
ASSESSMENT OF THE QUALITY OF LIFE IN CHILDREN WITH IRRITABLE BOWEL SYNDROME UNDER SOCIAL STRESS IN UKRAINE (PILOT STUDY)

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<https://doi.org/10.35339/ic.2025.12.3.gok>

ABSTRACT

Background. Irritable Bowel Syndrome (IBS) is diagnosed in [10÷15]% of older children, and there is a tendency for the prevalence of this condition to increase in adolescents. IBS is a long-term chronic disease that can significantly affect the quality of life of patients, causing both physical discomfort and psychological stress.

Aim. To assess the quality of life in children with irritable bowel syndrome under conditions of social stress during the hostilities in Ukraine.

Materials and Methods. We examined 30 children aged 6 to 17 years with irritable bowel syndrome. The diagnosis of IBS was made on the basis of clinical symptoms according to the Rome IV criteria (2016). For the analysis, the author's "Questionnaire for identifying risk factors affecting children's quality of life under conditions of social stress" (20 questions) was used. Responses were rated on scales of 1 to 5 points, as well as on dichotomous and graded scales ([1÷2], [1÷3], [1÷4] points depending on the content of the question). The total score ranged from 20 to 100 points. A descriptive, comparative and structural analysis of the indicators was carried out. The work was performed within the framework of the department's research project "Quality of life and the course of somatic pathology in children under social stress" (2023–2025), state registration number 0123U101768.

Research Ethics. The study was conducted in accordance with the ethical principles governing medical research involving human subjects.

Results. The average age of the examined children was [11.4±3.5] years. Depending on the clinical form of IBS: constipation-predominant IBS was observed in 17 (56.1%) children, diarrhea-predominant IBS in 13 (42.9%) children. In children of secondary school age ([12÷17] years), a higher correlation between reduced social functioning and the degree of clinical manifestations of IBS was found than in children of primary school age.

Conclusions. Changes in lifestyle, violations of diet, increased anxiety, and emotional exhaustion contribute to the exacerbation of IBS, affecting the frequency and severity of symptoms (abdominal pain, nausea, stool disorders, flatulence). Quality of life assessment should be an integral part of clinical monitoring and therapy planning in children with IBS. Effective treatment requires professional psychological support to reduce stress and develop adaptive mechanisms to respond to unfavorable environmental conditions.

Keywords: *pediatrics, gastrointestinal diseases, psychosocial factors, mental health, adolescents.*

Introduction

Irritable Bowel Syndrome (IBS), according to the Rome IV criteria, is a functional disorder of the gastrointestinal tract manifested by recurrent abdominal pain at least once a week for the last

three months and associated with two or more factors: changes in the act of defecation (changes in the urge – the need to make more effort or imperative urges); changes in the frequency of bowel movements (more than four times a day or less than twice a week); changes in the shape and consistency of stool (too hard, segmented or, conversely, liquid, watery), the presence of mucus in the stool and abdominal distension [1]. The most widely used in practice and in clinical trials is the Bristol Stool Type Scale, which is ordinal and contains 7 types of stools depending on the shape and consistency, from the hardest (type 1) to the softest (type 7). Types 1 and 2 are considered ab-

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normally hard stools (and in combination with other symptoms indicate constipation). Types 6 and 7, vice versa, are considered abnormally loose stools (and in combination with other symptoms indicate diarrhea). Types 3–5 are considered the most "normal" stools [2]. The diagnosis of IBS is made when there are no anatomical or physiological abnormalities during clinical examination. Most often, IBS is detected in young people and middle-aged patients under the age of 50 [3]. The prevalence ranges up to 13% in Europe, and in Ukraine it is [15÷20]%. Since 2022, the number of patients with IBS has been increasing. IBS with diarrhea occurs in 35% of patients, with constipation in 25%, with a mixed subtype in 20%, and unclassified IBS is observed in 20% [4].

Among children with functional digestive disorders, this syndrome is diagnosed in a quarter of cases, and there is a tendency for the prevalence of this condition to increase in adolescents. IBS is a long-term chronic condition that can significantly affect the quality of life of patients, including both physical discomfort and psychological stress [5].

Not one, but several etiologic factors and pathophysiologic mechanisms play a role in the development of the disease. In each specific clinical case, the combination of etiopathogenetic mechanisms is individual. Among them, the socioeconomic status of the family, genetic predisposition, psychological aspects, visceral hypersensitivity, gastrointestinal motility disorders, changes in the neuroendocrine system (brain-gut axis), somatoform autonomic dysfunction, the concept of postinfectious IBS, microbiota imbalance, and, finally, certain nutritional factors are of particular relevance [6; 7]. Social stress factors can increase the probability of occurrence and affect the course of IBS. The full-scale outbreak of hostilities has led to dramatic changes in the lives of civilians. The shelling of residential buildings and other infrastructure has significantly worsened people's living conditions. Constant exposure to stress, changes in lifestyle, and nutrition have contributed to the increase in the incidence of diseases among the population. Quality of Life (QoL) examines the impact of the disease on physical, mental, and social aspects of a patient's life. Assessment of QoL plays a key role in improving the effectiveness of treatment. To evaluate the effectiveness of treatment, the list of necessary criteria should include Quality of Life indicators [8; 9].

The **aim** of study was to assess the quality of life in children with irritable bowel syndrome un-

der conditions of social stress during the hostilities in Ukraine.

Materials and Methods

The study involved 30 children aged 6 to 17 years with IBS, including 16 girls and 14 boys, who were treated in the gastroenterology department of the Regional Children's Clinical Hospital in 2022–2024. All children were living in the frontline zone (Kharkiv region, Kharkiv) for 2 years. The diagnosis was made on the basis of clinical, laboratory, and instrumental examination of the sick children, according to the Rome criteria IV (2016). To assess the quality of life, the authors' 20-question survey was used to identify risk factors in the context of social stress [10]. The respondents evaluated the answers on a point scale. The average age of the examined children was [11.4±3.5] years, including 36.6% of patients of primary school age (6 to 11 years) and 63.4% of patients of secondary school age (12 to 17 years).

The diagnosis was made on the basis of clinical symptoms in accordance with the Rome IV criteria (2016). According to the way the assessed issues were allocated, parametric (mean value, standard deviation) and nonparametric statistical methods were used. Quantitative attributes with a normal distribution are represented as [M±m], where M is the mean value, and m is the standard error of the mean (SEM). Characteristics whose distribution differed from the normal ones are represented as Me (Q1; Q3), where Me is the median, Q1 is the first quartile (25th percentile), Q3 is the third quartile (75th percentile), and the level of statistical significance (p). The normality of the distribution in the samples was determined using the Shapiro-Wilk method. The critical value of the significance level (p) was taken as ≤5% (p≤0.05).

Research Ethics

The study was approved by the Commission on Biomedical Ethics for Compliance with Moral and Legal Norms of Medical Research of Kharkiv National Medical University. It was confirmed that the conducted study does not contradict the basic bioethical norms and complies with the provisions of Good Clinical Practice (1996), the Council of Europe Convention on Human Rights and Biomedicine (April 04, 1997), the World Medical Association Helsinki Declaration (1964–2024), as well as the Order of the Ministry of Health of Ukraine No.690 of September 23, 2009, as amended by the Order of the Ministry of Health of Ukraine No.523 of July 12, 2012.

The parents of all patients were informed about the purpose and methods of the study, after which

they signed informed consent for the children to participate in the study.

Results

The gender analysis showed that there were no statistical differences between boys and girls (there were 14 boys (46.7%) and 16 girls (53.3%) ($p>0.05$). The median Body Mass Index (BMI) of patients was 16.75 kg/m² (14.16; 19.56).

Depending on the clinical form of IBS, the patients were divided into the following: IBS with predominance of constipation (type 1, 2 on the Bristol scale) was observed in 17 children (56.1%), IBS with diarrhea (type 5, 6, 7 on the Bristol scale) in 13 children (42.9%), and no patients had mixed type symptoms. The main clinical manifestations were abdominal pain, which was observed in 30 children (100.0%), a feeling of early satiety in 5 (16.5%), and flatulence in 13 (42.9%). Most patients complained of nausea, with 22 patients (72.6%) noting this symptom during meals. 18 children (59.4%) reported decreased appetite and weakness.

In the vast majority of children, 25 (82.5%), abdominal pain was associated with the act of defecation. 26 (85.8%) children had a feeling of overflow after the act of defecation. The feeling of incomplete emptying was noted by 28 children (92.4%).

The structure of concomitant pathology included Protein-Energy Deficiency (PED) in 6 children (19.8%), functional disorders of the biliary tract in 10 (33.0%), and diffuse non-toxic goiter in 4 children (13.3%). Manifestations of vegetative-vascular disorders in the form of headache in 12 patients (39.6%), sleep disturbance in 27 (89.1%), and frequent mood changes in 16 (52.8%) children. Laboratory tests: clinical blood, urine, and biochemical blood tests were within the age-related norm.

Abdominal ultrasonography revealed abnormalities in the structure of the gallbladder in 10 (33%) patients, and hepatomegaly in 5 (16.5%) children. Intestinal peristalsis was slowed down in 4 (13.2%) patients, and increased in 2 (6.6%) children.

All children were interviewed to determine the degree of social stress in the context of the war in Ukraine. According to the obtained results, the majority of children, 27 (89.1%), noted a deterioration of health and exacerbation of chronic pathology. Over the past 2 years, 28 children (92.4%) noted a deterioration in the quality of sleep. The patients' diet was dominated by cereal products and flour products. Changes in the psychological state in the form of bad mood, anxiety, and despair were noted by all children, 21 (69.3%) of whom noted these symptoms very often, 9 (29.7%) – sometimes. Almost all children – 26 (85.8%) – had a connection between periods of strong emotional experience and exacerbation of the disease.

In children with IBS, impaired psycho-emotional functioning was manifested by a sense of worry, low mood, anxiety, despair, and depression [11; 12]. Children were divided into 2 groups according to the classification of childhood periods [13]. Group I – primary school age (6 to 11 years), group II – adolescents (12 to 17 years). Children in group II had a more significant decline in the quality of their lives, although the differences did not reach statistical significance ($p>0.05$).

Martial law has significantly affected children's quality of life, including the quality and duration of sleep [14; 15]. Most children reported difficulty falling asleep and a negative reaction to nighttime awakenings caused by alarms. Before the outbreak of hostilities, most children assessed their general condition as satisfactory. The impairment of social functioning was reflected in the deterioration of interaction with peers and parents, and also negatively affected self-esteem. In children of secondary school age (group II), there was a more significant correlation between the decline in social functioning and the severity of clinical manifestations of IBS than in children of primary school age, although the differences did not reach statistical significance ($p>0.05$). A comparative analysis of quality of life indicators for children with IBS in different age groups is presented in *Table*.

Table. Indicators of quality of life in children with irritable bowel syndrome in two age groups, $M\pm m$

	Younger age group (children [6÷11] years old)	Older age group (children [12÷17] years old)	Difference in indicators (p)
Psycho-emotional functioning	2.45±0.82	2.89±0.80	>0.05
Social functioning	2.09±0.83	2.42±0.76	>0.05

Discussion

Numerous studies have confirmed that IBS is a psychosomatic symptom complex that combines large intestine dysfunction and various psychopathological factors [16]. Usually, the first symptoms appear at the age of [4÷10] years, and girls are significantly more likely to be affected than boys [17; 18]. In our study, the average age of those diagnosed with IBS was [11.4±3.5] years, with no statistical differences between girls and boys. The main gastrointestinal symptoms are as follows: abdominal pain is observed in 87.9% of patients with IBS, flatulence in 25% of patients, and a feeling of incomplete emptying in 30.3% of patients [19], while in our study abdominal pain was observed in 100.0% of children, flatulence in 42.9%, and a feeling of incomplete emptying were noted by 92.4% of patients, i.e., higher than in other studies, which is probably due to the impact of hostilities on the psycho-emotional state of the children.

Analyzing the stool according to the Bristol Stool Types Scale, we obtained the following data: 56.1% of children had constipation (types 1 and 2), 42.9% of children had diarrhea (types 6 and 7). According to the studies by other authors, types 1 and 2 on the Bristol scale were typical for 61.3% of children, and types 5, 6, and 7 for 27.3% of children [20].

Among the vegetative-vascular disorders, headache was the most dominant symptom, which, according to the scientific materials, is observed in 28% of sick children [21]. According to the results of our study, headache was noted in 39.6% of patients. Functional disorder of the gallbladder was present in 65.7% of patients [22], in our study, in 33.0% of children. During the abdominal ultrasound, moderate hepatomegaly (an increase in size by [1÷2] cm from the age norm) was noted in 40.6% of children [23]. In our study, hepatomegaly was detected in 16.5% of children.

According to the studies by other authors, IBS symptoms are closely related to the child's psycho-emotional and social functioning. Impaired psycho-emotional functioning was characterized by sleep disturbance (40.9%), fatigue (66%), and mood changes (47.7%). Children had lower scores when assessing the emotional sphere [23]. According to our study, 92.4% of children had a deterioration in sleep quality, and 69.3% of patients often noted mood changes, anxiety, and despair.

In our study, particular attention was paid to the methodology for assessing patients' condition. The use of the author's questionnaire, "Question-

naire for identifying risk factors affecting children's quality of life in conditions of social stress", instead of standardised scales (such as the Pediatric Quality of Life Inventory) was due to its narrow specialisation and a number of advantages. Unlike universal tests, the questionnaire takes into account risk factors: prolonged stays in damp and cool places (shelters), living under occupation and direct exposure to hostilities; it allows changes to be objectified by comparing the child's health status "before" and "after" the onset of social stress.

The advantages of the proposed questionnaire include its comprehensiveness, contextual focus, ease of use in clinical practice, and the ability to quantitatively assess risk factors with subsequent statistical analysis. The questionnaire provides for the possibility of establishing feedback with parents for further monitoring of the patient's condition, which is critically important in an unstable social environment. Thus, the use of this particular questionnaire has enabled a more accurate identification of factors affecting children's quality of life in conditions of social stress, which would have been limited when using standard universal scales.

Conclusions

Irritable bowel syndrome in children is a multifactorial disorder that is formed under the influence of physiological, psychological, and social factors. In the context of war, psycho-emotional disorders and social stress come to the fore, significantly reducing the quality of life of patients. QoL assessment should be an integral part of clinical monitoring and therapy planning in children with IBS. To improve the condition of children with IBS, it is necessary not only to correct nutrition, treat the main symptoms, but also to assess the quality of life. Effective treatment requires a professional psychological component to reduce stress and develop adaptive mechanisms to respond to adverse environmental conditions.

Prospects for Further Research

The obtained results, in accordance with the requirements of evidence-based pediatrics, substantiate the need to create practice-oriented models of multidisciplinary care. Such models should integrate medical, psychological, and social approaches to provide timely support for children exposed to prolonged social stress and various levels of stress load.

Funding and Acknowledgments

The work was carried out within the framework of the research project of the Department of Pediatrics No.1 and Neonatology of Kharkiv Na-

tional Medical University "Quality of life and the course of somatic pathology in children under so

cial stress" (2023–2025), state registration number 0123U101768.

Authors' Contributions

Contribution	A	B	C	D	E	F
Authors						
Gonchar M.O.	+				+	+
Omelchenko O.V.		+	+	+		+
Kulikova K.T.				+		+
Shestopalova D.D.				+		+
Sukhorukova A.O.				+		+

Notes: A – concept; B – design; C – data collection; D – statistical processing and interpretation of data;

E – writing or critical editing of the article;

F – approval of the final version for publication and agreement to be responsible for all aspects of the work.

Declarations

Conflict of interest is absent.

All authors have given their consent to the publication of the article under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License and a public agreement with the publisher, to the processing and publication of their personal data.

The authors of the manuscript state that in the process of conducting research, preparing, and editing this manuscript, they did not use any generative AI tools or services to perform any of the tasks listed in the Generative AI Delegation Taxonomy (GAIDeT, 2025). All stages of work (from the development of the research concept to the final editing) were carried out without the involvement of generative artificial intelligence, exclusively by the authors.

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Received: 22 Jul 2025

Accepted: 28 Sep 2025

Published: 30 Sep 2025

Cite in Vancouver style as: Gonchar MO, Omelchenko OV, Kulikova KT, Shestopalova DD, Sukhorukova AO. Assessment of the quality of life in children with irritable bowel syndrome under social stress in Ukraine (pilot study). *Inter Collegas.* 2025;12(3):61-6. <https://doi.org/10.35339/ic.2025.12.3.gok>

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