

Assessment of health-related quality of life in adolescents in the conditions of war in Ukraine

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ABSTRACT

Aim: The aim of our study was to assess the health-related quality of life of adolescents in the city of Myrhorod during the war in Ukraine.

Materials and Methods: The study involved 102 adolescents (mean age - 14.5 ± 1.6 years) from the city of Myrhorod, including 58 girls and 44 boys. To study the quality of life of adolescents, the KIDSCREEN - 52 methodology was used, which is most often used in most European countries and does not require adaptation, since it includes a universal and local element. Frequency analysis with extensive indicator calculation was used to analyze the survey responses. MS Office 2016 software package, namely MS Excel module, was used to process statistical information.

Results: The results showed low and medium levels in such quality of life indicators as physical activity and health, psychological well-being, emotional state, autonomy, relationships with parents, social support and experiences of bullying. Sufficient levels were recorded in such quality of life indicators as financial resources, self-perception and school environment. Reduced quality of life among adolescents in relation to relationships with parents, emotional state and free time, as well as gender differences in self-perception and physical activity.

Conclusions: This study allowed us to analyze ten key dimensions of HRQoL and develop practical recommendations for adolescents that cover the importance of regular physical activity, supporting psychological well-being, building healthy relationships with parents and peers, and improving self-educational and organizational skills for effective use of free time.

KEY WORDS: health, health-related quality of life, KIDSCREEN-52 questionnaire, HRQOL measurements, adolescents

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INTRODUCTION

Quality of life is a characteristic of a person's physical, psychological, emotional and social functioning, which is based on subjective perception [1].

In medicine, the concept of quality of life refers primarily to the state of health, which is why the term "health-related quality of life" (HRQoL) is most often used. The direction of supporting for HRQoL has become one of the important components of health care in the world [2].

The child's health is a factor and condition for its optimal further development, realization of biologically determined possibilities, long social, full and fruitful life. Methods for assessing the parameters of a child's quality of life are used in various fields of medicine: when conducting population studies, when developing medical standards and studying the effectiveness of

new methods of treatment and prevention, for individual monitoring of the condition of a sick child during treatment, etc. [3].

AIM

The aim of our study was to assess the health-related quality of life of adolescents in the city of Myrhorod during the war in Ukraine.

MATERIALS AND METHODS

The KIDSCREEN-52 questionnaire was used in the study to assess health-related quality of life [4]. It contains 52 items and covers 10 key aspects: physical and psychological well-being, emotional state, self-perception, level of autonomy, relationship with parents and family

Table 1. Level of health-related quality of life among adolescents in the city of Myrhorod

Key aspects	Level of health-related quality of life indicator, %							
	Low		Middle		Sufficient (default value)		High	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Physical activity and health	10.7	20.7	26.2	31.1	42.1	27.6	21	20.7
Psychological well-being	21	38.3	18	14.1	33.9	23.8	26.3	23.8
General condition (mood and emotions)	36.8	48.2	15.7	15	31.6	33.2	15.8	3.44
Self-perception	5.3	17.2	27.5	20	62.7	55.9	4.5	6.9
Autonomy	37.4	37	10.3	20.7	37	35.1	10.3	17.2
Relationships with parents and staying at home	36.8	40.4	15.6	12.1	42.3	32.7	5.3	10.3
Financial resources	-	6.9	25.3	20.2	64.3	55.7	10.5	17.2
Relationships with peers	21	34.5	23.4	17.9	50.3	44.1	5.3	3.4
School environment	26.3	20.7	10.8	10.1	21.1	52	42.1	17.2
Bullying	-	17.2	36.8	34.5	63.1	48.4	-	-

Source: compiled by the authors of this study

environment, financial resources, peer support, social contacts, school environment, and bullying.

The study was conducted between May and June 2024, and the study design was cross-sectional. The KIDSCREEN questionnaire was used to assess the subjective health and psychological, mental and social well-being of adolescents aged 13 to 17 years.

A manual data processing method was used to evaluate the KIDSCREEN – 52 items [5]. The research was conducted using a questionnaire survey - the most popular method of collecting information, which makes it possible to obtain reliable information that is amenable to statistical processing. [6].

The study involved 102 adolescents (mean age - 14.5±1.6 years) from the city of Myrhorod, including 58 girls and 44 boys. To study the quality of life of adolescents, the KIDSCREEN - 52 methodology was used, which is most often used in most European countries and does not require adaptation, since it includes a universal and local element [7]..

STATISTICAL METHODS

Frequency analysis with extensive indicator calculation was used to analyze the survey responses. MS Office 2016 software package, namely MS Excel module, was used to process statistical information.

ETHICS

The research was conducted in accordance with ethical standards. The parents of the study participants were informed about the purposes of the study and gave informed consent.

RESULTS

ASSESSMENT OF THE QUALITY OF LIFE OF ADOLESCENTS BASED ON THE RESULTS OF THE KIDSCREEN-52 QUESTIONNAIRE

Assessing health-related quality of life is an important tool for identifying the physical, psychological, and social well-being of adolescents. In the context of the war in Ukraine, this problem becomes particularly important, as military actions, forced displacement, psychological stress, and loss of stability and security significantly affect the health and well-being of adolescents. The use of the KIDSCREEN-52 methodology allows for a comprehensive assessment of the main aspects of HRQoL and the development of effective recommendations for supporting the psycho-emotional state of adolescents during wartime.

The results indicate a reduced quality of life among adolescents in terms of relationships with parents, emotional state and free time, as well as gender differences in self-perception and physical activity and are generally consistent with the results of other scientists and studies (Table 1). Thus, the study reflects contemporary problems of adolescents, confirmed by global trends in science.

ANALYSIS OF QUALITY OF LIFE INDICATORS OF ADOLESCENTS USING THE KIDSCREEN-52 METHOD

Physical activity is evidence of physical development, and therefore the main indicator of human health, so the study of health-related quality of life began with it.

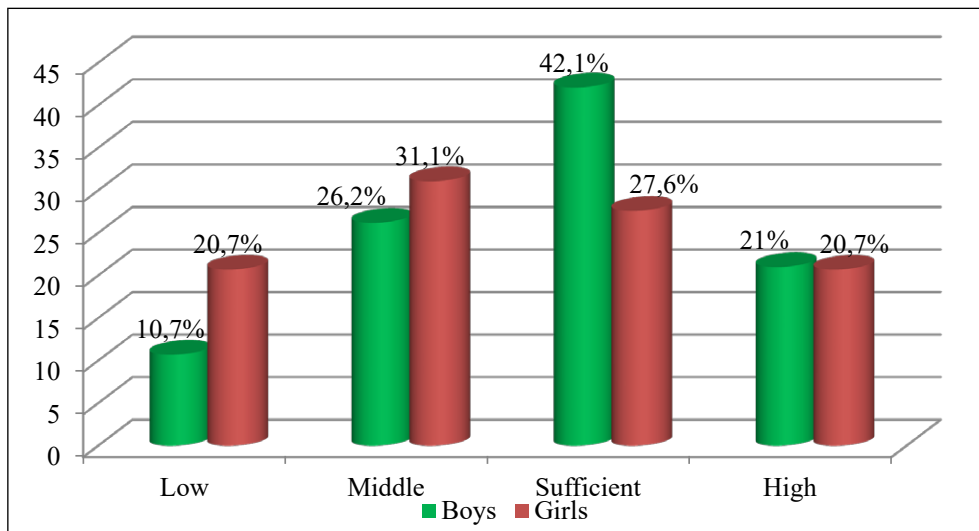


Fig. 1. Level of physical activity and health status among respondents
Picture taken by the authors

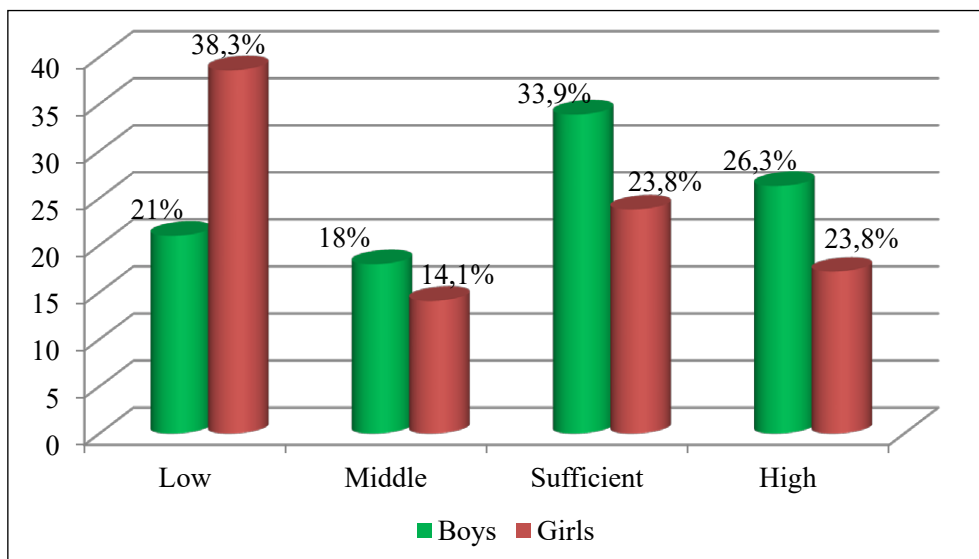


Fig. 2. Level of psychological well-being among respondents
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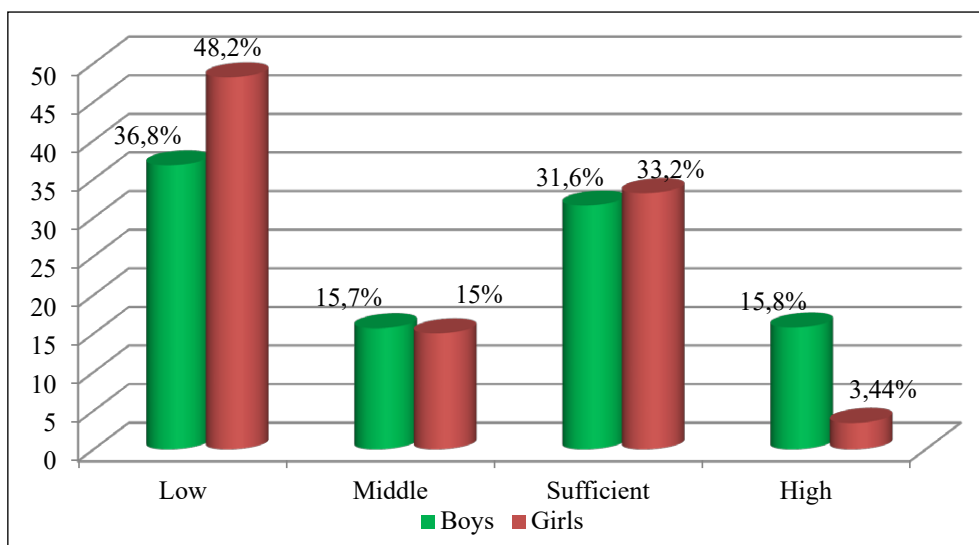


Fig. 3. Level of general well-being (mood and emotional state) among respondents
Picture taken by the authors

According to the results of the analysis of the parameter "Physical activity and health", 20.7% of girls and 10.7% of boys have a low level of physical activity and health, 31.1% of girls and 26.2% of boys - average, 27.6%

of girls and 42.1% of boys - sufficient, 20.7% of girls and 21% of boys - high (Fig.1).

So, every second girl and every third boy assess their physical health as below average or weak, believe that

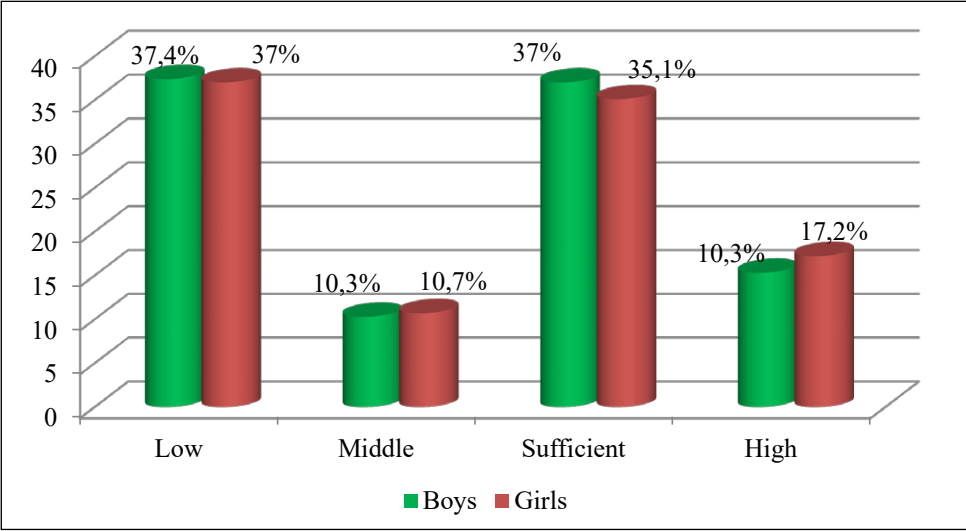


Fig. 4. Level of self-esteem and self-perception among respondents
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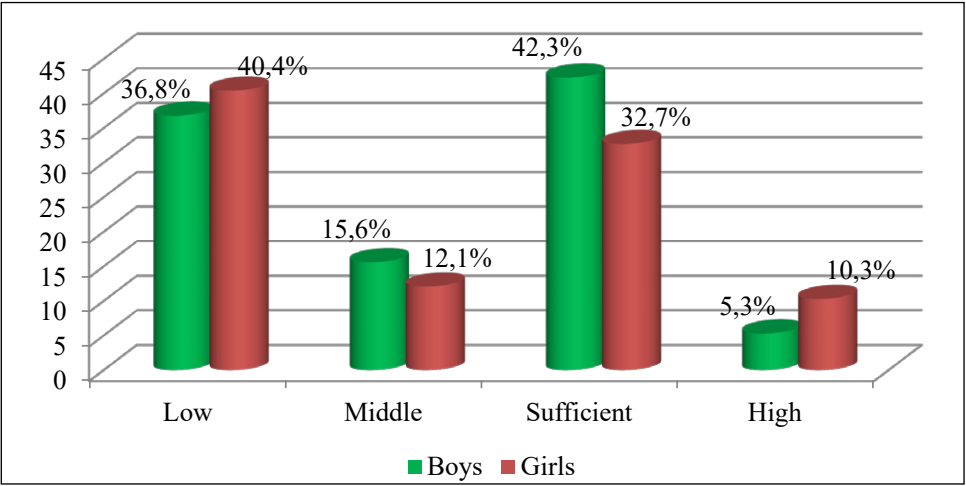


Fig. 5. The level of autonomy and the ability to freely manage time among respondents
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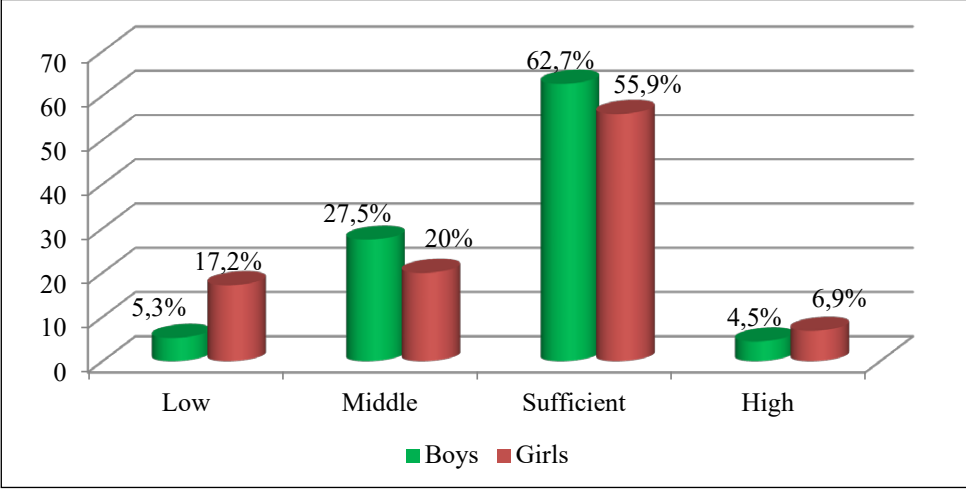


Fig. 6. Level of relationship with parents and staying at home among respondents
Picture taken by the authors

they are not in sufficient physical shape to engage in active sports, and do not feel energetic.

According to the analysis of the parameter “Psychological well-being”, a difference in indicators was observed. 52.4% of girls and 35.1% of boys had a low and medium level of psychological well-being, were not at all or somewhat satisfied with their lives, were rarely in a good mood, had fun and enjoyed life (Fig.2).

According to the results of calculating the total scores for the “General condition” parameter, 48.2% of girls and 36.8% of boys assessed their general well-being, which included mood and emotions, as low, 15% of girls and 15.7% of boys as average, 33.2% of girls and 31.6% of boys as sufficient, 3.4% of girls and 15.8% of boys as high (Fig.3). Thus, we can conclude that every second teenager surveyed has a low level of emotional

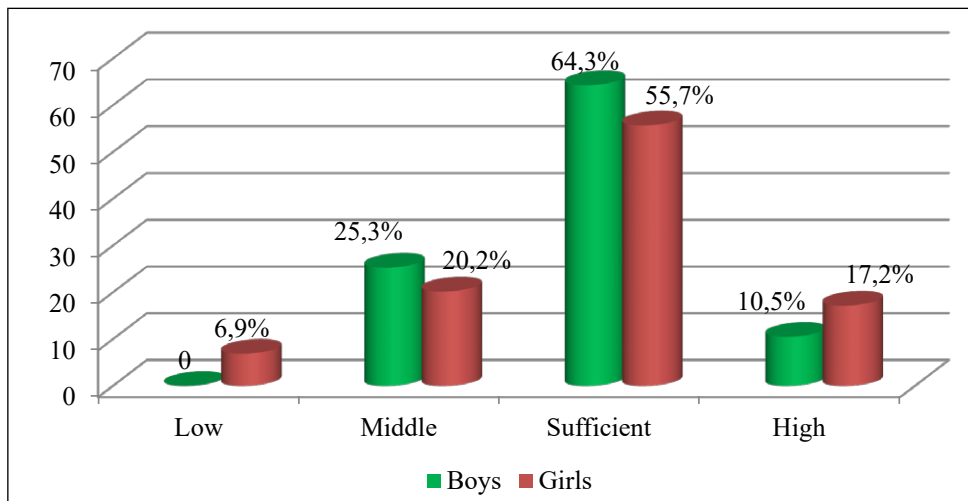


Fig. 7. Level of financial capabilities and available resources among respondents
Picture taken by the authors

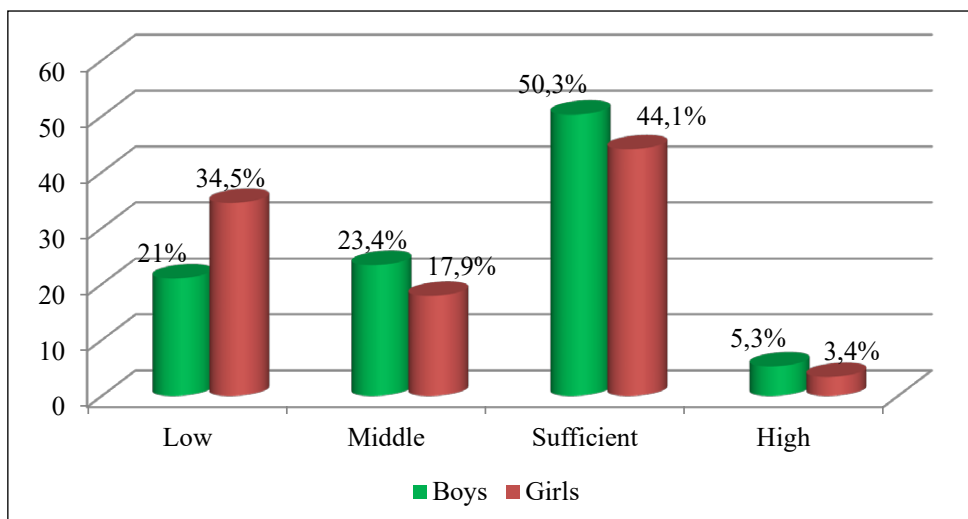


Fig. 8. Level of peer relationships and social support among respondents
Picture taken by the authors

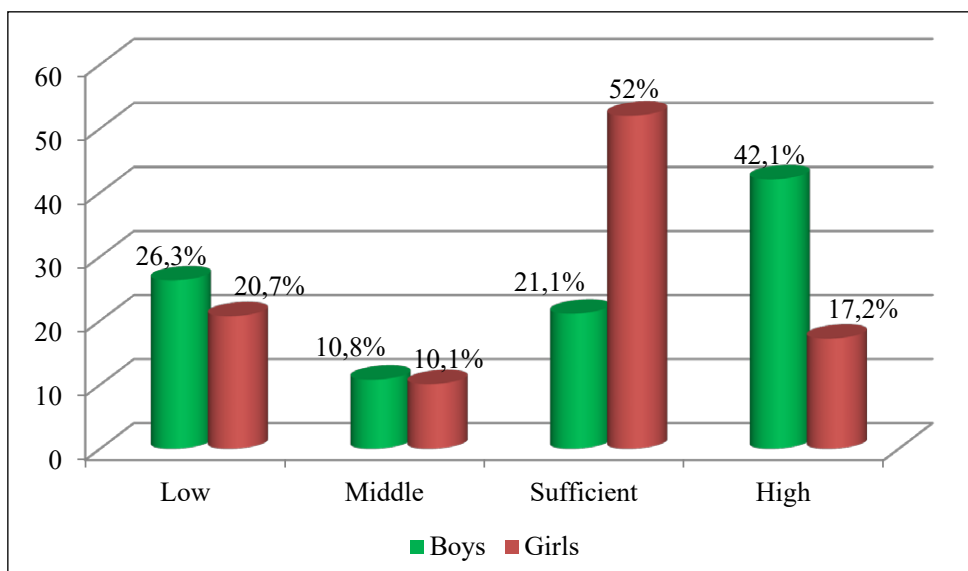


Fig. 9. Level of satisfaction with the school environment and learning conditions among respondents
Picture taken by the authors

functioning: they feel that everything in life is going wrong, that they are fed up with everything, they feel lonely and feel pressure from others.

According to the results of calculating the total scores of the "Self-perception" parameter, the following indicators

were obtained: 32.8% of boys and 37.2% of girls have a low self-image, 59.7% of girls and 67.2% of boys have a sufficient quality of life associated with self-perception (Fig.4).

Regarding such an aspect of quality of life as "Autonomy", according to the responses, every second teenager

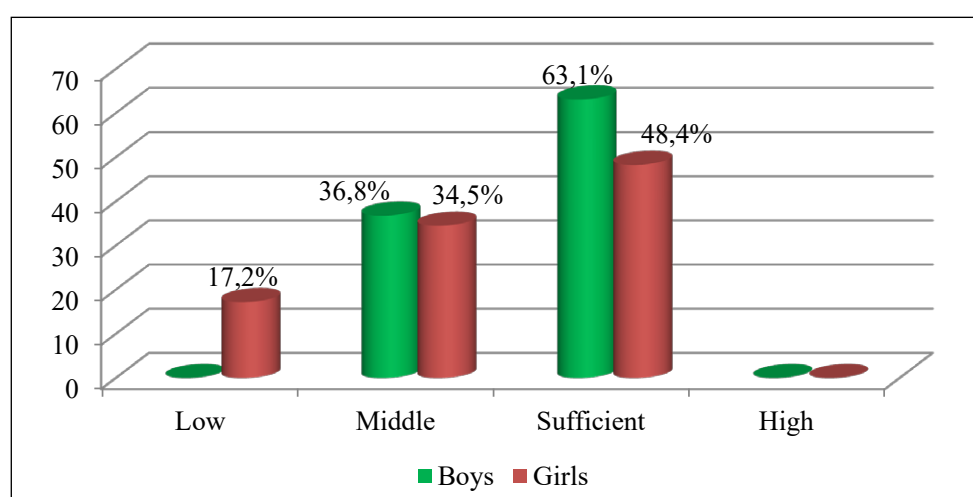


Fig. 10. Level of satisfaction with peer relationships among respondents

Picture taken by the authors

does not have enough free time for personal matters, communication with friends, walks in the fresh air and the opportunity to independently choose activities in their free time. (Fig.5).

According to the results of calculating the total score scale for the parameter "Relationships with parents and staying at home", it was found that 52.5% of girls and 52.4% of boys do not feel enough love, attention and understanding from their parents, believe that their parents are not fair enough towards them, do not have free time to talk and do not feel happy at home (Fig.6).

After calculating the total number of points for the "Financial Resources" parameter, we found out that most girls (72.9%) and boys (74.8%) have enough money for the same expenses as their friends, for their own necessary expenses, and also to spend time with friends (Fig.7).

Regarding the parameter "Relationships with peers", 52.4% of girls and 44.4% of boys noted that recently they have never or rarely spent time, done anything with their friends, and also never or rarely helped each other, could rarely talk about everything or rely on their friends (Fig.8).

The parameter "School environment" is an important part of the quality of life, because teenagers spend half of their time at school. 36.4% of boys and 31.8% of girls, that is, every third teenager, according to the total number of points for this parameter, never or rarely: felt happy at school, had good grades, could concentrate, was satisfied with their teachers and relationships with them (Fig.9). There was also an obvious difference in satisfaction with the school environment between boys and girls. 52% of girls had a sufficient level of quality of life regarding the school environment, 17.2% - high, boys - 21.1% and 42.1% respectively, which indicates a higher level of quality of this parameter among boys.

After calculating the total value of the "Bullying" subscale, we obtained the following results: 51.7% of girls and 34.5% of boys were very often or often afraid of their peers, were subjected to bullying and ridicule (Fig.10), which indicates a reduced quality of life compared to the standard value in relationships with others in every second girl and every third boy of adolescence.

DISCUSSION

Quality of life is a relatively new term for medicine, which until recently was used only by sociologists. The definition of quality of life is based on a person's assessment of their level of well-being in terms of physical, mental (intellectual and emotional), social (professional, home, recreational activity, relationships at work, in the family, in society) and economic aspects of life; the ability to concentrate and make decisions, memory, speed of perception; visual-motor coordination, mental comfort, emotional stability and a sense of satisfaction with life are also taken into account. [8, 9].

Interest in the problem of quality of life is growing, but a unified approach to the content of the very concept of "quality of life" has not yet been formed in the scientific community, there is no generally recognized methodology and methodology for its measurement [10]. Existing conceptual approaches to assessing the quality of life can be divided into two main areas: objective approaches allow us to determine the quality of the social and physical environment; subjective approaches focus on considering value attitudes [1].

In today's world, adolescent health is an important indicator of the social and economic well-being of society. Health-related quality of life reflects not only physical condition, but also psychological comfort, social adaptation, and general well-being of young

people. The period of adolescence is accompanied by significant physiological and emotional changes that can affect the overall perception of one's own health. That is why studying of HRQoL among adolescents is extremely necessary [11,12]. Recently, there has been a trend towards creating universal questionnaires that are suitable for both healthy children and those with health problems [13].

It was previously thought that children and adolescents could not reliably assess their well-being because their understanding of health depended on age and cognitive development. However, recent research has shown that children are able to reliably assess their condition if questionnaires are adapted to their age level [13,14].

The low socio-economic level in Ukraine, when the main part of the time of many parents is spent on improving the material well-being of families by earning money mainly outside their country, as well as on the existence of double morality with low spirituality and culture of social life due to the tolerance of society to an unhealthy lifestyle (alcohol consumption, smoking, violence) create a negative microclimate for the adolescent population [12,15].

Taking into account the spread of social instability, the crisis of "social neglect" and "social isolation" of the younger generation of our country has become a pressing problem, as it worsens the health-related quality of life of adolescents [3].

It is believed that adolescents are healthier compared to other population groups, but today adolescence is recognized as a critical stage of the life cycle, during which various patterns of behavior are established, contributing to the formation of current health status and health indicators in the future [16].

There are different quality of life questionnaires for children depending on age; Youth Quality of Life Instruments - YQOL (D. Patrick); "Children's QOL Questionnaire" ("PedsQL"); Youth Questionnaire (YQOL); Youth Quality of Life Profile (QOLP-AV); Lindstrom Quality of Life Questionnaire (NQOLQ); Varniego Pediatric Quality of Life Questionnaire (PedsQL) - for adolescents aged 11 / 12-18 / 20 years; Health Questionnaire for Children and Young People KIDSCREEN-52; Children and Young People's Perception of Quality of Life Questionnaire (KPPs-DIM), etc. [17].

Important in assessing quality of life are test tasks that relate to the "perception of one's position in life". The PedsQL, QOLP-AV and NQOLQ Lindstrom methods take into account the specifics of child development, but do not contain specific topics proposed by the young people themselves. All methods, according to the WHO multidimensional concept of quality of life,

contain more than one component of quality of life from four (YQOL-R) to ten (KIDSCREEN-52). All of them capture the main indicators of quality of life listed by WHO: physical, psychological, social and environmental. Some of the methods are self-report methods (YQOL-R, QOLP-AV, KPPs-DiM), others (KIDSCREEN-52, PedsQL and NQOLQ) have similar versions for parents or extensions for younger children. The KIDSCREEN method is most commonly used in most European countries and does not require adaptation, as it includes a universal and local element. A general focus on quality of life is possible using the YQOL-R method. However, health-related quality of life can be assessed using the PedsQL 4.0 and KIDSCREEN-52 methods, a universal method that meets all methodological standards [3,18,19].

Thus, the large number of quality of life questionnaires in children allows for the optimal choice of a research tool, taking into account age, health status, and components of quality of life.

Thus, according to the results of the study, about half of adolescents report a reduced level of satisfaction with their relationships with parents and peers, which reflects a certain isolation and emotional alienation. Studies by other researchers also show that adolescents often experience difficulties in relationships with parents due to a lack of understanding or emotional distance. In studies conducted in the US and Europe, 40-50% of adolescents report feeling unsupported by their parents or experiencing conflict within the family. Peer problems are also common, and most studies indicate increased anxiety and social isolation among adolescents [10, 17].

According to a study by the World Health Organization, 20-30% of adolescents show signs of depression or anxiety disorders. At the same time, this figure is increasing every year, which indicates the general psychological pressure that adolescents are exposed to [10, 20].

Our research shows that one in two teenagers surveyed feels they don't have enough free time for personal pursuits and self-fulfillment. This is supported by research that shows that teenagers are increasingly facing pressure from school, family responsibilities and social demands, which limits their autonomy. Other studies also note that 40-50% of teenagers complain about not having enough time to relax and interact with friends, which can negatively affect their quality of life [20-22].

In our work, there is a gender difference, where girls have lower self-perception and emotional functioning scores, as well as reduced levels of physical activity compared to boys. In particular, girls are

more likely to experience emotional stress, anxiety and depression, which may be associated with an increased sense of danger. Reduced physical activity may be a consequence of limited opportunities for sports due to military operations, lack of a safe environment and changes in the usual lifestyle. Most researchers point to the difference in responses between girls and boys. Under the influence of sex hormones, girls become more emotional, sensitive to various changes in the body and to the influence of external factors, due to which their self-esteem is lower than in men [23,24].

PRACTICAL RECOMMENDATIONS:

Based on the results of our research, practical recommendations were developed aimed at strengthening their physical and psychological health, as well as developing skills that contribute to emotional well-being and harmonious relationships. The proposed recommendations are aimed at both adolescents and teachers and can be integrated into the educational process, especially in physical education, health care, and educational hours.

PRACTICAL RECOMMENDATIONS FOR TEENAGERS TO IMPROVE THEIR QUALITY OF LIFE

1. **Physical activity and health:** regularly do physical exercises. This can be not only sports, but also ordinary walks, active games with friends, dancing. Follow a healthy diet, drink enough water and avoid bad habits (smoking, drinking alcohol).
2. **Psychological well-being:** Take time for relaxation and self-development: reading, hobbies, and creativity reduce stress. Surround yourself with people who support and inspire you. Try to find the positive even in difficult situations and appreciate the pleasant moments in everyday life.
3. **Emotional state and mood:** be attentive to your emotions, if problems arise, do not hesitate to ask your parents or friends for help.
4. **Self-esteem:** work on developing self-confidence through new achievements and small victories. Remember that each person is unique, and comparing yourself to others is not always helpful. Choose activities that increase self-esteem and help you grow.
5. **Autonomy and free time:** plan your time to be able to do things that bring you pleasure: reading, talking with friends, favorite hobbies.
6. **Relationships with parents:** try to communicate openly with your parents, share your experiences

and problems. Maintain mutual respect and understanding, find time for joint activities. If you have difficulties in communication, do not be afraid to seek support from a psychologist.

7. **Financial resources:** learn to budget and save money for important needs. Spend time with friends without spending a lot of money - this can be free activities, nature walks, or creative activities together.
8. **Peer relationships:** build healthy relationships with friends, learn to help each other, support each other, and share positive moments. It is important to have reliable friends with whom you can discuss any issues and get support.
9. **School environment:** work on your academic performance, set goals and achieve them. Communicate with teachers if you have difficulties in learning or adapting to school. Create a positive atmosphere in the classroom, help classmates and participate in extracurricular activities.
10. **Bullying:** if you are a victim or witness of bullying, be sure to seek help from adults – teachers, parents, or psychologists. Support classmates who need help, and don't stay away.

CONCLUSIONS




Theoretical analysis of scientific literature and other sources allowed us to determine the content of the concept of "quality of life" and analyze ten main parameters of HRQoL, which include: physical activity and health, psychological well-being, emotional state, self-perception, autonomy, relationships with parents, financial resources, social support, school environment, and experience of bullying.

The study found low to moderate levels in quality of life indicators such as physical activity and health, psychological well-being, emotional state, autonomy, relationships with parents, social support, and experiences of bullying. Sufficient levels were recorded in quality of life indicators such as financial resources, self-perception, and school environment.

The results showed that girls have lower rates of psychological well-being, self-perception, and physical activity compared to boys, which may be due to increased sensitivity to stress factors and social conditions during adolescence.

Based on the results, practical recommendations for adolescents were developed. They cover the importance of regular physical activity, supporting psychological well-being, building healthy relationships with parents and peers, and improving self-education and organizational skills for effective use of free time.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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