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# Interaction of physical activity and quality of life of teachers at primary schools and kindergartens

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## ABSTRACT

The paper presents the results of causal analysis between frequency of physical activity in a week and the areas of quality of life of next teachers studying of education in kindergarten and primary school also teachers teaching in kindergartens, respectively of teachers teaching at the first level of primary schools in the Slovak Republic. The survey covered teachers from Slovakia ( $n = 322$ ) who were then allocated to groups according to the level of the sport performance. Quality of life was examined through a modified questionnaire SQUALA and level of physical activity in a week in hours and number of activities in a week. We present results by descriptive characteristics ( $n$ ,  $M$ ,  $SD$ ) and statistical significance of differences, respectively relations are considering by non-parametric methods ( $W$ ,  $U$ ,  $r_s$ ) the level of significance ( $p < .05$ , resp.  $p < .20$ ). The results showed the most numerous interactions between physical activity in a week and the quality of life of teachers (occasional athletes) who realize physical activity an average of  $M: 4.21$  times in a week at  $SD: 2.32$  and an average number of hours  $M: 5.42$  hrs,  $SD: 3.32$ . The group were shown positively interaction with the areas of physical well-being ( $p < .01$ ), psychosocial well-being ( $p < .05$ ), material well-being ( $p < .20$ ), education ( $p < .05$ ), respectively considering a property of things ( $p < .10$ ). The group of teachers who present passive and active level of sport performance we do not find any positive interaction between physical activity and individual areas of quality of life. The conclusions highlight the importance of physical activity in adults' lives. They point to the possibility of influencing the quality of life through physical activities, but also the need to create optimum conditions for the possibility of increasing the quality of life in the social environment of adults. The paper is a part of a grant in Ministry of Education KEGA 003UKF-4/2016. **Key words:** PHYSICAL ACTIVITY, QUALITY OF LIFE, INTERACTION, TEACHERS, KINDERGARTENS AND PRIMARY SCHOOLS

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## INTRODUCTION

There are a huge number of evidences in scientific literature and also in the specialized websites which demonstrate the physical and psychological benefits that entails physical activity (Riewald, 2007). Despite the relatively good knowledge of all benefits arising from the movement, many young people do not get a sufficient level of physical activity and thereby they could be closer to the benefits that are brought by movement and physical activity (Craik et al. 2010; Sollár & Romanová 2015). The level of physical activity can be increased by participation in leisure-time physical activities. They are more easily supported and promoted in comparison with other types of physical activities mainly because people can easily modify them for themselves (Ainsworth et al., 2000). They apply to recreational and sport activities and cover the wide range of activities that are realized for pleasure or for different social or of competitive reasons (Armstrong et al., 2000; Romanová & Sollár 2015).

In the last decade we register researches that focus on analysis of the relationship between physical activity and different areas of quality of life in the Slovak Republic. They present different approaches to the evaluation of interactions between physical activity and quality of life. The benefits of physical activity on emotions just by recreational athletes are presented in research of Pašková (2010). Her results logically point to the negative influence of physical activity on area of health at the top level as well as in students who do not perform any sport activity. Broďáni & Žišková (2015) were focused on the detection of psychological well-being among teachers in kindergartens in the younger, middle and late adulthood. Middle maturity is characterized by reaching the highest peak of physical and mental performance. It has also proved to be the most sensitive period of awareness of quality of life and the need for regular physical activity. The positive impact of physical activity realized at least three times a week with a group of adolescents and adults is confirmed by work Gilman (2001), Broďániho (2012); Broďániho and Bradáčová (2012); Broďániho and Špániková (2013), Kalinkova (2007) and Kalinkova et al. (2013). Similar results were found in works of Kalinková et al. (2013) who suggest that physical activity done if only 30 minutes a day leads to an improvement in the quality of our health as well as perspective on life. The opposite is the research Miklánková et al. (2009), concerning the number of completed physical activities in young people in a period of adolescence, that are under the level so-called biological need of physical activity.

The positive impact of physical activity on mental health was found in works with psychological focus. Psychologists confirm that people who have regular physical activity at least 3 times a week are more satisfied than their peers who do not perform any sport activity (Havranová, 2001). Ojambo (2013) speaks about the participation of regular exercise to a number of positive psychosocial phenomena - reduction of depressive symptoms, reduced anxiety, improved self-esteem, improved reaction time and a more positive self-perception. The results of Hnilica (2004) also corresponds to this phenomena, he also demonstrated the interaction of satisfaction with health and life satisfaction. Lack and the absence of movement presented in all spheres of life bring the reduction of stimulus for the optimal psychosomatic development (Liba, 2005). Better quality of life, improvement of physical and mental status is confirmed by people with a sedentary lifestyle who started to become more physically active (Morgan, 1997).

In our paper we try to contribute to the monitoring of the issue and increase knowledge on the impact of physical activities on selected areas of quality of life studying education for kindergartens and the first grade of primary schools, teachers in kindergartens respectively teachers teaching at the first grade of primary schools in the Slovak Republic. We undertake these research questions: What is the level of physical activity in a week and the quality of life of teachers with different level of sport performance? What are the differences

in individual quality of life in terms of importance and satisfaction? What is the relationship between physical activity in a week and individual quality of life?

## MATERIALS AND METHODS

A questionnaire survey focused on finding the frequency of physical activity in a week, level of sport performance and the quality of life. There was taken part n=322 respondents, next teachers studying education of kindergartens and in the first grade of primary schools, also teachers teaching in kindergartens respectively teachers from primary schools at the first grade of primary schools from Slovakia. The average age of the total group was M: 35, 79 years with a standard deviation SD: 13,215 (maximum 20, minimum 66 years). Statistically significant differences in terms of age were found after the redistribution of respondents to the groups with level of sports performance (table 1 and 2). The research group was divided into three groups according to the subjective assessment of the level of sport performance:

- A. Passive athletes - do not seek physical activity, attend mandatory sports activities at school or at work.
- B. Occasional athletes - seek physical activity, not regular in a week, not organized physical activity.
- C. Active athletes – regular activity in a week, no membership in sport organization, member in sport organization, national level, top sportsmen.

Table 1. Sport performance vs. Indicators.

		Sports performance					
		A - Passive (n=72)		B - Occasional (n=194)		C - Active (n=56)	
Indicators		M	SD	M	SD	M	SD
<b>Age</b>		<b>44,13</b>	<b>13,70</b>	<b>35,07</b>	<b>12,58</b>	<b>27,54</b>	<b>7,72</b>
Physical activity a week [n]		1,42	1,40	4,21	2,32	6,73	2,74
<b>Physical activity a week [h]</b>		<b>1,50</b>	<b>1,41</b>	<b>5,42</b>	<b>3,32</b>	<b>9,79</b>	<b>3,60</b>
How important for you ...	Physical well-being	4,14	,63	4,14	,60	4,18	,68
	<b>Psychosocial well-being</b>	<b>3,74</b>	<b>,53</b>	<b>3,77</b>	<b>,51</b>	<b>3,71</b>	<b>,57</b>
	Spiritual well-being	3,82	,65	3,83	,62	3,76	,74
	<b>Material well-being</b>	<b>3,66</b>	<b>,76</b>	<b>3,70</b>	<b>,72</b>	<b>3,78</b>	<b>,82</b>
	Education	3,72	,80	3,77	,72	3,60	,88
	<b>Leisure time</b>	<b>3,67</b>	<b>,74</b>	<b>3,61</b>	<b>,70</b>	<b>3,77</b>	<b>,81</b>
	Appearance and Property affairs	3,58	,78	3,43	,76	3,79	,84
	<b>Focusing on the future</b>	<b>4,14</b>	<b>,76</b>	<b>4,21</b>	<b>,70</b>	<b>3,95</b>	<b>,92</b>
How are you satisfied ...	Physical well-being	3,75	,59	3,72	,59	3,70	,61
	<b>Psychosocial well-being</b>	<b>3,66</b>	<b>,52</b>	<b>3,65</b>	<b>,52</b>	<b>3,62</b>	<b>,52</b>
	Spiritual well-being	3,15	,68	3,11	,63	3,25	,75
	<b>Material well-being</b>	<b>3,44</b>	<b>,72</b>	<b>3,48</b>	<b>,67</b>	<b>3,39</b>	<b>,72</b>
	Education	3,69	,71	3,68	,63	3,54	,69
	<b>Leisure time</b>	<b>3,68</b>	<b>,74</b>	<b>3,61</b>	<b>,66</b>	<b>3,67</b>	<b>,71</b>
	Appearance and Property affairs	3,60	,67	3,57	,59	3,64	,72
	<b>Focusing on the future</b>	<b>3,64</b>	<b>,74</b>	<b>3,73</b>	<b>,71</b>	<b>3,68</b>	<b>,79</b>

Table 2. Sport performance vs. Indicators.

		A <> B		B <> C		A <> C	
Indicators		d Means	p value	d Means	p value	d Means	p value
<b>Age</b>		<b>9,060</b>	<b>,000</b>	<b>7,530</b>	<b>,000</b>	<b>16,590</b>	<b>,000</b>
Physical activity a week [n]		-2,795	,000	-2,521	,000	-5,315	,000
<b>Physical activity a week [h]</b>		<b>-3,918</b>	<b>,000</b>	<b>-4,368</b>	<b>,000</b>	<b>-8,286</b>	<b>,000</b>
How important for you ...	Physical well-being	,000	,053	-,042	,510	-,042	,064
	<b>Psychosocial well-being</b>	<b>-,032</b>	<b>,338</b>	<b>,056</b>	<b>,517</b>	<b>,023</b>	<b>,904</b>
	Spiritual well-being	-,004	,397	,063	,416	,058	,863
	<b>Material well-being</b>	<b>-,041</b>	<b>,271</b>	<b>-,078</b>	<b>,692</b>	<b>-,119</b>	<b>,310</b>
	Education	-,044	,043	,167	,159	,123	,739
	<b>Leisure time</b>	<b>,057</b>	<b>,012</b>	<b>-,160</b>	<b>,187</b>	<b>-,102</b>	<b>,007</b>
	Appearance and Property affairs	,149	,017	-,359	,006	-,209	,000
	<b>Focusing on the future</b>	<b>-,068</b>	<b>,300</b>	<b>,262</b>	<b>,081</b>	<b>,194</b>	<b>,549</b>
How are you satisfied ...	Physical well-being	,036	,304	,018	,839	,054	,617
	<b>Psychosocial well-being</b>	<b>,012</b>	<b>,237</b>	<b>,033</b>	<b>,675</b>	<b>,044</b>	<b>,700</b>
	Spiritual well-being	,041	,954	-,140	,151	-,099	,234
	<b>Material well-being</b>	<b>-,040</b>	<b>,704</b>	<b>,087</b>	<b>,380</b>	<b>,046</b>	<b>,671</b>
	Education	,002	,361	,147	,125	,149	,584
	<b>Leisure time</b>	<b>,071</b>	<b>,441</b>	<b>-,059</b>	<b>,621</b>	<b>,013</b>	<b>,346</b>
	Appearance and Property affairs	,039	,533	-,078	,283	-,039	,290
	<b>Focusing on the future</b>	<b>-,089</b>	<b>,436</b>	<b>,048</b>	<b>,949</b>	<b>-,040</b>	<b>,513</b>

Mann Whitney U-test  $p < 0,01^{**}$ ;  $p < 0,05^{*}$ 

Modified questionnaire for teachers according to Dragomerická et al. (2006), Zannotti - Pringuey (1992) and Ocetková (2007) included selected parts from the SQUALA questionnaire. The parts of SQUALA questionnaire were evaluated from the point of view:

- 1<sup>st</sup>: sphere of physical well-being - health, sleep, solution of everyday activities, do not have problems
- 2<sup>nd</sup>: sphere of psychosocial well-being - family, personal relationships, intimate relationships, hobbies, safety
- 3<sup>rd</sup>: sphere of spiritual well-being - justice, freedom, beauty and art, truth
- 4<sup>th</sup>: sphere of material well-being - money, good food
- 5<sup>th</sup>: education - to be educated, to go to school
- 6<sup>th</sup>: leisure time - possibility to spend your free time, have plenty of things for fun
- 7<sup>th</sup>: appearance and ownership of things - look good, to dress nicely, have things that I like
- 8<sup>th</sup>: orientation to the future - to have children and jobs in the future that will entertain me

The questionnaire defines spheres from objective aspect: "*how it is important to you ...*" and the second from the subjective viewpoint: "*how you are satisfied with ...*".

Both items are assessed on a 5-point scale (1 very important; 2 important; 3 medium important; 4 unimportant; 5 completely unimportant) depending on the importance of each item for their life. In the second part concerning satisfaction the scales are: 1 very satisfied; 2 satisfied; 3s medium satisfied; 4 dissatisfied; 5 very dissatisfied.

For the presentation of data was used basic descriptive statistics (frequency  $n$ , arithmetical mean  $M$ , standard deviation  $SD$ , mathematical difference of averages “ $d$ ”). Differences between importance and satisfaction in the quality of life of dependent groups were assessed by Wilcoxon test and the difference of independent groups was assessed using Mann-Whitney U-test. For finding the interaction between criteria “frequency of physical activity in a week” and “areas of quality of life” Spearman’s correlation coefficient ( $r_s$ ) was used. We used the level of significance  $p < 0.05$  and relations  $p < 0.20$  to assess the statistical significance of differences. The data were processed in MS Excel and SPSS.

Table 3. Statistical parameters.

			Sports performance		
			A Passive	B Occasional	C Active
How are you satisfied ...	Physical well-being	$r_s$	-,074	,221****	-,148
		p value	,535	,002	,277
	Psychosocial well-being	$r_s$	,054	,179***	-,113
		p value	,650	,012	,407
	Spiritual well-being	$r_s$	-,011	,060	-,026
		p value	,925	,406	,848
	Material well-being	$r_s$	,019	,093*	-,046
		p value	,877	,199	,739
	Education	$r_s$	,065	,178***	-,059
		p value	,588	,013	,668
	Leisure time	$r_s$	-,073	,087	-,077
		p value	,540	,226	,574
	Appearance and Property affairs	$r_s$	,077	,131**	-,096
		p value	,522	,068	,484
	Focusing on the future	$r_s$	,081	-,013	-,199*
		p value	,499	,859	,141

$r_s$ - Spearman correlation coefficient;  $p < ,20$ \* $p < ,10$ \*\* $p < ,05$ \*\*\* $p < ,01$ \*\*\*\*

## RESULTS AND DISCUSSION

Physical activity in a week in groups of teachers with different levels of sport performance is differentiated in terms of frequency and hours in a week ( $p < 0,01$ ). A high level of physical activity in a week is presented by the groups of occasional athletes ( $M$ : 5,42 hrs;  $SD$ : 3,32) and active athletes ( $M$ : 9,79 hrs;  $SD$ : 2,74). The lowest physical activity in a week was recorded in the group of passive athletes ( $M$ : 1,5 hrs;  $SD$ : 1,40) which consists of teachers with higher average age ( $M$  44,13;  $SD$ : 13,70). There is one conclusion that with increasing of physical activity in a week reduces the age group of occasional athletes and active sportsmen (Table 1). Lower age causes decreasing the ratio of attended hours to the number of realized completed physical activities in a week. The highest ratio is logically reported in the group of active athletes (1,45 h / n)

and occasional athletes (1,29 h / n). The period for physical activity in a week in passive sportsmen achieved 1,06 h / n.

Teachers with different level of sport performance present the equal importance and satisfaction with individual quality of life (Table 1) in most cases. When assessing the objective importance of education, leisure, respectively when assessing the appearance and property affairs individual differences between the groups were found. In terms of evaluating the quality of life it has greater significance subjective individual quality of life for us that we used to find interactions with physical activity.

When comparing the quality of life in terms of importance and satisfaction we find in a group of teachers common features (Figure 1-3). Higher importance than the satisfaction teachers attach to physical well-being ( $p < ,01$ ), spiritual well-being ( $p < ,01$ ), material well-being ( $p < ,01$ ) and the orientation for the future ( $p < ,05$ ). Congruence between importance and satisfaction was found in all groups in the fields of education, leisure time, respectively appearance and property affairs ( $p = sn$ ).

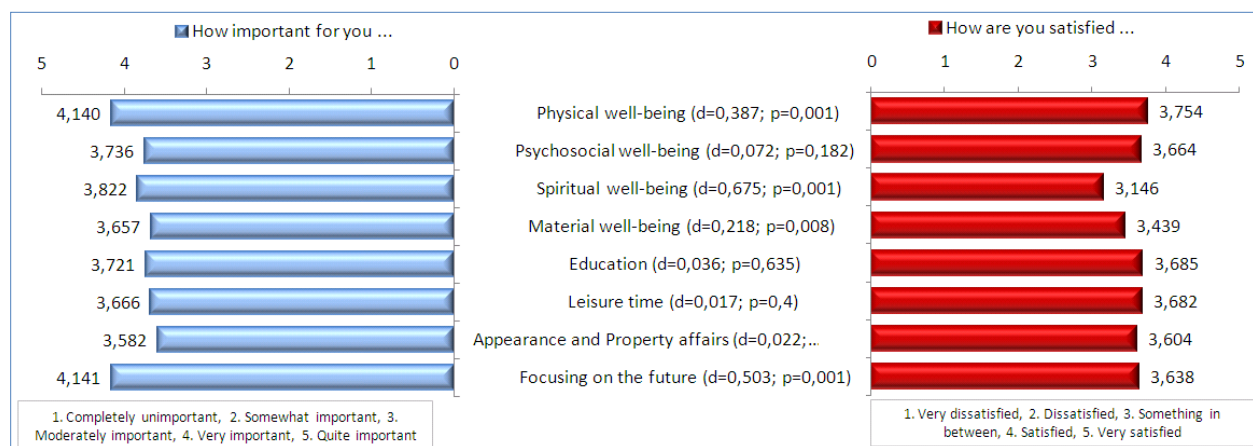


Figure 1. Comparison parameters

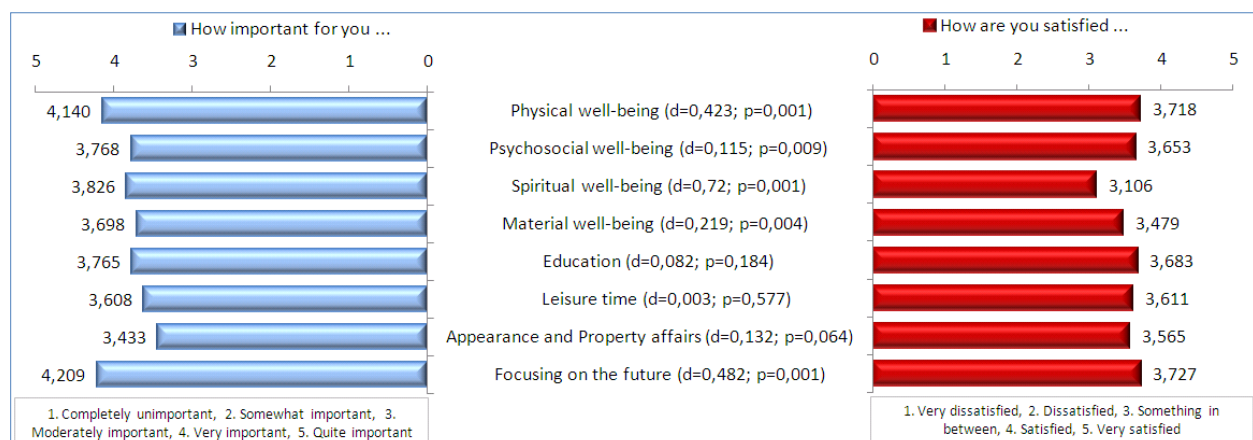


Figure 2. Comparison parameters

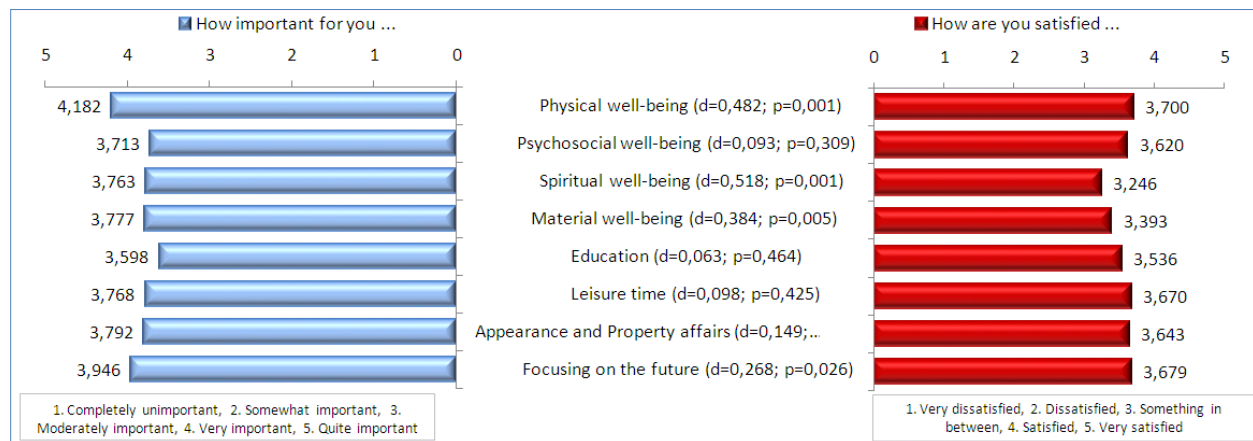


Figure 3. Comparison parameters

Teachers attach the greatest importance to physical well-being and focusing on the future. At least they are satisfied with the area of spirituality (justice, freedom, beauty, art, truth).

The remaining areas are about the same level while average values of importance and satisfaction ratings move above the average values of scales (Importance: 3. Middle important: 4. Very important, respectively satisfaction: 3, Something between: 4, Satisfied).

The most frequent interaction between physical activity in a week and the quality of life of a teachers who occasionally realize physical activity in average M: 4,21 in a week with SD: 2,32 and in average number of hours M: 5,42 h, SD 3,32. In the group of casual athletes have been shown positive interactions with the areas of physical well-being ( $r_s: ,221, p<,01$ ), psychosocial well-being ( $r_s: ,179, p<,05$ ), material well-being ( $r_s: ,093, p<,20$ ), education ( $r_s: ,178, p<,05$ ), respectively considering a property affairs ( $r_s: ,131, p<,10$ ). We do not find positive interaction between physical activity and individual areas of quality of life in the group of teachers who present passive and active level of sport performance.

We find similar results in a group of adults kindergarten teachers (Broďáni & Žiškova, 2015), students of education in physical education in combination of subjects (Broďáni 2012), female students of pre-school and elementary pedagogy and teachers for primary education (Broďáni & Špániková 2013). Research of Pašková (2010) on 380 respondents has proven that physical activity at the level of "active sportsman" (non-professional) and "active sportsman on national level" (semi-professional) clearly increases the frequency of living of positive emotions and leads to increasing in life satisfaction.

## CONCLUSIONS

The quantity and quality of information about the health benefits of regular participation on any kind of physical activity results in recent years to increased physical activity of the population. Exercise is included either as a preventive or therapeutic mean with morbidity and mortality associated with cardiovascular diseases, diabetes, osteoporosis, stroke, and oncological or mental diseases. Finally, it has the major factor that participates in improving the quality of life of the population.

Joy and feeling of happiness from physical activity are key factors that contribute to the participation and remaining of an individual in a particular physical activity. This is confirmed by a group of occasional athletes who proactively engage in physical activities that brings them benefits in areas of quality of life.



Despite the relatively good knowledge of all the benefits which resulting from the physical activity many people do not reach a sufficient level of physical activity and thereby they are not closer to the benefits that are brought with. People who do not seek physical activities has too low physical activity and it is not included in the interaction with the areas of quality of life and do not demonstrate the required benefits.

It has found again that neither too high frequency of physical activity on the level of active respectively registered athletes do not increase the frequency of interactions with the areas of quality of life. We can see the explanation in the complexity, scope and frequency of activities realized while studying and working for teachers.

Overall conclusions highlight the importance of regular physical activity in the lives of teachers. They also point out the possibilities of influencing the quality of life through physical activities but also the necessity of creating optimal conditions for the possibility of increasing the quality of life in the social environment of teachers.

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