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## LIFE QUALITY AND PHYSICAL ACTIVITY OF UKRAINIAN PEOPLE

**Prystupa Evgen, Pavlova Iuliia**

*Lviv State University of Physical Culture, Lviv, Ukraine*

**Problem statement.** The investigation of life quality is the key element of modern international population health research [1, 2, 3, 5, 7]. The studying of life quality as a medical and social phenomenon allows to focus on pathological processes and positive or negative impact of therapeutic interventions and also is useful for prediction of work productivity and possible disability. Most of studies are devoted to the problem of life quality determination of different age groups which suffer from acute or chronic diseases [4, 8]. Life quality of population groups that are almost healthy is poorly understood. The current theoretical models of life quality are focused on disease symptoms, functional status and well-being. The only 40% of the factors that determine life quality are detected. The mechanisms of such action are not completely understood.

**Analysis of recent researches and publications.** The concept of health has undergone significant changes over the past decade. Therefore the life quality is analyzed in the context of the health and disease impacts on physical and social functioning, psychological and mental state, feeling of satisfaction with the lives (Health-related quality of life, HRQOL). In scientific researches the problem of population life quality is analyzed in the context of cultural, ethnic, demographic peculiarities [1, 2, 3, 5]. Therefore the new concepts that would describe integrally physical, psychological, emotional and social health and take into account environmental factors, individual life values and skills are interesting for researchers.

**The aim** of the article is to identify the relationships between life quality and physical activity.

**Research Methods.** To achieve this goal we used the following methods: the theoretical synthesis and comparison, critical analysis, pedagogical testing, survey, mathematical statistics. Health related quality of life was determined by questionnaire MOS SF-36 (Medical Outcomes Study Short Form 36). The scores according the following scales were calculated:

1. Physical Functioning (PF) – subjective assessment of daily physical activity;
2. Role Physical (RP) – refers to role limitations due to physical difficulties;
3. Bodily Pain (BP) – determining the impact of pain on daily activity limitation;
4. General Health (GH) – the subjective assessment of health;
5. Vitality (VT) – evaluation of the respondent vitality;
6. Social Functioning (SF) – the evaluation of the respondent's social relations and limitation of social contacts due to worsening emotional and physical state;
7. Role Emotional (RE) – the referring of role limitations due to emotional difficulties;
8. Mental Health (MH) – helps to determine mental state and respondent's mood.

The level of physical activity was determined by International physical activity questionnaire (IPAQ). For data processing the MET-indexes were calculated. METs (metabolic equivalent of task) are indicators of energy consumption during physical work, it is the ratio of metabolism during a specific physical activity and resting state. These indexes are analogous to 3.5 ml oxygen per 1 kg of body weight for 1 min or similar to use of 1 kcal per 1 kg for 1 hour. The 460 schoolchildren (age – 15–16 years), 200 students (age – 17–20 years), 350 pedagogues (age – 26 – 50 years) and 100 seniors

(age – 58–69 years) were involved to the survey. The 500 m running test was held according National tests and standards of physical training of Ukrainian people.

Correlation coefficients were determined by Spearman.

**Results and discussion.** The low parameters of life quality are typical for Ukrainian people. The negative tendencies were identified already during the analysis of 10th grade students' responses. The statistically significant difference between the results of boys and girls was not observed for this age group, but the values of scale Bodily Pain (BP), General Health (GH), Vitality (VT), Mental Health (MH) was low and similar to other age groups. The results obtained by using of SF-36 questionnaire are summarized in table 1.

Table 1- Life quality of different age groups

Country	Age of respondents, years	Scores by MOS SF-36 scales, points							
		PF	RP	BP	GH	VT	SF	RE	MH
Canada [1]	25–34	92	87	77	79	65	87	83	76
China [7]	18–24	94	91	87	64	58	83	81	52
Sweden [6]	20–23	97	87	77	75	59	84	76	71
United Kingdom [5]	18–24	93	92	87	72	66	90	83	75
Ukraine (authors' result)	15–16	89	78	71	68	73	79	77	72
	17–18	91	73	71	63	62	76	54	61
	26–50	87	65	58	53	59	71	58	65
	58–69	65	60	52	51	55	60	41	59

The health related life quality of students from different countries was analyzed and compared. Ukrainian students have lower life quality than young people from Britain, Sweden, China and Canada. Also low compared to respondents from United Kingdom and China was results by scale Role Physical (RP), that refers to role limitations due to physical difficulties. Such result indicates the presence of health problems and their negative impact on daily duties and work. This hypothesis can be confirmed by the low scores by scale General Health (GH) and Vitality (VT). Ukrainian students have not high scores by the scale Role Emotional (RE) and thus students' emotional state negatively affects on performance of daily activities (decreasing work productivity, low quality of work).

Physical activity is a variable component of life and necessary component of diseases prevention. Low level of physical activity is the fourth of the major risk factors of mortality and morbidity in Europe and worldwide. Obesity, depression, suicide, premeditate injury, deviant behavior, violence and abuse, alcohol and drugs consumption, game addiction are among the complication of passive leisure and lack of physical activity. For many years the increasing of physical activity is recommended as the primary preventive method and method of resistance improvement to adverse conditions.

In [9] hypothesized that general physical fitness and especially endurance is directly associated with health. All basic life function and prevention of chronic diseases are associated with body functional capabilities that strongly dependents from general endurance level. The correlation coefficients between different scales of life quality and the results of 500 m running test were calculated for identification of

relationships between the level of physical activity and life quality. Statistically significant correlation coefficients for men were found between the results of the race on 500 meters and scales Physical Functioning (PF) ( $r = -0.256$ ), Social Functioning (SF) ( $r = -0,293$ ), Role Physical (RP) ( $r = -0,251$ ). And, therefore, men which show better running results have better physical fitness and less difficulties with daily physical activity (walking, lifting etc.) and maintaining social contacts. Women endurance was not associated with social activity, but connection to the scales General Health (GH) ( $r = -0,288$ ), Bodily Pain (BP) ( $r = -0,436$ ) and Vitality (VT) ( $r = -0,341$ ) were identified.

For analyzes of physical activity the amount of METs spent by leisure time physical activity, transport-related physical activity, work-related physical activity and domestic and gardening activities was calculated. The main part of the total physical activity for adult falls on work. It should be noted that for seniors special physical training lessons were organized. Thus their physical activity level was only 2-fold lower compared for respondents who have paid work (table 2). Males had the highest level of physical activity in leisure time. Female were 2.8 times less likely to be physical activity at leisure time.

Table 2 - Adult physical activity level

MET-hours / week	Adults		Seniors
	Female	Male	Female
Physical activity at work (including volunteering, courses, studying etc.)	108,4 ± 9,9	150,0±12,2	55,5±11,7
Physical activity associated with moving from one place to another	27,3± 2,4	37,6±5,3	35,8±3,4
Domestic and gardening (yard) activities	85,8±5,4	98,3±15,8	66,0±8,1
Leisure time physical activity	15,4±2,2	43,4±7,0	22,3±3,6
The general level of physical activity	236,9±14,7	329,3±25,8	179,6±15,8

The relationships between life quality and physical activity level for older people were analyzed. Statistically significant strong correlation coefficients were found for moderate intensity physical activity and scales Physical Functioning and Role Physical ( $r = 0,71$  and  $r = 0,71$ , respectively) and also between the Mental Health and walking ( $r = 0,73$ ) (table 3).

Intense physical activity is not a prerequisite for optimal health and well-being of older people. Instead, daily activities – walking, lifting up the stairs, farm work, housework can improve the quality of life of older people. Thus, the statistically significant correlation coefficients were found between the number of metabolic equivalents spent on average power walking and components of life quality.

**Conclusions.** The health related life quality of all population groups of Ukrainians was low. The high life quality is associated with optimal physical and emotional health, good health, absence of depression, the possibility to take part in various social activities, high adaptive capability, working capacity; lack of disease. Physical activity is the factor that directly affects all counted life quality components. The development of endurance, which is a necessary component of physical readiness, correlates with higher life quality of students. There are strong direct correlation relationships between

the quantities of metabolic equivalents spent on physical activity and average power components of quality of life of seniors.

Table 3 - The correlation between the life quality of seniors and the level of physical activity

Physical activity	MOS SF-36 scales							
	PF	RP	BP	GH	VT	SF	RE	MH
Moderate intensity activity	0,71*	0,65*	0,20	0,45*	0,31*	0,65*	0,48	0,63*
Vigorous intensity activity	0,45*	0,31	0,15	0,23*	0,33	-	-	-
Walking	0,43	0,45	0,34	0,82*	0,43*	0,50	0,56*	0,73*

Note “\*” – significant correlation,  $P < 0,05$

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