into two subgroups - physically active and inactive. The adequate convergent validity and good criterion validity of the RAPA are well-established [27]. The questionnaire was translated into Lithuanian, and adaptation has been performed [28]. The Lithuanian version of the RAPA shows internal consistency value .66 for the overall questionnaire [29].

The Evaluation System in Physical Education in the former SRL Questionnaire comprised 25 items divided into four separate subscales: respondents' attitudes towards the assessment system in PE in the former Soviet Union, social characteristics of evaluation by the individual and the teacher, assessment) influence on respondent's physical activity, attitudes towards enjoyment experienced during PE classes and towards the relevance of those classes in the past and at present. Each item was rated on a 5-point Likert scale ranging from Totally disagree (1) to Totally agree (5) [1].

Cronbach's alpha value calculation of .73 showed sufficiency of internal consistency for the overall questionnaire. The subscales revealed that internal consistency ranged from .61 to .74.

PROCEDURE

The research was undertaken between October, 2012 and April 2013 with Lithuanian inhabitants aged 35–55 years randomly sampled from the population

register. The participants were invited by post to attend local Health Offices in various urban locations. For those who did not attend, a reminder invitation was sent. Those who did not attend after the second invitation or those who had declined the invitation by phone to participate in the research were not considered as participants. Each subject was asked to sign a participation consent form either on arrival at the Health Office or at home. Specialists in the public Health Offices collected the completed questionnaires. Ethical and legal research principles were followed while performing the survey (the right to be intact, right not to be exploited, research usefulness, propriety, privacy, confidentiality). The overall response rate was 86%.

STATISTICAL ANALYSIS

Descriptive statistics of data were presented as mean (M) and standard deviation (SD). Skewness and kurtosis coefficients were computed for univariate normality analyses purposes, and all values were within ± 1 . Multivariate analysis of variance (MANOVA) followed by one-way analysis of variance (ANOVA) were used to investigate differences between gender, education degree (educational level), age, and present physical activity on the attitudes towards the assessment system in physical education in the former SRL. Effect sizes for F-statistics were expressed as partial eta-squared (η_p^2) [30]. All of these statistical analyses were conducted using SPSS (version 19.0).

RESULTS

Absolute values of the univariate skewness and kurtosis were within the range of -1 to +1, and were interpreted as normally distributed. A MANOVA was conducted to compare the associations of gender as well as attitudes towards the assessment system in physical education in the former SRL. Results are summarized in Table 1.

Table 1. Means (M), standard deviations (SD) and univariate associations of the attitudes towards the assessment system in physical education in the former SRL by gender

	Secondary education (n = 603) (M \pm SD)	University education (n = 512) (M \pm SD)	F	p	η_p^2
Attitudes towards the suitability of assessment in PE in the former SRL	3.11 \pm 0.50	3.18 \pm 0.49	0.58	0.446	0.00
Attitudes towards the social characteristics of assessment by the individual and teacher	2.83 \pm 0.40	2.82 \pm 0.40	0.51	0.475	0.00
Attitudes towards the influence of assessment on physical activity	3.09 \pm 0.70	2.95 \pm 0.77	0.01	0.991	0.00
Attitudes towards the influence of assessment on motivation to enjoyment experienced during PE classes	2.94 \pm 0.87	2.96 \pm 0.91	0.92	0.338	0.00

A multivariate test of gender on attitudes towards the assessment system in physical education in the former SRL scores was not statistically significant ($F(4, 1096) = 0.79, p = 0.529, \text{Wilk's } \lambda = 1.00$). A simple main effects analysis did not show statistical significant differences (Table 1).

A one-way MANOVA was used to examine the associations between the degree of education and attitudes towards the assessment system in physical education in the former SRL scores, revealing an overall main effect for the education degree ($F(4, 1096) = 153.97, p = 0.000, \text{Wilk's } \lambda = 0.64$) and a large effect size ($\eta_p^2 = 0.36$).

Table 2. Means (M), standard deviations (SD) and univariate associations of the attitudes towards the assessment system in physical education in the former SRL by education degree

	Secondary education (n = 603) (M ± SD)	University education (n = 512) (M ± SD)	F	p	η_p^2
Attitudes towards the suitability of assessment in PE in the former SRL	2.92 ±0.31	3.42 ±0.54	160.05	0.000	0.13
Attitudes towards the social characteristics of assessment by the individual and teacher	2.82 ±0.37	2.83 ±0.43	3.27	0.071	0.00
Attitudes towards the influence of assessment on physical activity	3.18 ±0.53	2.81 ±0.90	24.00	0.000	0.21
Attitudes towards the influence of assessment on motivation to enjoyment experienced during PE classes	2.48 ±0.40	3.51 ±0.98	313.52	0.000	0.22

Simple main effects analysis showed that people with university education reported higher scores of attitudes towards the suitability of assessment in PE in the former SRL ($p = 0.000$), attitudes towards the influence of assessment on physical activity ($p = 0.000$), and attitudes towards the influence of assessment on motivation to enjoyment experienced during PE classes ($p = 0.000$) than people who acquired secondary education. The eta values suggest medium effects.

A one-way MANOVA also was used to examine the associations between age and attitudes towards the assessment system in physical education in the former SRL scores, revealing an overall main effect for age ($F(4, 1096) = 8.15, p = 0.000$, Wilk's $\lambda = 0.97$) and a small effect size ($\eta_p^2 = 0.03$). Follow-up univariate analyses indicated significant differences in all of the four dependent variables (Table 3).

Table 3. Means (M), standard deviations (SD) and univariate associations of the attitudes towards the assessment system in physical education in the former SRL by age

	35-45 years (n = 524) (M ±SD)	46-55 years (n = 591) (M ±SD)	F	p	η_p^2
Attitudes towards the suitability of assessment in PE in the former SRL	3.17 ±0.48	3.13 ±0.51	5.59	0.018	0.01
Attitudes towards the social characteristics of assessment by the individual and teacher	2.81 ±0.39	2.84 ±0.41	3.98	0.046	0.01
Attitudes towards the influence of assessment on physical activity	2.82 ±0.77	3.17 ±0.68	18.12	0.000	0.16
Attitudes towards the influence of assessment on motivation to enjoyment experienced during PE classes	2.96 ±0.88	2.95 ±0.90	19.11	0.000	0.17

A simple main effects analysis showed that 35-45-year-old participants reported higher scores of attitudes towards the suitability of assessment in PE in the former SRL ($p = 0.018$), and attitudes towards the influence of assessment on motivation to enjoyment experienced during PE classes ($p = 0.000$) than 46-55-year-old participants but 46-55-year-old participants reported higher scores of attitudes towards the social characteristics of assessment by the individual and teacher ($p = 0.046$), and attitudes towards the influence of assessment on physical activity ($p = 0.000$) than 35-45-year-old participants.

In order to identify possible present physical activity differences, MANOVA was also conducted. A multivariate test of present physical activity on attitudes towards the assessment system in physical education in the former SRL scores

scores was not statistically significant ($F(4, 1096) = 1.28, p = 0.275$, Wilk's $\lambda = 1.00$). A simple main effects analysis did not show statistical significant differences (Table 4).

Table 4. Means (M), standard deviations (SD) and univariate associations of the attitudes towards the assessment system in physical education in the former SRL by age

	Physically active (n = 160) (M ±SD)	Physically inactive (n = 955) (M ±SD)	F	p	η_p^2
Attitudes towards the suitability of assessment in PE in the former SRL	3.25 ±0.52	3.13 ±0.49	1.75	0.187	0.00
Attitudes towards the social characteristics of assessment by the individual and teacher	2.75 ±0.42	2.83 ±0.40	1.67	0.196	0.00
Attitudes towards the influence of assessment on physical activity	3.01 ±0.86	3.01 ±0.73	1.83	0.177	0.00
Attitudes towards the influence of assessment on motivation to enjoyment experienced during PE classes	3.12 ±0.97	2.92 ±0.87	0.80	0.371	0.00

The MANOVA examining the interaction effect on attitudes towards the assessment system in physical education in the former SRL also revealed a significant effect in education by age interaction, Wilk's $\lambda = .97$; $F(4, 1096) = 7.98$; $p = 0.000$; $\eta_p^2 = 0.03$, which is a small effect.

DISCUSSION

Retrospective attitudes towards the assessment system in physical education in the former SRL among people aged 35 and older were not affected by their gender because a multivariate test of gender on retrospective attitudes scores was not statistically significant. This finding concurs with results from other research on student attitudes [31, 32, 33], whereas it is inconsistent with the findings of several other studies, namely, reporting that male students had more positive attitudes than female students [14]. A possible explanation for this finding could be that in the present study not students were investigated but individuals aged 35 and older.

When examining individuals' retrospective attitudes towards the assessment system in physical education in the former SRL in relation to their education degree, statistically significant differences are found in three of the four dependent variables: in the retrospective attitudes towards the suitability of assessment in PE, in attitudes towards the influence of assessment on physical activity in the past and at present, as well as in attitudes towards the influence of assessment on motivation to enjoyment experienced during PE classes. The effect sizes for the observed differences were in the medium (from $\eta_p^2 = .13$ to $\eta_p^2 = .22$) range.

Retrospective attitudes towards the suitability of assessment in PE and attitudes towards the influence of assessment on motivation to enjoyment experienced during PE classes of individuals with university education were more positive in comparison with those of individuals with secondary education. However, we could not find any significant difference in attitudes towards the social characteristics of assessment by the individual and teacher between individuals with university education and individuals with secondary education. Those results support the research findings that a higher educational level is associated

with a higher level of physical activity in adulthood and more positive attitudes to physical education and physical activity in the past and at present [17].

A multivariate test of age on attitudes towards the assessment system in physical education in the former SRL scores was statistically significant (the effect size was small; $\eta_p^2 = .03$). 35–45-year-old participants reported higher scores of attitudes towards the suitability of assessment in PE in the former SRL and attitudes towards the influence of assessment on motivation to enjoyment experienced during PE classes than 46–55-year-old participants, but 46–55-year-old participants reported higher scores of attitudes towards the social characteristics of assessment by the individual and the teacher and attitudes towards the influence of assessment on physical activity than 35–45-year-old participants. The effect sizes for the observed differences were in the small ($\eta_p^2 = .01$) to medium ($\eta_p^2 = .17$) range. The fact that 35–45-year-old participants and 46–55-year-old participants differed in attitudes scores suggests that adults evaluate the assessment system in physical education in the former SRL according to criteria they determine for themselves. This result leads us to believe that attitudes of the younger adults group were influenced more by the status of physical education as an academic subject in the former SRL, but attitudes of older adults group were influenced more by the characteristics of the teachers towards the social characteristics of assessment by the individual and the teacher (for instance, a positive relationship between the pupil and the teacher). This finding might reflect the influence of other factors that influence retrospective attitudes in adulthood, such as education, occupation, and living environment [19]. A possible explanation for this finding could be the argument that transitions in life are very complex [34], and attitudes to physical education may change over the years [1, 19].

A multivariate test of present physical activity on retrospective attitudes towards the assessment system in physical education in the former SRL was not statistically significant. The results of the present study showed no differences in the scores of retrospective attitudes towards the assessment system in physical education in the former SRL between physically active and physically inactive adults aged 35 and older. This result accords with observations [35] that schoolchildren's further lifestyle, physical activity, and development of their attitudes mostly depend on the character of physical education classes, when they were adolescents. Perhaps this finding can be explained by the fact that, as other research has shown [35], a long-term influence of physical education classes on physical activity in adulthood is relatively weak.

Promotion of appropriate emotions during physical education classes is an important way to positively affect schoolchildren's attitudes towards the propensity of physical education [36]. It could be stated that today school curricular changes in PE include health education, and this shifted objectives of PE from the care of the physical into a new formula - education for the care of the body with more emphasis on health awareness. Schoolchildren's involvement in planning and evaluating their level of activity has been proven to increase engagement and motivation, as well as health awareness [2]. Also, PE pre-service students are educated today in a different way (PE pre-service students are educated to link PE with moral education by interweaving Olympic-related values and content [37], and differences in teaching competences could lead to a possible explanation of the established differences in retrospective attitudes of 35–45-year-old and 46–55-year-old adults towards the assessment system in physical education in the former SRL.

STRENGTHS, LIMITATIONS AND FUTURE PROSPECTS

Among the strengths is that the current study strives to approach retrospective attitudes in a large randomised sample and represents a survey with a high response rate (86%). The present study has several limitations. This study is cross-sectional, and such a nature of the study design makes it difficult to draw cause-and-effect conclusions, i.e., that sociodemographic data (gender, education, age, and present physical activity) cause retrospective attitudes towards the assessment system in physical education in the former SRL.

Other studies have been contributed to the influence of participation in physical education classes on student's physical activity [38]; however, there is the absence of research evidence related to the influence of assessment on a person's physical activity in adulthood. This requires further studies. Moreover, there is a need to use triangulation methods, such as interviews and observations instead of relying on one questionnaire method particularly in studies aimed to investigate retrospective attitudes.

CONCLUSIONS

To summarize, in general, people with university education reported more positive attitudes towards the suitability of assessment in PE in the former SRL, attitudes towards the influence of assessment on physical activity, and attitudes towards the influence of assessment on motivation to enjoyment experienced during PE classes than individuals who acquired secondary education. This study revealed significant differences in retrospective attitudes of 35–45-year-old and 46–55-year-old adults towards the assessment system in physical education in the former SRL.

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