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Evaluation of Health in Context of Life Quality Studying

Ocena zdrowia w kontekście studiowania jakości życia

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Abstract

Introduction: The development and application on novel concepts that integrally describe physical, psychological, emotional, social health, environmental factors, life values and personal skills was analyzed in the article.

The aim of the article was to analyze the latest methodological approaches of life quality and health assessment.

Results: The article deals with the peculiarities of life quality definition formation and role of its subjective and objective components. The life quality models that based on objective and subjective indicators, related to the health and social well-being was analyzed. The health indicators that provide critical information about population health and prevention programs were characterized and divided into 4 groups – medical and demographic, behavioral, administrative, related to physical and social environment. The problem of research methods development that would be useful for comparing the health related life quality in different countries, and creation of normative databases for various regions and determination of long-term impact on physical and mental health was studied. The peculiarities of quantitative evaluation in international methods (Index of Social Health, Physical Quality of Life Index, Human Development Index, Health related Quality of Life Index, World Health Organization Quality of Life index, Happiness adjusted life-years) were analyzed.

Conclusions: For a quantitative evaluation of the population life quality significant is selection of single definition, model with structural parts (domains) that include psycho-physical and physical health of people, their life values (micro level) and the socio-economic development of the society (macro level).

Key words: population health, well-being, health related quality of life.

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Introduction

Non-communicable diseases are the main causes of mortality and morbidity in the world. Around 8.3 million deaths and 115.7 million lost years of healthy life are caused by non-infectious diseases in WHO European Region. Experts from the World Economic Forum and Harvard University believe that during the next 20 years non-communicable diseases will be the cause of 30 trillion dollars loss.

The life quality investigation – is the key element of modern international population health research and identification of important for health demographic, social and psychological factors [1-5]. Life quality can be studied in sociological, socio-economical or only in economical context, but life quality as medical and social phenomenon has particular interest.

Traditional medical investigations are focused on pathological processes, on positive or negative impact of treatment, and therefore in many cases they bypass the patient and are not useful for prediction of productivity or disability. Also the approaches that provide the studying broader range of indicators than morbidity and mortality are rarely used. So in some cases the assessment of health care and effectiveness of prevention programs is not concentrated on the subjective perception of health and daily functioning, as well as the positive aspects of human existence and emotions. The implementation of new concepts that would describe integrally physical, psychological, emotional and social health, environmental factors, life values and skills of the individual are important in modern science.

The aim – to analyze the latest methodological approaches of life quality and health assessment.

Methods: theoretical analysis and synthesis of scientific and methodical literature.

Life quality – the evolution of definition

First the definition “quality of life” was mentioned in the writings of ancient philosopher (Socrates, Plato, Aristotle, Epicurus and others) and was identified with the spiritual freedom, individual improvement, the compliance of state laws [6, 7]. Instead, according to the ideas of Thomas Aquinas, Aurelius Augustine the achieving of high life quality is possible only through the love to God. The well-being does not depend from material goods or state serving, but only on understanding of God’s will and its submission. The basis of human life quality according to philosophers of modern times (Thomas Hobbes, John Locke, Charles Montesquieu, Jean-Jacques Rousseau) is social contract [8]. The achievement of moral perfection, formation of legal civil society is important for individual well-being by Kant [9]. In the 30’s of the XX century several attempts was done to characterize the quality of life and develop the concept of measurement. Also it should

be noted that at this time the concept of life quality and its indicators were key words in the reports of politicians and economists. For example, in Baltimore during the Great Depression the series of special articles was published. It was devoted to the life quality of USA residents’; also there was the first effort of creation of assessment system on the basis of objective and subjective indicators (income, education, crime level, infant mortality, satisfaction with residence and neighbors etc.). In the works in economics life quality is mentioned as an argument against unlimited growth. Thus, S. Ordway (1953) and F. Osborn (1954) used this concept pointing to an environmental hazard due to rapid economic growth. Instead A. Maslow (1954, 1968) saw human well-being in the context of satisfying of different needs – basic (associated with the providing of physical survival – such needs as food, housing, family) and higher (safety, development, learning, improving, self-assertion).

The investigation of relationships between economic and social indicators and analysis of the human perception of different life circumstances led to separation of objective and subjective components in life quality. Consequently health, education, personal freedom, feeling of satisfaction was also included to the life quality indicators. The great interest to subjective component also as considering the human life in the light of current cultural and value systems led to the development of modern concepts. Since the 90s’ of XX century the special research centers and academic programs have been developed worldwide. For example, in France MAPI Research Institute was created, it serves as coordination center for identification and testing of different methods for life quality evaluation. In Denmark for the studying of residents’ life quality the researcher center was established. In Canada the special national survey was found.

Today there are about one hundred definitions of life quality. Usually the main attention of scientists is focused on measurement or activities that can improve life quality rather than definitions formulating [10, 11, 12]. This approach is common in the medical literature – from 68 of proposed models 16 was not clearly defined [13]. Physical health, social relationships, psychological state, level of independence, personal beliefs and implementation of all these factors in a real world environment was included to the definition.

According to R. Veenhoven life quality is the set of several components – environmental factors, individual life skills, usefulness of own life, internal evaluation of life [14]. All categories are closely related to each other. For example, the ability to perform daily activities independently and active relationships with society have the positive influence on emotional well-being, but also strongly dependents on health and financial situation. A high level of social activity depends on transport network, type of housing, social benefits. Accordingly, the life quality is a dynamic concept that consists of posi-

tive and negative experiences, emotions and values. Also need to consider that evaluation of life changes over time according to life events, health and emotions.

D. Cella [15] identifies in life quality several well-being domain – functional, social, physical and emotional. According to A. Novak, life quality is the integral characteristics of physical, psychological, emotional and social functioning, based on the subjective perception [16]. R. Tartar and colleagues consider that life quality consist of individual behavioral and cognitive abilities, emotional well-being, ability to perform professional activities, daily activities and social roles [17].

Thus the definition of life quality can be described as an umbrella-type, so that is able to combine different medical outcomes [18]. M. Farquhar noted that in the case of human health investigation, attention can be focused on a population, person or the peculiarities of medical staff work, and therefore the definition will vary depending on the subject of study [19]. Some of the proposed definitions in the scientific literature have general nature – satisfaction or dissatisfaction with own lives, happiness or unhappiness or life satisfaction and personal well-being. The special classification of life quality definitions was developed by M. Farquhar. Based on the review of the scientific literature she singled out the following types of terms: 1) general – the quality of life is associated with satisfaction and dissatisfaction of the individual, or with sense of happiness or unhappiness; 2) partial – life quality is divided into several parts; life quality structure is constructed according to the aim of specific investigation and components that are insignificant are excluded from the definition; 3) selective – definitions are focused only on one or more components that are installed in the first type definitions; 4) combined – only few components are mentioned that are the most important on author opinion [19].

Objective and subjective indicators of life quality. Health related quality of life

The best strategies of objective or subjective approaches are used in the modern researches of life quality. According such principles several varieties of model can be selected:

- 1) the models that are directly associated with health. The physical and mental health, the level of daily physical activity, ability to adapt to environmental conditions, control of negative emotions and save the usual positive mood, the need in social care or medical assistance are usually considered in this models. Also among indicators are risk as a social and biological phenomenon, human freedom, housing, safety in society, available opportunities for spiritual development and self-realization, social roles and status of the respondent in the community etc. [3, 20-25].

- 2) the models of social well-being. Such models are useful for evaluation of relationships in society. The key indicators in these models – general subsistence level, indicators of law violations, neighborhood characteristics, degree of pollution, access to educational services, sports and leisure structures, shops, convenience of transport networks, etc. [26, 27]. Some models are focused on the environment. They are based on the principle of lifelong learning and provide the ability to change the environment according to the needs of social life and individual self-expression [28].

A significant part of these models has the practical application in medical and population researches. In such cases the main attention is focused on psychological and physical health, human life values and socio-economic development (health-related quality of life, HRQOL). The necessity to take into account health indicators is confirmed by numerous sociological surveys of different age groups. Good health is on 3-4th place among all values of young people and on the first for seniors [29]. Similar results were proposed by WHO; the components of health – physical, emotional, mental and spiritual well-being, safe environment, social relationships and the level of independence were determined as domains of life quality [30].

Health related life quality models are mostly conceptual, and therefore they are a schematic display of a theory and heuristic mechanism that provides an understanding of life quality phenomenon and the relationship between its components. The most famous is the Toronto model, which takes into account personal achievements of people, their social role, level of life satisfaction, the ability to use existing benefits and opportunities (University of Toronto, 2004). Life quality consists of three domains – “being”, “belonging” and “becoming”. “Being” consist of physical being (physical health, personal hygiene, nutrition, physical activity, ability to perform daily work etc.), psychological being (mental health, feelings, self-esteem, self-control), and spiritual being (personal values and standards, spiritual beliefs). “Belonging” is individual relationships with the outside world, and the components of this domain are physical belonging (home, workplace, school, neighbors, community) and public belonging (income, work, the social services and health care, the effectiveness of educational and recreational programs, participation in public events, the level of social activity). “Becoming” – an achievement and realization of personal goals, hopes, desires. Parts of this domain is practical becoming (activity at home, at school, at work, volunteer work), leisure becoming (types of activities that promote relaxation and reduce stress levels) and growth becoming (activity that promotes self-improvement and adaptation to constantly changing environmental conditions).

The WHO identifies the following components of life quality: physical well-being (energy, fatigue, pain, sleep, rest), psychological well-being (thinking, positive and negative emotions), social well-being (relationships with others), spiritual well-being (religion, personal beliefs), environment (safety, access to health care and social services, the opportunity to improve the skills, the level of pollution), autonomy (the level of daily activity, working capacity, medications or treatment dependence).

Model of health related life quality of P. Claire and I. Wilson [31] combines the paradigm of biomedical and social sciences. The HRQOL consist of following components: “Individual characteristics”, “Biological and Physiological Factors”, “Symptoms”, “Functional status”, “Environmental characteristics” and “General perception of health”. Thus HRQOL is associated primarily with physical functioning and social factors and depends on the subjective assessment of the health. The impact of environmental and individual factors also is significant.

Life quality model created by D. Felce and J. Perry provides objective and subjective indicators, analysis of normative data and taking into account the individual characteristics [10]. The isolation of material, physical, social, emotional and productive well-being, dividing of each component on subdomains indicates complexity of this structure.

Methods of life quality measuring as a part of the health and population studying

The strict selection, structuring and ranking of indicators is required for life quality measuring. Among the commonly used scales and indices – World Health Organization Quality of Life Index, Index of Social Health, Index of Economic Well-Being, Johnston’s Quality of Life Index, Veenhoven Happy Life-Expectancy Scale, Human Development Index, Index of Social Health, Netherlands Living Conditions Index, Happy-Planet Index etc.

Index of social health was created by professor of Institute of Innovation in social policy M. Miringoff (Fordham University, USA). The official and available statistical information are used for its calculation. It consists of 16 equivalent parameters that characterize the health, mortality, access to various services and social benefits of people of different age. Among sixteen indicators three are related to children, four to teenagers, three to adults, two to elderly and four to all age groups. Among indicators – infant mortality, child abuse, child poverty, teenage suicide, teenage drug abuse, school dropouts, unemployment, weekly wages, health insurance coverage, poverty, health-care costs for the persons at the age of 65+, homicides, alcohol-related traffic fatalities, food insecurity, affordable housing, and income inequality. Social Development Index is commonly used for assessing of effectiveness of public policy in the monitoring programs.

M. Morris and colleagues developed Physical Quality of Life Index (PQLI) that summarizes the following

indicators – percentage of literacy persons at age of 15, infant mortality up to 1 year, life expectancy. Infant mortality and life expectancy is 1 for the regions with the worst indices and 100 – for wealthy regions. Initially the upper limit for life expectancy was 100 for age 77 years (Sweden, 1973) and 1 – for age 28 years (Guinea Bissau, 1950). Among the advantages of PQLI are simple calculations, the possibility to study the correlation between economic performance and physical health.

The Human Developed Index is used in annual report of the Development Program of the United Nations. It consists of three indicators – life expectancy, education and income. Life expectancy is calculated as the average life expectancy at birth for male and female. Due to the growth of these indicators in the 1980–2012 maximal life expectancy is 83.57 years, minimal – 20 years. Education is calculated as relative number of literate persons at the age of 15 and education coverage of persons of all ages. The inaccuracies in the calculation of life expectancy, ignoring of the some subjective indicators (for example life value or benefits of individual life for society) are among the disadvantage of this model. Human Developed Index is useful for comparative analysis of the life quality of different nations and can be used for tracking of specific changes within time.

The main indicator of CDC’s Health related Quality of Life Index is the days of activity. Days of activity – the number of days per week or a month when respondent has any difficulties with everyday tasks and has good health. Depending the season this index is 6–9 years for healthy individuals. Respondents who was not engage to physical training in spare time have more than 5 unhealthy day during last month and 2.5 times higher level of dissatisfaction with own life.

The health status of the population is closely related with the level of society development. WHO has designed a special instrument WHOQOL (World Health Organization Quality of Life), which assesses six categories of life quality – physical, mental and spiritual state, autonomy, social relationships, and environment. Quality of life is assessed as subjective category that consists of health, lifestyle, overall well-being, life satisfaction.

International Living Index is the combination of objective and subjective approaches; on life quality by this method affects: economy (20%), health care (12%), culture and recreation (12%), infrastructure (12%), cost of living (20%), freedom (12%), safety and risk (12%).

The life quality also can be evaluated according to Happiness adjusted life-years (HALY), Happy Life-Expectancy (HLE), Happy Life Years (HLY) (Ruth Veenhoven). The indexes are calculated by multiplication of average life expectancy rate on happiness index. Happiness adjusted life-years is 62.7 years for Germany, 60.8 – for Sweden 50.4 – for Japan, 29.2 – for Russia, 11.5 – for Zimbabwe. These methods are designed similar to DALY (Disability-adjusted life year) that was developed by WHO and Harvard School of Public Health. DALY

is used for evaluation of health care system and allows to characterize the correlation between separate diseases and economic indicators.

Discussion

Health is an integral and multi component conception that characterizes the human’s dynamic state and the capacity for self-regulation and adaptation, the level of vitality and life. Thus, the health indicators are the complex indicators of life quality, since they reflect the biological, spiritual, social human relations, also as cultural achievements and education. HRQOL indicators provide an analysis of birth rate, mortality and morbidity in the population, access to health care. They are useful for description of lifestyle, the physical and social environment etc. (table 1). These indexes are powerful tools for monitoring and providing critical information about public health, the effectiveness of preventive programs in the fields of education, medicine and social welfare, help quantitatively establish the differences in the life quality of different groups, identify risk groups and identify conditions under which preventive program will be effective.

Tab. 1. Indicators of health related life quality

Group	Indicators
Medical and demographic	<i>Associated with births and mortality:</i> life expectancy, infants and adolescents mortality, the percentage of children with low birth weight, prenatal care characteristics, fertility among adolescents, mortality caused by diseases etc. <i>Associated with morbidity and health:</i> number of illness days during last month, self-assessment of health, body mass index, distribution of non-communicable diseases caused by lifestyle
Behavioral	The level of physical activity, nutrition, the presence of harmful habits, unreasonable use of medications
Administrative	Medical insurance, medical care, clearly developed medical protocols, preventive services, patient safety and medical errors, possible barriers to health care services (linguistic, cultural or territorial), total expenditures on health care and treatment, comparing resources used per patient in different hospitals
Related to physical and social environment	The level of environment pollution, access to public transport, housing, education, educational level of parents, characteristics of the family environment (stress and depression in parents, breastfeeding practice, the practice to read for children, the frequency of eating, etc.)

The life expectancy has increased for the last 150 years in developed countries. Interest to the problem of healthy life expectancy avoids the usual analysis of mortality, causes of morbidity and in fact is the aim of life quality studying. Nowadays in health area the main attention is focused on effectiveness of cost using in relation to human health or the impact of treatment on mood and feelings.

On the 62 and 63 sessions of the Regional Committee of WHO the directions of realization of program “Health – 2020” were identified. This program is oriented on chronic diseases reducing, decreasing of risk factors, reducing inequalities according health preservation access, increasing of life quality. The 26 experts who were interviewed as the part of program development do not outline the target “To improve the welfare of the population of Europe”. This indicates on importance of indicators and special surveys determination that are important in large-scale population studies. Also it should be noted that health indicators caused by social factors. Therefore, the comprehensive strategies that have complex action are the most effective for better utilization of available resources. Improving the quality of employment, working conditions, access to health services, that are useful for health promotion, providing of learning opportunities for the persons of different age, increasing of social cohesion, providing the resources for life quality improving are important among such proposed actions.

Life quality assessment should be conducted with the obligatory study of health indicators. For the population studies of life quality important are: 1) selection of single definition that will be the basis of research; 2) the choosing of life quality model with the especial structural parts that are focused on different aspects of human health and the socio-economic development of the society; 3) taking into account such subjective and objective indicators that can provide the analysis of life quality domains for different population groups.

Conclusions

Life quality assessment should be carried out with the obligatory study of health indicators. Life quality is an indivisible whole with health. The selection of single definition is the basis of population researches. The significant components of multi structural models are psycho-physical and physical health, life values (micro level of life quality) and the socio-economic development of the society (macro level). Age, gender, cultural and ethnic characteristics provides analysis of important for different population groups domains.

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