



Quality of life in overweight and obese children

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Abstract. Background. The prevalence of childhood obesity has reached concerning levels worldwide, posing a pressing and serious public health issue. The objective of this study is to examine the quality of life (QoL) in children with elevated body weight and obesity. **Materials and methods.** The study involved 151 children (71 girls and 80 boys) aged 12 to 17 years. The assessment included measurements of body weight, height, and calculation of body mass index, adjusted for age and sex. Based on body mass index, the children were categorised into three groups: 1 — normal weight; 2 — overweight; 3 — obese. The quality of life of participants was evaluated using the PedsQL™ 4.0 questionnaire. **Results.** The findings reveal a marked reduction in QoL among obese children, with the extent of QoL decline correlating with the degree of excess weight. The overall QoL score, based on the children's self-assessment, was significantly lower in higher body weight categories: obesity — 55.96 ± 0.59 points; overweight — 78.97 ± 1.08 points; control group — 84.42 ± 1.69 points. Children in the obesity group reported the greatest reduction in the physical functioning scale, scoring an average of 54.40 ± 3.56 points. In questionnaires completed by parents, the overall QoL scores were as follows: obesity — 56.60 ± 0.77 points; overweight — 79.97 ± 1.11 points; control group — 85.22 ± 2.15 points. Parents identified the largest QoL reduction in the social functioning scale for children with obesity (54.28 ± 2.65 points). **Conclusions.** The study highlights a direct relationship between increased body weight and reduced QoL. Children's self-reports indicate the most significant decline in physical functioning, while parents noted a substantial drop in social functioning of children with obesity.

Keywords: quality of life; children; overweight; obesity

Introduction

Childhood obesity is one of the most critical public health challenges of the 21st century. Excessive body weight and obesity are defined as pathological or abnormal fat accumulation that endangers health. Childhood obesity arises from a complex mix of socioeconomic, environmental, and genetic factors impacting both children and their families. According to official data from the World Health Organization (WHO), 20 to 40 % of the global child population is affected by obesity. In 2022, more than 390 million children and adolescents aged 5 to 19 years were reported to have excess weight. In Ukraine alone, 18,000 to 20,000 new cases of childhood and adolescent obesity are registered annually. The prevalence of childhood obesity has reached alarming levels in numerous countries, making it an urgent issue. European statistics show that one in three children is overweight, and one in ten is obese [1–4]. Obesity develops from a combination of environmental factors, as well as in-

adequate behavioural and biological responses in children. These responses vary by individual and are influenced by developmental factors. Energy imbalance often results from dietary changes, the availability and affordability of certain foods, targeted marketing, and decreased physical activity, with children spending more time in sedentary activities such as watching television, using computers, or engaging in other forms of passive leisure. It is well-documented that, in recent decades, children have significantly increased their intake of sugar and salt, while their levels of physical activity have declined threefold. Health conditions associated with obesity include high blood pressure, elevated cholesterol levels, type 2 diabetes, respiratory issues such as asthma and sleep apnoea, and joint problems [5–7].

Most modern researchers agree that children who are overweight or obese often experience psychological and behavioural disorders, reduced social adaptability [8, 10, 11], and are typically more self-centred, less compliant,

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more irritable, and possess lower self-esteem. A child's emotional state has a significant influence on their eating behaviour, with food responsiveness positively correlated with emotional issues and body mass index (BMI) [12–14]. This evidence suggests that the psychological well-being of children with obesity plays an important role in the formation of eating habits and behavioural responses. According to the WHO, a child's quality of life (QoL) is an integrated measure of physical, psychological, and social functioning, based on the child's subjective perception and/or the perceptions of their parents or close social environment [15, 16].

A comprehensive approach is recommended for evaluating children's QoL, incorporating feedback from both children and parents using structured questionnaire scales. One of the most widely recognised tools for this is the PedsQL 4.0 — the Pediatric Quality of Life Inventory (Varni et al., USA, 2001). In multicentre studies conducted worldwide, these questionnaires have proven to be simple, reliable, and sensitive methods for assessing QoL in both healthy and chronically ill children across various age groups [9, 17].

The purpose of this study is to evaluate the quality of life in children and adolescents with excess weight and obesity.

Materials and methods

The research was conducted in accordance with Good Clinical Practice standards and the principles of the Declaration of Helsinki. Written informed consent was obtained from all participants prior to their inclusion in the study. The study was carried out in primary and secondary schools in Odesa, involving a total of 151 students. Anthropometric measurements were taken, including body weight, height, and BMI, assessed according to age and sex. Following clinical guidelines based on evidence, specifically the “Childhood Obesity” directive and the medical standards for “Childhood Obesity” (2022), obesity was diagnosed when BMI was above the 95th percentile, while excess weight was defined as a BMI above the 85th percentile [10]. Based on their BMI values, the children were categorised into three groups: 1 — those with weight appropriate for their age and sex; 2 — those with excess weight; and 3 — those with obesity.

To evaluate QoL, children completed the PedsQL™ 4.0. The questionnaire measures key components of children's QoL, including physical, emotional, and social functioning, as well as their school life. The overall questionnaire comprises 23 questions organised into the following scales: physical functioning (PF) — 8 questions; emotional functioning (EF) — 5 questions; social functioning (SF) — 5 questions; and school functioning (SchF) — 3 or 5 questions depending on the children's age. Each question offers five response options, representing a Likert scale: “Never”, “Almost never”, “Sometimes”, “Often”, and “Almost always.” The questions of the PedsQL basic scales are scored in reverse order and converted to a scale ranging from 0 to 100: 0 (“Never”) = 100; 1 (“Almost never”) = 75; 2 (“Sometimes”) = 50; 3 (“Often”) = 25; 4 (“Almost always”) = 0.

Higher scores indicate a better health-related QoL, and the overall score for the scale is the mean of all items.

Statistical data analysis was performed using Statistica 12.0, MedCalc 20.0, Microsoft Excel 2003 with AtteStat

12.5 integration, and the Simple Interactive Statistical Analysis online calculator. The means of the quantitative variables are presented in the text as $M \pm m$, where M represents the sample mean and m denotes the standard error of the mean. Proportions (percentages) are reported with 95% confidence intervals (CI). To evaluate the significance of differences between means across the comparison groups, one-way analysis of variance was utilised.

Results

The study comprised 151 children aged between 12 and 17 years, including 71 girls (47.02 %) and 80 boys (52.98 %), with a mean age of 15.0 ± 1.4 years. The group with normal body weight consisted of 45 individuals (29.80 %); the group with excess weight included 50 children (33.11 %); and the group classified as obese comprised 56 individuals (37.09 %). The survey indicated that most children did not maintain a healthy lifestyle. Among those with excess weight and obesity, 20 individuals (18.86 %) were raised in single-parent households; 56 (52.83 %) considered their family income insufficient to meet basic needs; and 79 (74.52 %) reported spending the majority of their leisure time in front of a television or computer. Analysis of the dietary preferences of the respondents revealed that 42.45 % of children consumed fast food while at school, 28.30 % ate homemade sandwiches, and 29.25 % reported not eating anything at all. Carbonated beverages were consumed by 69.81 % of participants; 23.58 % admitted to drinking low-alcohol beverages; and 14.15 % stated they regularly smoked tobacco products. The survey also highlighted that 69.81 % of respondents followed an irregular daily routine, and 46.22 % had one or two parents with excess weight.

As a comorbid condition, biliary dyskinesia was most frequently observed in children with obesity at 14.28 % (95% CI 4.91–23.08 %) and in those with excess weight at 10 % (95% CI 1.68–18.31 %). Arterial hypertension was noted in 10.52 % (95% CI 2.8–19.19 %) of children with obesity and in 4 % (95% CI –1.43–9.43 %) of those with excess weight. Additionally, skin infections and obstructive sleep apnoea were reported in 7.14 % (95% CI 0.3–13.68 %) of children with obesity. Diabetes mellitus was documented in 5.35 % (95% CI –0.7–10.7 %) of the surveyed children with obesity [18–20].

The results from all scales of the PedsQL™ 4.0 questionnaires completed by children and their parents are illustrated in Fig. 1, 2 and are presented in Tables 1–4.

The data indicate a significant reduction in the QoL among children with obesity, with the extent of decline correlating with the degree of excess weight. In cases of obesity, the QoL score reported by the children was 55.96 ± 0.59 points, while those with excess weight scored 78.97 ± 1.08 points, and the control group achieved 84.42 ± 1.69 points. According to the PedsQL™ 4.0 questionnaire completed by the children, the most pronounced decline in QoL within the obesity group was noted in the physical functioning section (54.40 ± 3.56 points), which can be attributed to difficulties in undertaking physical activities.

In analysing the questionnaires completed by parents, the overall QoL score for children with obesity was 56.6 ± 0.77 points, compared to 79.97 ± 1.11 points for those with ex-

cess weight and 85.22 ± 2.15 points for the control group. Furthermore, based on the PedsQL™ 4.0 questionnaire completed by parents, a reduction in QoL was also observed in the emotional functioning section (54.28 ± 2.65 points). This may be attributed to parental anxiety regarding the future well-being of their children (50.89 ± 2.84 points).

In the group of children with overweight, the QoL score (according to both child and adult questionnaires) was moderately lower compared to the control group, although these differences were not statistically significant. The most notable reduction was observed in the emotional functioning domain, which recorded a score of 77.10 ± 2.47 points.

Discussion

The findings from this research indicate that the overall QoL scores for children with obesity were statistically significantly lower than those of children in the other two groups, a conclusion supported by studies conducted by F. Santos [21] and Gang Chen [22]. According to Kelly G.H. van de Pas [23], overweight and obese children and adolescents exhibited the most significant impairments in QoL, particularly among those with severe obesity. Given these results, lifestyle intervention programmes aimed at addressing childhood obesity should consider this particularly vulnerable group to tailor treatment to their specific needs. J. Ste-

Table 1. Assessment of quality-of-life indicators (physical functioning) in patients with increased body weight and obesity compared to healthy children (scores, $M \pm m$)

My health and level of activity	Obesity, n = 56		Overweight, n = 50		Control, n = 45	
	PedsQL (children)	PedsQL (parents)	PedsQL (children)	PedsQL (parents)	PedsQL (children)	PedsQL (parents)
I found it difficult to walk more than one bus stop	$50.89 \pm 3.48^*$	$52.23 \pm 3.13^*$	$72.50 \pm 2.60^*$	$74.50 \pm 2.43^*$	84.44 ± 2.42	81.11 ± 2.40
I found it difficult to run	$45.08 \pm 3.08^*$	$50.44 \pm 2.88^*$	$73.00 \pm 2.75^*$	$72.50 \pm 2.39^*$	79.44 ± 2.41	77.22 ± 2.36
I found it difficult to play sports and engage in physical exercise	$42.41 \pm 3.18^*$	$46.87 \pm 2.85^*$	$70.50 \pm 2.91^*$	75.50 ± 2.81	77.22 ± 2.49	78.88 ± 2.62
I found it difficult to lift heavy objects	$65.17 \pm 2.68^*$	$68.30 \pm 2.06^*$	83.50 ± 2.53	81.00 ± 2.53	86.11 ± 2.70	82.22 ± 2.70
I found it difficult to bathe or shower independently	$63.39 \pm 2.62^*$	$66.96 \pm 2.30^*$	89.50 ± 2.15	85.00 ± 2.67	93.88 ± 1.97	91.11 ± 2.40
I found it difficult to complete household chores	$43.30 \pm 3.02^*$	$49.55 \pm 2.58^*$	70.00 ± 2.57	71.50 ± 2.94	75.55 ± 2.80	78.33 ± 2.82
I experienced pain	$65.62 \pm 2.51^*$	$62.94 \pm 2.62^*$	84.50 ± 2.35	83.00 ± 2.51	88.33 ± 2.33	90.55 ± 2.14
I felt fatigued	$59.37 \pm 2.34^*$	$61.60 \pm 2.29^*$	79.00 ± 2.61	82.5 ± 2.5	87.22 ± 2.59	88.88 ± 2.45
Overall score	$54.40 \pm 3.56^*$	$57.36 \pm 3.01^*$	77.81 ± 2.70	78.18 ± 1.86	84.02 ± 2.19	83.54 ± 2.03

Note (here and in Tables 2–4): * – statistical significance of differences compared to the control group: $p < 0.05$.

Table 2. Assessment of quality-of-life indicators (emotional functioning) in patients with increased body weight and obesity compared to healthy children (scores, $M \pm m$)

My feelings	Obesity, n = 56		Overweight, n = 50		Control, n = 45	
	PedsQL (children)	PedsQL (parents)	PedsQL (children)	PedsQL (parents)	PedsQL (children)	PedsQL (parents)
I have felt frightened	$54.01 \pm 2.90^*$	$57.58 \pm 2.62^*$	73.50 ± 2.80	77.50 ± 2.78	76.66 ± 2.68	82.77 ± 2.73
I have felt sad	$57.14 \pm 2.52^*$	$60.26 \pm 2.44^*$	75.50 ± 2.52	78.00 ± 2.63	78.33 ± 2.58	81.66 ± 2.68
I have felt angry about something	$58.03 \pm 2.55^*$	$59.82 \pm 2.60^*$	71.00 ± 2.70	74.00 ± 2.57	74.44 ± 2.80	76.66 ± 2.79
I have had difficulty sleeping	$57.58 \pm 2.91^*$	$59.37 \pm 3.02^*$	84.50 ± 2.12	81.00 ± 2.72	89.44 ± 2.17	87.77 ± 2.19
I have worried about what might happen to me	$55.35 \pm 3.16^*$	$50.89 \pm 2.84^*$	81.00 ± 2.72	81.50 ± 2.92	85.00 ± 2.68	87.22 ± 2.70
Overall score	$56.42 \pm 0.75^*$	$57.58 \pm 1.73^*$	77.10 ± 2.47	78.40 ± 1.35	80.77 ± 2.79	83.22 ± 2.02

phenson [24, 25] noted a clear inverse relationship between QoL and the degree of increase in BMI.

According to Lucas-Johann Förster [26] and Michael A. Pizzi [27], the most significant decline in quality of life was noted in the areas of physical and emotional health. Children suffering from obesity had significantly lower physical functioning scores compared to their healthy peers. These children reported a tendency to tire quickly during physical activities, experience shortness of breath and muscle pain, perform physical exercises poorly, and participate less frequently in sports. Fereshteh Baygi [28] found that emotional functioning is particularly compromised in cases of obesity, a conclusion that is further corroborated by our research. The authors also under-

scored the effectiveness of psychological interventions in addressing childhood obesity.

It is also important to note that, apart from Kelly G.H. van de Pas [23], most authors indicate the absence of statistically significant differences in the overall QoL assessments between children and their caregivers in their studies [22, 23, 28].

Conclusions

The reduction in QoL scores among children is directly correlated with the degree of increased body weight: children with obesity recorded a score of 55.96 ± 0.59 points, those classified as overweight scored 78.97 ± 1.08 points, while the control group achieved a score of 84.42 ± 1.69

Table 3. Assessment of quality-of-life indicators (social functioning) in patients with increased body weight and obesity compared to healthy children (scores, $M \pm m$)

My interactions with others	Obesity, n = 56		Overweight, n = 50		Control, n = 45	
	PedsQL (children)	PedsQL (parents)	PedsQL (children)	PedsQL (parents)	PedsQL (children)	PedsQL (parents)
I have found it difficult to communicate with other children	$61.16 \pm 2.77^*$	$64.28 \pm 2.90^*$	85.00 ± 2.25	83.00 ± 2.80	87.77 ± 2.33	91.11 ± 2.26
Other children have not wanted to be friends with me	$57.58 \pm 2.62^*$	$54.01 \pm 2.53^*$	81.00 ± 2.90	82.50 ± 2.79	89.45 ± 2.44	90.55 ± 2.42
Other children have teased me	$53.57 \pm 2.65^*$	$51.78 \pm 2.54^*$	77.50 ± 2.60	79.50 ± 2.74	84.44 ± 2.66	86.66 ± 2.70
I have struggled to do things that my peers are able to do	$55.35 \pm 2.76^*$	$52.67 \pm 2.67^*$	84.00 ± 2.34	83.50 ± 2.73	91.11 ± 2.12	93.33 ± 1.84
I have found it difficult to feel equal to other children when playing	$51.34 \pm 2.94^*$	$48.66 \pm 2.73^*$	82.50 ± 2.79	86.50 ± 2.28	92.22 ± 2.35	93.88 ± 1.80
Overall score	$55.80 \pm 1.68^*$	$54.28 \pm 2.65^*$	82.00 ± 1.31	83.00 ± 1.11	89.00 ± 1.36	91.11 ± 1.27

Table 4. Assessment of quality-of-life indicators (school functioning) in patients with increased body weight and obesity compared to healthy children (scores, $M \pm m$)

Regarding school	Obesity, n = 56		Overweight, n = 50		Control, n = 45	
	PedsQL (children)	PedsQL (parents)	PedsQL (children)	PedsQL (parents)	PedsQL (children)	PedsQL (parents)
I have found it difficult to concentrate during lessons	$51.33 \pm 2.87^*$	$53.12 \pm 2.99^*$	75.00 ± 2.67	77.50 ± 2.69	76.66 ± 3.01	82.22 ± 2.70
I have often been forgetful	$53.57 \pm 2.66^*$	$57.14 \pm 2.82^*$	80.50 ± 2.70	81.00 ± 2.42	86.66 ± 2.58	88.88 ± 2.32
I have found it difficult to keep up with school assignments	$51.33 \pm 2.73^*$	$53.57 \pm 2.73^*$	69.50 ± 2.50	70.50 ± 2.54	73.33 ± 2.90	71.11 ± 2.86
I have missed school due to feeling unwell	$65.17 \pm 3.03^*$	$59.82 \pm 2.82^*$	84.00 ± 2.23	84.50 ± 2.35	89.44 ± 2.17	90.55 ± 2.14
I have missed school because I needed to attend medical appointments or go to hospital	$64.73 \pm 3.04^*$	$62.21 \pm 2.61^*$	86.00 ± 2.49	88.00 ± 2.28	93.33 ± 2.01	94.44 ± 2.93
Overall score	$57.23 \pm 3.18^*$	$57.17 \pm 1.75^*$	79.00 ± 3.02	80.30 ± 3.01	83.88 ± 3.81	95.44 ± 4.09

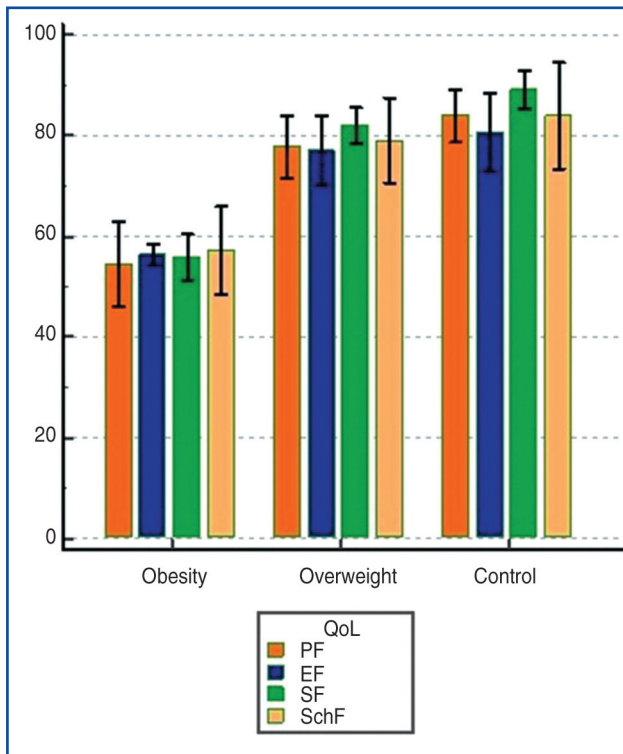


Figure 1. Analysis of quality-of-life indicators in the study groups as determined by children's questionnaires

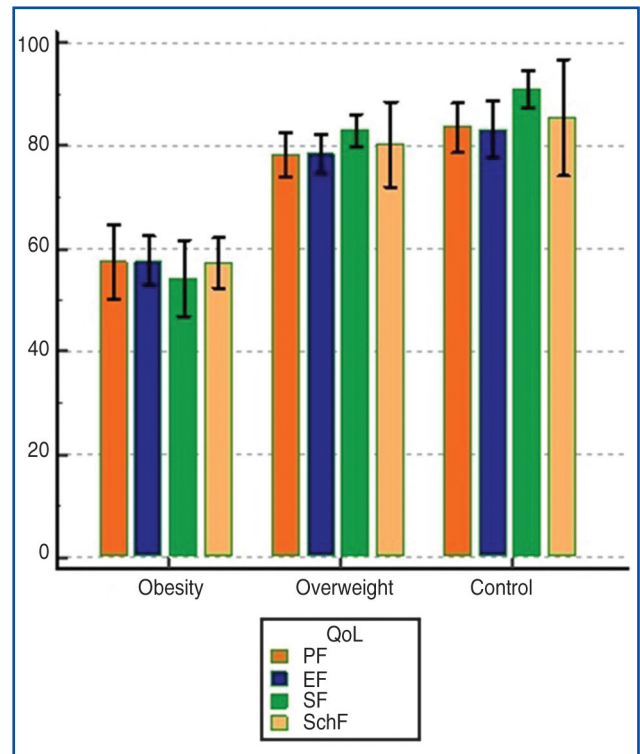


Figure 2. Analysis of quality-of-life indicators in the study groups as determined by parents' questionnaires

points (as assessed using the PedsQL™ 4.0 child questionnaire). The most pronounced decline in QoL was observed in the physical functioning scale, which yielded a score of 54.40 ± 3.56 points.

According to the PedsQL™ 4.0 questionnaire completed by parents, the overall QoL assessment for children with obesity was 56.60 ± 0.77 points, while those with overweight scored 79.97 ± 1.11 points, in contrast to the control group, which attained a score of 85.22 ± 2.15 points. The greatest deterioration in QoL was noted in the social functioning scale, which recorded a score of 54.28 ± 2.65 points.

References

- Apperley LJ, Blackburn J, Erlandson-Parry K, Gait L, Laing P, Senniappan S. Childhood obesity: A review of current and future management options. *Clin Endocrinol (Oxf)*. 2022 Mar;96(3):288-301. doi: 10.1111/cen.14625.
- Aryayev M, Senkivska L, Lowe JB. Psycho-Emotional and Behavioral Problems in Children With Growth Hormone Deficiency. *Front Pediatr*. 2021 Sep 23;9:707648. doi: 10.3389/fped.2021.707648.
- Aryayev ML, Selimkhanova DS, Shevchenko IM. Anxiety level in overweight and obese children. *Ukrainian Journal of Perinatology and Pediatrics*. 2023;3(95):61-65. doi: 10.15574/PP.2023.95.61.
- Baker C; House of Commons UK Parliament Corp Creators. House of Commons Library: Briefing paper number 3336, 6 August 2019: Obesity statistics. London; 2019. 20 p.
- Centers for Disease Control and Prevention (CDC). Prevalence of childhood obesity in the United States 2021. Available from: <https://www.cdc.gov/obesity/data/childhood.html>.
- Center for Medical Statistics of the Ministry of Health of Ukraine. *Pediatric endocrinologist's handbook for 2008*. Kyiv; 2008. 105 p. Ukrainian.
- Diachuk DD, Zabolotna IY, Yashchenko YB. Obesity in children: risk factors and prevention tips. *Sovremennaya pediatriya*. 2017;(82):42-46. Ukrainian. doi: 10.15574/SP.2017.82.42.
- Hampl SE, Hassink SG, Skinner AC, et al. Clinical practice guideline for the evaluation and treatment of children and adolescents with obesity. *Pediatrics*. 2023 Feb 1;151(2):e2022060640. doi: 10.1542/peds.2022-060640.
- Nikitina TP, Ionova TI. Current issues of quality of life research in pediatrics. *Pediatric Bulletin of the South Ural*. 2022;(1):4-18. Russian. doi: 10.34710/Chel.2022.94.65.002.
- Sahoo K, Sahoo B, Choudhury AK, Sofi NY, Kumar R, Bhadoria AS. Childhood obesity: causes and consequences. *J Family Med Prim Care*. 2015 Apr-Jun;4(2):187-192. doi: 10.4103/2249-4863.154628.
- Lemak MV, Petryshche VJu. Psychologist for work. *Diagnostic methods: a collection*. 2nd ed. Uzhgorod: Publisher Garkusha O; 2012. 616 p. Ukrainian.
- Livingstone B. Epidemiology of childhood obesity in Europe. *Eur J Pediatr*. 2000 Sep;159 Suppl 1:S14-34. doi: 10.1007/pl00014363.
- Mouratidi P, Bonoti F, Leondari A. Children's perceptions of illness and health: an analysis of drawings. *Health Educ J*. 2015;75(4):1-14. doi: 10.1177/0017896915599416.
- Ministry of Health of Ukraine. Order on Septembr 24, 2022 № 1732. On adoption of the Standard of medical care for obesity in children. Available from: <https://moz.gov.ua/uk/decrees/nakaz-moz-ukraini-vid-24092022--1732-pro-zatverdzhennja-standativ--medichnoi-dopomogi-ozhirinjja-u-ditej>. Ukrainian.
- Mykhailova YA, Kukuruza HV, Shestopalova LF, et al. Clinical and psychological characteristics of children with different forms of obesity. *Problems of endocrine pathology*. 2021;2:56-63. Ukrainian. doi: 10.21856/j-PEP.2021.2.08.
- Skirda IYu, Petishko OP, Gladun VN, Zavgorodnyaya NYu. *Childhood Obesity. Statistical Evaluation of the Prevalence in Ukraine*:

Regional Analysis. *Gastroenterologia*. 2016;1(59):8-14. Ukrainian. doi: 10.22141/2308-2097.1.59.2016.74457.

17. Nyankovsky SL, Sadova OR. Evaluating the Effectiveness of Peptic Ulcer Disease Therapy in Adolescents from the Perspective of Quality of Life Criteria. *Zdorov'e rebenka*. 2016;5.1:23-28. Ukrainian. doi: 10.22141/2224-0551.5.1.73.1.2016.78936.

18. Tsyunchyk YG. The clinical significance of psycho-emotional factors during the children's obesity. *Sovremennaya pediatriya*. 2016;5(77):98-101. Ukrainian. doi: 10.15574/SP.2016.77.98.

19. World Health Organization (WHO). Obesity and overweight. Available from: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>.

20. Zabolotna IE, Yaschenko LV. Obesity and overweight among children, diagnostic criteria and statistics of prevalence. *Preventive medicine*. 2019;(2):36-46. Ukrainian. doi: 10.31612/2616-4868.2(8).2019.04.

21. Santos FGCD, Godoy-Leite M, Penido EAR, Ribeiro KA, da Gloria Rodrigues-Machado M, Rezende BA. Eating behaviour, quality of life and cardiovascular risk in obese and overweight children and adolescents: a cross-sectional study. *BMC Pediatr*. 2023 Jun 17;23(1):299. doi: 10.1186/s12887-023-04107-w.

22. Chen G, Ratcliffe J, Olds T, Magarey A, Jones M, Leslie E. BMI, health behaviors, and quality of life in children and adolescents: a school-based study. *Pediatrics*. 2014 Apr;133(4):e868-74. doi: 10.1542/peds.2013-0622.

23. Van de Pas KGH, de Krom MAP, Winkens B, van Dielen FMH, Vreugdenhil ACE. Health-Related Quality of Life in Children and Adolescents with Overweight, Obesity, and Severe Obesity: A Cross-Sectional Study. *Obes Facts*. 2023;16(3):282-292. doi: 10.1159/000529560.

24. Stephenson J, Smith CM, Kearns B, Haywood A, Bissell P. The association between obesity and quality of life: a retrospective analysis of a large-scale population-based cohort study. *BMC Public Health*. 2021 Nov 3;21(1):1990. doi: 10.1186/s12889-021-12009-8.

25. Scazzino F. Childhood obesity. *Eur J Public Health*. 2023;33(2):566. doi: 10.1093/eurpub/ckad160.566.

26. Förster LJ, Vogel M, Stein R, et al. Mental health in children and adolescents with overweight or obesity. *BMC Public Health*. 2023 Jan 19;23(1):135. doi: 10.1186/s12889-023-15032-z.

27. Pizzi MA. Promoting health, well-being, and quality of life for children who are overweight or obese and their families. *Am J Occup Ther*. 2016 Sep-Oct;70(5):7005170010p1-6. doi: 10.5014/ajot.2016.705001.

28. Baygi F, Djalalinia S, Qorbani M, et al. The effect of psychological interventions targeting overweight and obesity in school-aged children: a systematic review and meta-analysis. *BMC Public Health*. 2023 Aug 3;23(1):1478. doi: 10.1186/s12889-023-16339-7.

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Authors' contribution. M.L. Aryayev — development of the article idea and final editing; D.S. Selimkhanova — introduction, materials and methods, results and their discussion; I.M. Shevchenko — statistical data processing, conclusions.

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Якість життя в дітей із підвищеною масою тіла та ожирінням

Резюме. Актуальність. Поширеність дитячого ожиріння досягла тривожного рівня в усьому світі та є невідкладною і серйозною проблемою охорони здоров'я. **Мета:** вивчити якість життя (ЯЖ) дітей із підвищеною масою тіла й ожирінням. **Матеріали та методи.** Об'єктом дослідження стала 151 дитина (71 дівчинка та 80 хлопчиків) віком 12–17 років. Було проведено оцінку маси тіла й зросту, розраховано індекс маси тіла відповідно до віку та статі. Залежно від індексу маси тіла пацієнтів розділили на 3 групи: першу — з нормальною масою тіла; другу — з надмірною масою тіла; третю — з ожирінням. ЯЖ оцінювали за допомогою опитувальника PedsQL™ 4.0. **Результати.** Наведені дані свідчать про значне зниження ЯЖ у дітей з ожирінням, причому рівень зниження корелює зі ступенем надмірної ваги. Загальний показник ЯЖ, за даними дитячого опитувальника, був вірогідно нижчим за вищої маси тіла: при ожирінні — $55,96 \pm 0,59$ бала, при підвищеній масі тіла — $78,97 \pm 1,08$ бала порів-

няно з контрольною групою — $84,42 \pm 1,69$ бала. У дітей з ожирінням відзначається найбільше зниження за шкалою фізичного функціонування (у середньому $54,40 \pm 3,56$ бала). При аналізі опитувальників, заповнених батьками, загальна оцінка ЯЖ при ожирінні становила $56,60 \pm 0,77$ бала, при підвищеній масі тіла — $79,97 \pm 1,11$ бала, у контрольній групі — $85,22 \pm 2,15$ бала. За даними батьків, у дітей з ожирінням зниження якості життя було найбільшим за шкалою соціального функціонування ($54,28 \pm 2,65$ бала). **Висновки.** У цьому дослідженні підкреслюється пряма залежність підвищення маси тіла та зниження ЯЖ. За результатами опитування дітей, найбільше зниження спостерігається за шкалою фізичного функціонування, тоді як батьки відзначають суттєве погіршення соціального функціонування в дітей з ожирінням.

Ключові слова: якість життя; діти; підвищена маса тіла; ожиріння