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## EVALUATION OF THE INTEGRATED INDICATOR "QUALITY OF LIFE" IN CHILDREN AGAINST THE BACKDROP OF GASTRITIS AND DUODENITIS TREATMENT

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**Annotation.** *The article presents a comparative analysis of modern questionnaires for study of the quality of life indicators in children. Quality of life (QOL) is a necessary component of a comprehensive assessment of the patient's condition and includes information on all major areas of human activity. The quality of life varies with time depending on the condition of the patient, i.e. assessment of the integral indicator "quality of life" allows continuous monitoring of the patient's condition and correction of therapy if necessary. A particularly valuable characteristic of the QOL as a comprehensive examination tool is the direct participation of the patient in the assessment of his condition. The advantages of using the GSRS (Gastrointestinal Symptom Rating Scale) questionnaire in children with gastritis and duodenitis to assess the indicators of quality of life are shown.*

**Key words:** *quality of life, questionnaires, SF-36, Gastrointestinal Symptom Rating Scale, gastroenterology.*

It is known that in the late 70s - early 80s of the last century they began to use the indicator "quality of life" in foreign studies to assess the results of treatment. The basic concept of the Quality Adjusted Life Years (QALYr's) indicator was developed on the main components, namely malaise and a total assessment of social opportunities (ability to self-care, etc.), which change with the patient's age. The concept of "Health related quality of life (HRQOL)" [1]. Thus, this concept allows us to distinguish aspects of a medical nature from a broad, general definition of quality of life and gives opportunities of multivariate analysis of physiological, psychological, emotional and social problems of the sick person, taking into account the therapy.

Particular attention should be paid to the study of the quality of life in children. Today, the assessment of somatic status only in children of different age groups and in a number of pathological conditions is insufficient and not always objective. In this regard, the trend towards the definition of quality of life [2] is extremely relevant.

Interest in studying QOL in pediatrics arose in the 80s of the 20th century, when this indicator was assessed in adults in many clinical studies. According to foreign scientists, the number of studies of QOL in pediatrics is significantly less than in the adult population, although there is a tendency to a constant increase in the number of publications, which indicates the undoubted relevance of this problem [3].

At present, the situation with the state of health of children in Ukraine can be viewed

as a crisis, and negative trends in the children's health indicators persist and grow. So, no more than 3-10% of children can be considered healthy, there is a predominant increase in chronic pathology, the frequency of which has increased by 22% over the past 10 years. Along with somatic, the neuropsychic and reproductive health of children, their physical development worsens, and the level of disability increases [4].

There is also no uniform definition of QOL in pediatrics. By definition of J. Bruil "Quality of life is a child's perception and assessment of various areas of life that matter to him, and those feelings that are associated for him with problems in functioning" [5], in turn Novik A. A. et al. consider that "The quality of a child's life is an integral characteristic of a child's health, based on his subjective perception" [6].

Nowadays, traditional methods of examination provide a one-sided view of the disease and the effectiveness of treatment, but do not allow to evaluate the psychological, social maladjustment of the child, his attitude to his condition. Inclusion of QOL assessment in the survey program can solve this problem, which will improve the quality of medical care. According to M. Bullinger (2006), children's QOL may be the end point in assessing the effectiveness of medical interventions in the field of prevention, treatment and rehabilitation [7].

The following are the main areas of application of the quality of life indicator in pediatrics:

- medical and social research, in particular: the assessment of the quality of life of healthy children in order to develop optimal criteria for this indicator, which will highlight the risk groups and compare the quality of life of healthy and sick children; identification of regional features of QOL; development and comprehensive justification of new preventive programs; risk groups monitoring and evaluating the effectiveness of preventive measures;

- study of the various diseases effect on the quality of life in children, allowing to assess the child's individual response to the disease, the degree of its maladjustment, the patterns of changes in the indicator of quality of life depending on the nosological form, and also at different stages of the disease;

- use of the QOL indicator as an individual monitoring method to assess the effectiveness of the therapy and its correction;

- assessment of QOL as an additional criterion for the prognosis of the course and outcome of the disease, especially in palliative medicine;

- examination of new methods of treatment, drugs - according to international criteria when conducting randomized studies in the case of the same clinical efficacy of different methods, preference is given to the method of treatment in which there is the most expresses improvement in patients' QOL;

- use of the QOL criterion as a component of clinical and economic calculations to substantiate the economic feasibility of various medical technologies use [1].

As can be seen, the main areas of the QOL indicator use in pediatrics are similar to those in the adult population, only greater emphasis is placed on studying QOL of various contingents of healthy children introducing QOL as a screening technique in

preventive health care programs.

In Europe and America special attention is paid to the assessment of the quality of life of schoolchildren. Most authors found that children under 12 years of age have QOL higher than adolescents, while girls experience a more rapid decline in age than boys, especially psychosocial health and self-esteem rates [8].

Foreign authors point to the need to introduce QL assessment in schools as a criterion for children's health, and it is proposed to monitor by school nurses [9].

The quality of life related to health depends on the type and level of medical care. For example, in California, a prospective cohort study was conducted, which resulted in an increase in the availability of medical care to significantly improve the quality of life associated with health in adolescents (Seid M. et al., 2006) [10]. At the same time, the level of satisfaction with adolescents with medical assistance was directly proportional to the level of the "Psychosocial Health" scale. In addition, the QOL estimation can be used to calculate the medical needs of the children population.

A number of studies are devoted to the influence of various factors on the quality of life of children. It has been established that the poor physical health of children reduces their overall satisfaction with life. The results of the KIDSCREEN multicenter project conducted in Europe showed that the most significant socio-economic factors affecting the quality of life associated with children's health are parents' education and family income. In children of parents with higher education QOL is higher, it also increases with an increase in family well-being, especially in adolescents.

Many works were undertaken to compare the quality of life of healthy and sick children. All authors agreed that a chronic disease, regardless of nosology contributes to lower QOL compared with healthy children. The obtained facts once again confirm the need for preventive measures among the child population.

One of the most popular areas is the study of QOL in children with various chronic diseases. The spectrum of the nosologies described is very wide: oncology, ENT diseases, allergology, neurology, traumatology, nephrology, dermatology, gastroenterology, dentistry, psychiatry, pulmonology, endocrinology, cardiology, rheumatology, infectious diseases, etc. Questionnaires are used for studying the quality of life. All known QOL questionnaires today can be divided into two groups:

The main non-specific questionnaires for assessing QOL:

1. Questionnaire for assessing the quality of life of the European Group for Studying the Quality of Life (EUROQOL - EuroQOLGroup);
2. Brief form of health assessment (Medical Outcomes Study-Short Form - MOS-SF 36) - 8 scales, 36 questions;
3. Psychological General Well-Being Index;
4. Sickness Impact Profile - 12 categories, 136 questions;
5. Nottingham Health Profile - 6 parameters for evaluating experiences, 38 questions; 7 parameters for assessing daily life, 7 questions;
6. Hospital Anxiety and Depression Scale - HAD;
7. Quality of Well-Being Index - QWBI;

8. McMaster Health Index Questionnaire (MHIQ);
9. Child Health Questionnaire (CHQ);
10. Questionnaire for assessment of QOL in pediatrics (PedsQL);
11. The Generalized Scale of Life quality (Overall Quality of Life Scale);
12. Quality of Life Index [1].

The intensity of foreign scientific research on the problem of QOL studying in children has increased dramatically in recent years. It is believed that the achievement of the effect of QOL improving may be the main and only goal of medical and social interventions in a large number of patients, even in the absence of positive dynamics on the part of clinical and functional parameters. Our attention was attracted by the peculiarities of changes in the quality of life in children with gastritis and duodenitis, which require other methodological approaches to the study of the quality of life.

The main specific questionnaires for evaluating QOL in gastroenterology:

1. Gastrointestinal Symptom Rating Scale – GSRS;
2. Gastrointestinal Quality of Life Index – GIQLI) is often used to evaluate QOL after operations on the digestive organs;
3. Well-Being-Index for Surgical Patients - WISP, designed to evaluate QOL in patients after abdominal operations;
4. Visick I – IV scale for comparative assessment of resection and organ-saving treatment methods in surgical gastroenterological practice;
5. Gallstone Impact Checklist (GIC) - a specific questionnaire for patients with gallstone disease [11].

It is known that in the gastroenterological practice 2 questionnaires are most often used: non-specific - SF-36 and specific - GSRS.

The choice of the questionnaire is always determined by the goals and objectives of the study. General questionnaires necessarily include the following components: physical - activity, mobility, independence in life and self-care, etc., psychological - emotional background, cognitive ability, social - relationships with parents, peers, learning success, social role, self-assessment, etc. in other words, a method for evaluating QOL related to health makes it possible to assess the processes of adaptation of a person of any age in conditions of acute and chronic diseases

The SF-36 questionnaire is a non-specific questionnaire for assessing the quality of life of a patient, widely used in quality of life research in European countries and in the United States. It was established to assess the quality of life in Italy, France, Australia and the general population of the United States. Studies of individual groups of people were conducted in European countries and in the USA, and results were obtained on standards for a healthy population and for patients with various chronic diseases (with distribution into groups according to age and sex) [12]. The general questionnaire SF-36 is currently used in 95% of scientific studies on the study of QOL in various diseases. It consists of 36 questions grouped into eight scales: physical functioning, role-playing, body pain, general health, vitality, social functioning, emotional state and mental health. The indicators of each scale are compiled in such a way that the higher the value of the

indicator (from 0 to 100), the better the score on the chosen scale. Two parameters are formed from them: psychological and physical components of health. The questionnaire reflects the general well-being and degree of satisfaction with those aspects of human life that are affected by health.

Advantages of the SF-36 questionnaire:

- used to assess the quality of life in any disease;
- it is possible to compare the patient's quality of life indicators according to the SF-36 questionnaire for the relevant groups;
- evaluates the quality of life of patients in a complex (including social and psychological disorders).

Disadvantages of the SF-36 questionnaire:

- the questionnaire includes 36 questions, 8 scales - the time of filling is 10-15 minutes;
- difficulty in recoding data and calculating scales;
- there is no single indicator to determine the minimum clinically significant changes on standardized scales;
- license for commercial use.

The GSRS questionnaire (Gastrointestinal Symptom Rating Scale) was developed by the Department of QOL study at ASTRA Hassle (Wiklund I., 1998) and is used to evaluate QOL of patients with gastrointestinal diseases. The Russian-language version of the GSRS Questionnaire was created by researchers of the Inter-ethnic Center for the Study of QOL (MTSIKZH, St. Petersburg), in 1998 it was tested in the study of QOL of 2000 residents of St. Petersburg. The Russian version of the GSRS gastroenterological questionnaire is reliable, valid and sensitive. The questionnaire consists of 15 items, which are combined into 6 scales: abdominal pain, gastroesophageal reflux (or reflux syndrome), diarrheal syndrome, dyspeptic syndrome, constipation syndrome, scale of total measurement. Evaluation of indicators is carried out on a 7-point scale, with higher values corresponding to greater severity of symptoms and lower QOL [12].

It's known that changes in patients' QOL is assessed based on ongoing treatment. So there is a large number of medicine manufactured by various pharmaceutical companies under various names in all countries of the world today. Therefore, the problems connected with the wide distribution of generic medicines are becoming more and more relevant for the doctor.

Due to it, it's necessary to specify the distinctive characteristics and attributes of generic drugs:

- Copying of the original medicine;
- The entry on the market after the expiration date of the original drug's patent, when there is already a great clinical experience with the original medicine application;
- Lack of medicine studies in all 4 phases (I-IV) of clinical trials;

It's a common problem for the original and generic medicines that the development and production of the medicinal substance as well as the receipt of the manufactured medicine can be carried out in different countries. Very often the production of the



medicinal substance takes place in the developing countries (due to economic reasons) and the manufacture of finished drug forms happens in countries with the highest rating in pharmaceutical industry.

Thus, the use of medicines can also affect the indicators of QOL changes in terms of cost, namely, the cost of pharmacotherapy.

**Conclusions.** Thus, we have carried out a comparative analysis of questionnaires for studying the quality of life indicator in children. It was established that on the basis of the GSRS questionnaire (Gastrointestinal Symptom Rating Scale) it is possible to study the characteristics of changes in the quality of life in children with gastropathology in detail, taking into account treatment tactics and financial costs.

Prospects for further research. The next stage of our study is to assess the quality of life indicators in children with gastritis and duodenitis with various pharmacotherapy regimens and conduct a pharmacoeconomic assessment of the cost-effectiveness method.

#### References:

1. Vaskova, L.B, Musina, N.Z. (2007) Methods and methods of pharmacoeconomic research [Metody i metodiki farmakoeconomicheskikh issledovaniy]. GEOTAR-Media, Moscow, 112 p.
2. Syngal, P., Giuliano, JS. (2018) «Health-Related Quality of Life after Pediatric Severe Sepsis», *Healthcare, Basel*,11;6(3).
3. Beletsioti, C., Niakas, D. (2019) «Health-related quality of life in adult population before and after the onset of financial crisis: the case of Athens, Greece», *Quality of Life Research*, 28 August 2019, pp 1-11.
4. Catchpool, M., Gold, L., Grobler, AC., Clifford, SA., Wake, M. (2019) «Health-related quality of life: population epidemiology and concordance in Australian children aged 11-12 years and their parents», *BMJ Open*, 9 suppl 3, pp.157-164.
5. Rajmil, L., Herdman, M., Fernandez de Sanmamed, MJ., Detmar, S., Bruil, J., Ravens-Sieberer, U., Bullinger, M., Simeoni, MC., Auquier, P. (2004) «Generic health-related quality of life instruments in children and adolescents: a qualitative analysis of content», *J Adolesc Health*, 34(1), pp.37-45.
6. Novik, A.A., Ionova, T.I., Kalyadina, S.A. et al. (2010) «Methodological standards for the development of new symptom assessment tools in clinical medicine» [Metodologicheskiye standarty razrabotki novykh instrumentov otsenki simptomov v klinicheskoy meditsine], *Bulletin of the International Center for the Study of Quality of Life*, 15-16, pp.1-11.
7. Bullinger, M. (2006) «Methodological basis and aspects of quality of life», *Dtsch Med Wochenschr.*,131(19 Suppl 1), pp.5-7.
8. DunnGalvin, A., Flokstra-de Blok, B., Burks, AW., Dubois, AE., Hourihane, JO (2008) «Food allergy QoL questionnaire for children aged 0-12 years: content, construct, and cross-cultural validity», *Clin Exp Allergy*, 38(6), pp. 977-986.
9. Ferracini, GN., Dach, F., Speciali, JG (2014) «Quality of life and health-related

disability in children with migraine», *Headache*, 54(2), pp.325-334.

10. Berbis, J., Einaudi, MA., Simeoni, MC. et al. (2012) «Quality of life of early school-age French children born preterm: a cohort study», *Eur J Obstet Gynecol Reprod Biol*, 162(1), pp.38-44.

11. Baryshnikova, N., Belousova L., Petroenko, V., Pavlova, E. (2013) «Assessment of the quality of life of gastroenterological patients» [Otsenka kachestva zhizni gastroenterologicheskikh bol'nykh], *Doctor*, 7, pp.62-65.

12. Vorobyov, P.A. (2008) «Clinical and economic analysis in a medical organization. A practical guide for decision makers» [Kliniko-ekonomicheskiy analiz v meditsinskoy organizatsii. Prakticheskoye rukovodstvo dlya lits, primamayushchikh resheniya], *Rational pharmacotherapy*, 1(10), pp. 5-14.