

Life quality and physical activity of Ukrainian residents

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Abstract:

The improving of life quality of elderly people is actually nowadays it requires new approaches to problem solving. The research aim was to characterize the life quality of elderly people and determine its' relation with physical activity. It has been established low life quality indexes for Ukrainian elderly citizens. The determined value of General Physical Component was 45.0 points, General Mental Component – 40.2 points. It has been identified that intense exercise was not an obligatory condition for optimal life quality of elderly people. Significant correlation ($p < 0.05$) between life quality scales and the high-intensity physical work was detected. It was found active part in moderate intensity daily activities associated with higher respondents' life quality.

Keywords: life quality, physical activity, elderly people.

Introduction

The total number of elderly people is over 680 million. The relative number of elderly people in Poland is 13.6%, Belarus – 13.9%, Romania – 14.9%, Norway and Ukraine – 15.3%, Netherlands – almost 16%, France – 16.7%, Spain – 17.2%, Portugal, Greece and Italy – 20%. Thus the supporting of independence, the increasing of social activity level, improving of life quality of elderly people is actually nowadays. Ideas useful for solving of physical, psychological and social problems of elderly citizens have significant interest [7].

Life quality is the central object in different scientific areas. The life quality is the integral part of population and epidemiological studies. As a result, there are about a hundred definitions of this conception [9, 10, 15]. Some of them have the general character – “the awareness of individual well-being”, “the satisfaction or dissatisfaction with life” or “happiness or unhappiness” [4, 16]. However life quality is not comparable with the health, lifestyle, life satisfaction or mental condition [3, 12]. According proposed concepts, life quality consist of physical health, psychological state, level of independence, social relationships, personal beliefs and implementation of all these factors according environmental conditions [2, 3]. The shift of emphasis to positive approaches can be observed in academic writings. The negative paradigm of aging is focused on poor health, loneliness, inability to make decisions, disability, poverty, social exclusion, decreasing of intellectual development. Aging is considered as a natural state of a living organism that in public dimension is accompanied by changes in social roles and the appearance of new opportunities for personal realization. The basic needs of elderly people include health preservation, access to health services, active communication, performance of socially useful tasks, intellectual development, stable relationships and life.

The characteristics of elderly Ukrainians' life quality and its' relation with physical activity was the aim of investigation.

Material & methods

150 female (age 65.2 ± 4.3 years) took part in investigation. Respondents were studied in the University of Third Age (the structural part of Lviv State University of Physical Culture). Among respondents 52% were in official or civil marriage, 25.3% were widows, 8% were single, 14% were divorced. Most respondents had higher education (80.7%), 19.3% had secondary or incomplete higher special technical education. 73.3% of respondents lived with their families; 26% regularly take care about family members (grandchildren, parents, etc.). Only 3.3% of respondents described their living conditions as bad or indicated about bad or very bad financial situation.

Life quality was scored with the help of MOS SF-36 questionnaire [5, 18]. It was investigated according several scales:

1. Physical Functioning (PF) – subjective assessment of daily physical activity level; the higher is the score, the more physical active is respondent.

2. Physical Role Functioning (RF) – the evaluation of their daily activities and its’ impact on health; the higher index indicate about the less limitation in daily activities by the physical condition;
3. Bodily Pain (BP) – determine the impact of pain on daily activity; the higher index indicates about the less limitation due to pain.
4. Vitality (VT) – evaluation of vitality over the past four weeks; the higher score suggest about high level of energy and vitality.
5. Social Activity (SA) – the evaluation of respondent’s relation with other during the past four weeks; low score indicate about significant limitation of social contacts due to the deteriorating emotional and physical states.
6. Mental Health (MH) – the characteristics of respondents’ mental state; the higher is the score, the better mood had respondent during last month.
7. Emotional Role Functioning (RE) – the influence of emotional problems on respondents’ daily activities.
8. General Health (GH) – the subjective assessment of respondents’ health; the high score indicate the better health valuation.

The value of each scale ranged between 0 and 100 points, thus 100 points was a mean of absolute well-being. All scales formed two general components. Physical Component contains Physical Functioning, Physical Role Functioning, Bodily Pain and General Health. Mental Component consists of Vitality, Social Activity, Mental Health, Emotional Role Functioning.

International Physical Activity Questionnaire was used for scoring of physical activity level [8]. Data processing involved the calculation of MET-value (metabolic equivalent of task). This indicator reflects the energy consumption during specific physical activity; it is similar to consumption of 3.5 ml O₂ per kg for 1 min.

Correlation analysis was made by Spearman.

Results

The parameters of life quality were for Ukrainian respondents in the range 44.0–68.3 points. The value of the scales Emotional Role Functioning and Mental Health was low (44.0 points and 58.1 points respectively). Life quality according same scale was critical (Emotional Role Functioning, General Health, Bodily Pain).

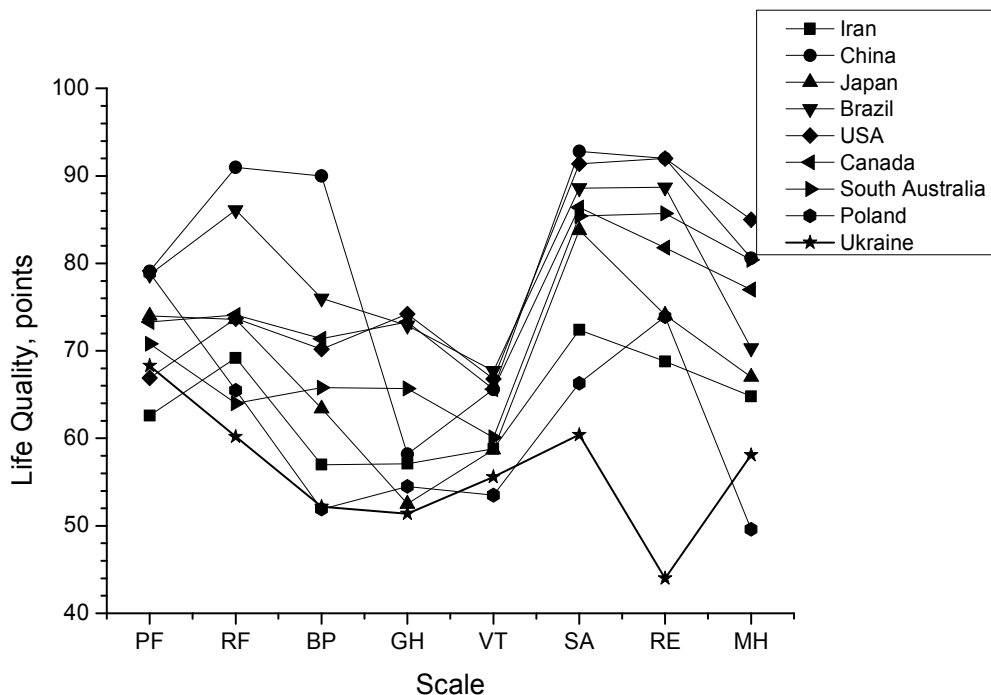


Fig. 1. Life quality of elderly people in different countries.

The graph shows the survey results of female from Iran (age – 65–69 years) [17], China (age >60 years) [14], Japan (age 65 years) [1], Brazil (age – 60–69 years) [11], USA (age – 78 years) [13], Canada (age – 65–74 years) [10], South Australia (age – 65–74 years) [6], Poland (age – 45–65 years) [19], Ukraine (own data).

The mean rates of General Physical Component and General Mental Component was $45,0 \pm 6,5$ points and $40,2 \pm 8,5$ points respectively (Fig. 2). The value of General Physical Component was significantly higher than General Mental Component ($p < 0.01$). The minimum General Physical Component was 17.1 points, maximum – 56.2 points. This parameter was characterized by very narrow confidence intervals (95% CI = 44.8–

49.5 points). The maximal value for General Mental Component was 48.2 points, minimal – 8.4 points, the confidence interval was 38.5–41.2 point.

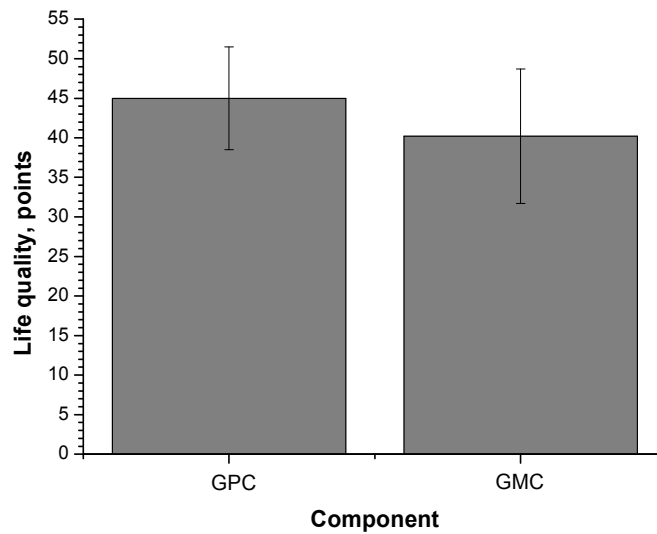


Fig. 2. The evaluation of general life quality components
GPC – General Physical Component, GMC – General Mental Component

The detailed analysis of Ukrainian respondents’ answers was done. The subjective evaluation of health was below the average meaning. No one of respondents did not choose the answer “Excellent” or “Very good” (Fig. 3, A). Similar results can be observed by respondents’ answers to the statement “I think that I can get sick more easily than others”. Only every third of respondents (37.3%) did not agree with this statement, and 6.7% and 17.3% of respondents chose the answer “It is true” and “Right in general”, respectively.

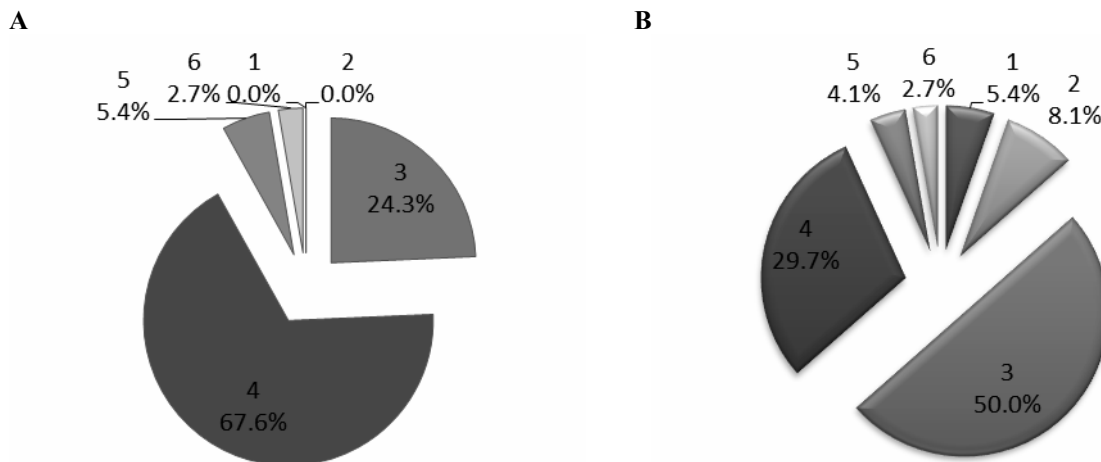


Fig. 3. Characteristics of respondents’ health

A – subjective assessment of respondents’ health: 1 – excellent, 2 – very good, 3 – good, 4 – satisfactory, 5 – bad, 6 – no answer.

B – changes in health status during the year: 1 – much better than one year ago, 2 – somewhat better now than one year ago, 3 – about the same, 4 – somewhat worse now than one year ago, 5 – much worse now than one year ago, 6 – no answer.

The health of most respondents has not been changed for the worse for the last year (Fig 3, B). 5.4% believed that their health improved, 8.1% answered that health improved, but the changes are insignificant. Two thirds of respondents (65.4%) indicate about obstacles with daily activities, but the physical health significantly impedes only high intensity work (Table 1.). Health conditions did not impede to run (20.0% of the elderly), to clean the apartment (48.0%), to kneel (57.3%), to carry bags with products 37.3%.

Most respondents had any difficulties with walking on small and long distance (70.7% and 64.0%, respectively) or personal care (82.7%). Among respondents 10.7% had significant difficulties with pedestrian walks, 13.3% – with lifting loads, 5.3% – with cleaning the apartment, 1.3% – with personal care.

Table 1. Impact of health on elderly peoples' daily activities

Activity	The relative number of respondents, %			
	Limited a lot	Limited a little	Not limited at all	No answer
Running, lifting of heavy loads, the participation in competitions	30.7	34.7	20.0	13.3
Cleaning in the flat	5.3	38.7	48.0	6.7
To lean, to kneel	13.3	18.7	57.3	9.3
Lifting or carrying groceries	13.3	40.0	37.3	8.0
To rise on one floor	1.3	10.7	74.7	12.0
Short distance walking	10.7	8.0	70.7	9.3
Long distance walking	6.7	17.3	64.3	10.7
Personal care (bathing, dressing)	1.3	5.3	82.7	3.7

The most respondents could not perform daily work because of bad mood (complains on low work productivity) (Table 2). But only 5.5% of respondents had absolutely unsatisfactory emotional state. 1.3% of respondents was always irritated, 4.0% – depressed, 4.0% – mentally exhausted, 2.7% – physically exhausted, 4.0% – tired, 5.3% – restless, 12.0% – unhappy. Instead, 8% of older people feel full of energy all the time or most of the time, 58.6% was calm, 16.0% of respondents was happy.

Table 2. Mental health of respondents during last month

Emotional state	The relative number of respondents, %						
	All of the time	Most of the time	A good bit of time	Some of the time	A little of the time	None of the time	No answer
Irritability	1.3	0.0	9.3	26.7	33.3	17.3	10.7
Depression	4.0	1.3	5.3	20.0	26.7	33.3	8.0
Mental exhaustion	4.0	2.7	16.0	30.7	24.0	13.3	8.0
Physical exhaustion	2.7	5.3	9.3	28.0	28.0	17.3	8.0
Fatigue	4.0	2.7	22.7	34.7	22.7	8.0	4.0
Calmity	5.3	33.3	20.0	9.3	14.7	5.3	10.7
Energetic	2.7	20.0	25.3	17.3	16.0	10.7	6.7
Happiness	4.0	12.0	24.0	18.7	20.0	12.0	8.0

Persons with higher levels of physical activity had a higher life quality (Table 3). Statistically significant correlation coefficients were found between the number of metabolic equivalents spent on moderate intensity work, walking and life quality components. The strongest correlation was found between the scales Physical Functioning, Physical Role Functioning and Mental Health (correlation coefficients were 0.71, 0.65 and 0.63, respectively). Strong positive statistically significant correlation exists between the scale Mental Health and walking ($r = 0.73$).

Table 3. Correlation between life quality and physical activity level**

Types of physical activity	Life Quality Scales							
	PF	RP	BP	GH	VT	SF	RE	MH
Moderate intensity work	0.71*	0.65*	0.20	0.45*	0.31*	0.65*	0.48	0.63*
High intensity work	0.45*	0.31	0.15	0.23*	0.33	-	-	-
Walking	0.43	0.45	0.34	0.82*	0.43*	0.5	0.56*	0.73*

Notes. “*” – significant correlation, $p < 0.05$

“**” – by the analyses of 100 respondents' answer.

Discussion.

The elderly respondents from developed countries (USA, Japan) had quite high life quality value (Fig. 1) even compared with other age groups [1, 13]. The means by Physical Functioning scale was 79–94 score, Physical Role Functioning – 73–95 points. The scales that strongly correlate with General Mental Component (Mental Health, Emotional Role Functioning) reached 85 points. Ukrainian respondents had lower life quality

according all scales except Physical Functioning.

Thus the life quality of elderly people was low, especially indicators of psychological components. These results can be explained by poor material conditions, despite the total income from pensions and salary. Only 5.3% of respondents had paid work. According to statistical data of the Pension Fund of Ukraine the average pension in 2014 was from 1 291 UAN (Ternopil region) to 2 135 UAH (Kyiv) that equivalent 56 USD and 94 USD respectively. The analysis of the European database show that the life expectancy of elderly male was 12.7 years, female – 16.6 years. For comparison the similar indicator for European Union residents was 15.87 (male) and 19.52 years (female), particularly for some countries (Switzerland, Sweden, Spain etc.) this index was 19 years (male) and 23 years (female). This complements the data about increasing among the elderly the number of people with multiple acute or chronic diseases. Lviv region (administrative region of Ukraine were scientific study was conducted) is on penultimate place by the number of diseases cases per 100,000 population. The tumor (25.8%), the diseases of circulatory system (46.6%), the diseases of digestive system (8.1%), respiratory diseases (3.09 %), infectious and parasitic diseases (2.4%) is the main causes of death of 50–64 years old Ukrainians. Cardiovascular diseases (79.18% of all cases), cancer (10.9%), the diseases of respiratory and digestive system (2.2% and 1.9% respectively) are the most common for the age group over 60 years. Additionally the problem of unsatisfactory medical care is available. 46.7% of respondents could not visit the doctor because of financial difficulties.

The presence of acute and chronic diseases is the main factor that can decrease significantly life quality according all scales. Low life quality according scales tightly connected with General Mental Component (Mental Health – 58.1 points, Emotional Role Functioning – 44.0 points, Social Activity – 60.4 points) indicate some socio-cultural tendencies in Ukrainian society such as the negative perception of old age, the elderly activity limitation, financial dependency from younger family members etc. It should be noted elderly female have more health complaints and lower life quality indicators. Such tendencies have worldwide character and similar results identified in Japan, Brazil, USA and Canada [1, 10, 11, 13]. Women are more often diagnosed with different disorders. However, analysis of the statistical database shows that in most countries female live more years of healthy life compared with male.

Every fourth elderly female finds that her health was worse than other and one third of respondents are absolutely convinced that get sick soon. The health of most respondents was satisfactory but only 24.3% answered that the health was good. Due to the respondents' age and characteristics of health, it can be noted elderly female had any difficulties with daily activities, housework and personal care. Significant amount of respondents could not perform daily work through a bad mood (the complaint on low performance and productivity). But it can be considered absolutely poor emotional state had only about 5.3% of respondents (Table 2).

Low physical activity level is one of the main factors which affect the adaptive processes of elderly people. It is the cause of weight gain, development of osteoarthritis, cardiovascular diseases, depression, cancer [1, 10, 11]. Among the positive effects of physical trainings are not only diseases prevention but also improving of cognitive functioning, autonomy, anxiety reducing and formation of new social networks that provide the high levels of social support. This helps improve functional state, psychological well-being, behavioral competencies and thus the life quality of older people as a whole. Elderly persons which at leisure time do at home or garden moderate intensity physical activity (light loads lifting, sweeping, washing windows, leaf cleaning, bicycling) had higher life quality and rarely had difficulties with daily physical activity (carrying bags with groceries, raising the stairs, long walks, etc.), also was active in public life, less often had physical or emotional problems during social contacts etc.

Conclusions.

The life quality of elderly Ukrainian citizen is low. The value of General Physical Component was 45.0 points, General Mental Component 40.2 points. The higher life quality can be associated with higher physical activity level. The intense exercise was not an obligatory condition for optimal health and good life quality of elderly people. Significant correlation between life quality scales and the high-intensity physical work was identified only for scale Physical Functioning. Instead active part in daily activities – walking, lifting the stairs, farm work, and housework can improve significantly life quality of elderly people.

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