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HEALTH-RELATED QUALITY OF LIFE ASSESSMENT IN CHILDREN WITH OVERWEIGHT AND OBESITY

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The aim of the study is to study and evaluate the quality of life in obese children. The study was performed in two stages, using statistical and sociological methods and conducted: a study of the prevalence of overweight and obesity and assessment of the quality of life of obese children. The following results were obtained during the study: during the first stage of the study, obesity and overweight were found in 280 (58.4±3.4‰) and 440 (91.9±4.2‰) persons, respectively. When assessing the quality of life of 280 obese children on second stage, it was found that the corresponding average value (60.7±0.5%) was in the range from 39.3% to 90.6% and corresponded to the average level of variability (CV=12.9%). There was a significant difference in the quality-of-life average values in patients with complicated forms of the disease than without complications – 48.3±1.0% and 62.6±0.43% ($p<0.001$), respectively. In a separate study of the limitations that affect the quality of life of obese children, it was found that the most significant were the limitations in the physical R_{xy}=(-6.83) and psychoemotional R_{xy}=(-4.42) areas, namely such factors as: restrictions in the performance of heavy physical activity (67.9±3%), when climbing stairs (56.1±3.2%), complaints of rapid fatigue (37.8±3.2%), feelings of anxiety (39.7±3.2%), depression (41.4±3.2%), irritability (36.3±3.1%) and low self-esteem (51.5±3.3%). As a result of the study, we came to the following conclusions: the use of the quality-of-life assessment methodology has made it possible to conduct a comprehensive study of the health status of obese children and adolescents. Data on quality-of-life relative value is recommended to be included into the child's development anamnesis (form No.112/o, which is designed to keep records of the development and state of children's health and medical care from birth to 17 years, including in children's clinics, primary health care centers, orphanages, outpatient clinics) or into the electronic database to improve dynamic monitoring.

Keywords: *quality of life, physical factors, psychoemotional factors, limitations, comprehensive assessment.*

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Introduction

The high prevalence of obesity in the modern world is considered a global non-infectious epidemic, which was declared by the WHO in 1997. Thus, the growth of overweight and obesity is observed in both adults and children regardless of gender, age, race, place of residence and social status due to negative changes in the lifestyle of the modern population of the planet. It should be noted that the most worrying situation is the faster growth of the number of overweight and obese children, which causes both short-term and long-term adverse effects on the physical and psychosocial health of the population as a whole [1–3].

Obesity is known to be a chronic pathology characterized by numerous functional changes and difficult to treat [3]. Traditional methods of examination give a one-sided notion of the disease and the effectiveness of its treatment, not allowing assessing the psychological and social adaptation of the child, his attitude to his condition. Deterioration of quality of life due to this pathology is accompanied by a decrease in mood and self-esteem. Psychosocial problems, as a rule, exacerbate the existing inequality of social opportunities between persons who have and do not have excess weight, and complicate the course of the disease [4; 5]. Thus, the lack of a comprehensive approach to solving this problem entails a further increase in morbidity and decrease in life expectancy, and social consequences in the form of violations of the rights of this category of citizens, creating barriers to their social adaptation. Therefore, the study of quality of life related to health, which gives a comprehensive description of the health status of overweight and obese patients, especially children and adolescents in modern society with the use of adapted techniques is quite relevant and socially significant, which determined the purpose of our study [4; 6–13].

Aim of article – to study and evaluate the quality of life in obese children.

Materials and methods. The study used statistical and sociological methods and conducted: a study of the prevalence of overweight and obesity and assessment of the quality of life of obese children. The study was performed in two stages. At the first stage, anthropometric data from a statistically representative sample of 4,789 children and adolescents aged 6–17 years were processed. Of these, 2,406 were girls and 2,383 were boys, 50.3±0.8% and 49.7±0.8%, respectively. The presence and degree of overweight and obesity were determined in accordance with international guidelines on body mass index (BMI). BMI = body weight (kg) / height (m^2). Percentage data obtained by age and sex were compared with NCHS (National Center for Health Statistics) data. According to the method used, all persons were divided into four study groups: I – obese children, II – overweight children, III – children with normal body weight, IV – children with underweight.

The study of the quality of life of obese children in the second stage involved

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the use of a special methodology developed by the WHO recommendations on the main criteria for the concept of "quality of life related to health" and adapted to regional conditions and evaluation of the relevant indicator. The method used included a survey of 280 children and adolescents with obesity (complicated forms of obesity were observed in 32 (11.4%) persons) on an anonymous questionnaire – "Card for studying the quality of life of a child with obesity" developed on the basis of international questionnaires -36; WHOQOL-100.

Results

Obesity (study group I) was found in 280 (58.4±3.4‰) children. Overweight (study group II) was found in 440 (91.9± ±4.2‰) children. Normal (study group III) and insufficient (study group IV) body weight had 3925 (819.6±5.6‰) and 144 (30.1±2.5‰) persons, respectively.

According to the results of the survey in the second stage, it was determined that the quality of life average value in children and adolescents was 60.7±0.5% and ranged from 39.3% to 90.6%. According to the method used, the quality of life of obese children was determined according to the following scale of estimates: if the value of the relative indicator is within 71–100%, it corresponds to the optimal level, if the value of the relative indicator is within 51–70%, it is average level; if the relative figure is less than 50%, it is a low level of quality of life. According to the study, the quality of life of 79.3% of children and adolescents corresponds to the average level. The quality of life at the optimal level was determined to 6.3% of respondents and 14.3% of children had a low level of the corresponding indicator. There was a slight difference between the average values in the age groups 8–12 and 13–17 years – (61.5±0.5%) and (58.3± ±1.2%), respectively. There was no significant difference in average values depending on gender. In all study groups, these indicators corresponded to the average level of variability (CV=12.9%).

At the next stage of the study, the analysis of individual blocks of life quality limitations of obese children and adolescents was performed using the calculated multiple regression indicators for each of these blocks. The individual blocks of constraints were identified on the basis of a weak direct correlation between them and a strong feedback to the quality of life of children. According to the data obtained, a model of the main components of the quality of life of children with this disease was built. There are 4 blocks of restrictions on children's lives: 1st block – restrictions in the physical sphere, 2nd block – restrictions in the psychoemotional sphere, 3rd block – restrictions in public life, 4th block – restrictions in everyday life. It was found that the most influential restrictions were in the physical sphere (R_{xy}=-6.8). The following were restrictions in the psychoemotional sphere (R_{xy}=-4.4). The latter were restrictions in public (R_{xy}=-3.8) and everyday life (R_{xy}=-2.6).

According to the results of a separate analysis of physical factors, it was found that a largest number of patients (67.9±3%) had complete or almost complete restriction in performing heavy physical activities such as running, lifting heavy objects, strength sports. A significant proportion of respondents (46.4± ±3.2%) noted restrictions on moderate physical activity, namely: cleaning the apartment, moving objects (e.g., tables). 56.1±3.2% of patients had limitations when climbing stairs, 21.5±2.7% – when walking. 27.4±2.9% of children even limited themselves to light exercise (e.g., delivery of food). 37.8±3.2% and 55.7± ±3.2% of children, respectively, complained of fatigue and shortness of breath and palpitations. Self-assessment of the health status of obese patients was presented

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as follows: excellent and good – (9.3± ±1.9%) and (42.2±3.2%), satisfactory and poor – (30.4±3%) and (18.1±2.5%), respectively.

It is known that obesity belongs to the group of psychosomatic diseases, because in the mechanism of occurrence, provocation, formation of clinical manifestations, course and consequences, psychological and social factors, personalities of patients, their reaction to the disease, as well as life situations that arise in connection with the disease play a huge role.

At the same time, before the appearance of explicit psychosomatic disorders in patients, there are some signs of emotional stress, chronic anxiety or depression determined. These conditions of varying degrees affect the quality of life and, accordingly, need attention.

In the course of studying the psychoemotional state of children and adolescents, changes in personality characteristics of various types with a predominance of pessimistic moods were noted. Thus, children and adolescents in the study group noted the presence of psychoemotional disorders such as anxiety (39.7± ±3.2%), depression (41.4±3.2%) and irritability (36.3±3.1%). It was found that a significant number of children had low self-esteem (51.5±3.3%), were overly vulnerable (27,8±3%), shy (38.4±3.2%) and some (29.5±3%) noted feelings of envy for slender people. 30.4±3% of children noted difficulties (misunderstandings) in communicating with peers, 32.1±3% of respondents pointed to insults. 22.8± ±2.4% and 15.6±2.4% of children and adolescents, respectively, experienced loneliness and lack of attention from others, in addition, 20.7±2.6% were concerned about other people's opinions, and (16.8± ±2.4%) respondents expressed concern for their future health.

Thus, the results suggest that the study group of children had manifestations of psychosocial dysfunction, which showed signs of psychoemotional disorders, limited social contacts and a tendency to isolation.

According to experts, the peculiarities of the psychosocial status of an obese child can lead to eating disorders and lifestyle formation with increased calorie intake and reduced energy expenditure. Therefore, in addition to the use of basic methods of treatment of overweight and obesity, it is necessary to conduct psychotherapeutic correction and psychotherapy and behavioral interventions can be used. Timely detection of psychoemotional disorders and appropriate psychological support will help the patient cope with his internal problems, increase motivation to maintain a healthy lifestyle and affect the course of the disease and quality of life.

Due to the fact that traditional methods of treatment give only a one-sided notion of the disease and the effectiveness of treatment, not allowing to assess the psychosocial condition of the child, his attitude to his disease, data on quality-of-life relative value is recommended to enter in the child development anamnesis (form No.112/o, which is designed to keep records of the development and state of children's health and medical care from birth to 17 years, including in children's clinics, primary health care centers, orphanages, outpatient clinics) or in electronic database that can improve the quality of dynamic monitoring.

Conclusions

1. Obesity and overweight were found in 280 (58.4±3.4 ‰) and 440 (91.9± ±4.2‰) individuals, respectively, during the first stage of a study of a representative sample of 4,789 children and adolescents.

2. The study found that the quality-of-life average relative value of obese children and adolescents (60.7±0.5%) ranged from 39.3% to 90.6% and corresponded to the average level of variability (CV=12.9%).

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3. The analysis of quality of life depending on sex, age and severity of the disease revealed that the average values is significantly lower in patients with complicated forms of the disease than without complications – 48.3±1.0% and 62.6± ±0,43% ($p<0.001$), respectively. There was a slight difference between the average values in the age groups 8–12 and 13–17 years – (61.5±0.5%) and (58.3±1.2%), respectively. There was no significant difference in values depending on gender.

4. In a separate study of the factors that affect the quality of life of children with this disease, most of them belong to the limitations in the physical and psychoemotional spheres, social and everyday life. The most significant restrictions were in the physical R_{xy}=(-6.83) and psychoemotional R_{xy}=(-4.42) spheres.

5. It is determined that the main factors of the physical sphere were restrictions in the performance of heavy physical activity (67.9±3%), moderate physical activity (46.4±3.2%), restrictions on climbing stairs (56.1±3.2%), complaints of fatigue (37.8±3.2%) and shortness of breath and palpitations (55.7± ±3.2%). It was found that such factors as feelings of anxiety (39.7±3.2%), depression (41.4±3.2%), irritability (36.3±3.1%) and low self-esteem (51.5±3.3%) had a significant impact on the quality of life in the psycho-emotional sphere. The leading factors that limited the quality of life of children and adolescents in public life were difficulties (misunderstandings) in communicating with peers (30.4±3%), loneliness (22.8±2.4%) and lack of attention from others (15.6±2.4%).

6. The applied method of quality-of-life assessment allowed to conduct a comprehensive study of the health status of obese children and adolescents. These results should be taken into account when assessing the quality of medical care and when developing measures to improve the quality of life of children with this pathology.

References

1. Hussein R, Mohammed RAE, Ahmed IH. Psychological impact of obesity in children. Sci. J. Al-Azhar Med. Fac. Girls. 2020;4(1):17–21. Available from: https://www.sjamf.eg.net/text.asp?2020/4/1/17/282869

2. Dolapciu E, Revenco N. Factorii de risc în dezvoltarea excesului de masă corporală la copii în perioada de pubertate: studiu retrospectiv, de tip caz-control [Risk factors in the development of excess body mass in children during puberty: a retrospective, case-control study]. Revista de Stiințe ale Sănătății din Moldova [Moldovan Journal of Health Sciences]. 2017;14(4):62–71. Available from: https://core.ac.uk/download/pdf/335259515.pdf [in Romanian].

3. Rajjo T, Mohammed K, Alsawas M, Ahmed AT, Farah W, Asi N, et al. Treatment of Pediatric Obesity: An Umbrella Systematic Review. J Clin Endocrinol Metab. 2017;102(3): 763–75. DOI: 10.1210/jc.2016-2574. PMID: 28359101.

4. Gunawardana S, Gunasinghe CB, Harshani MS, Seneviratne SN. Physical and psychosocial quality of life in children with overweight and obesity from Sri Lanka. BMC Public Health. 2021;21(1):86. DOI: 10.1186/s12889-020-10104-w. PMID: 33413215.

5. Tsyunchyk YuG. The clinical significance of psychoemotional factors during the children's obesity. Sovremennaya pediatriya [Modern Pediatrics]. 2016;5(77):98–101. DOI: 10.15574/SP.2016.77.98. [In Ukrainian].

6. D'avila HF, Poll FA, Reuter CP, Burgos MS, Mello ED. Health-related quality of life in adolescents with excess weight. J. Pediatr. (Rio J.). 2019;95(4):495–501. DOI: 10.1016/j.jped.2018.05.005. PMID: 29957249. [In Portuguese].

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7. Moeijes J, van Busschbach JT, Bosscher RJ, Twisk JWR. Sports participation and health-related quality of life: a longitudinal observational study in children. Qual. Life Res. 2019;28(9):2453–69. DOI: 10.1007/s11136- 019-02219-4. PMID: 31161332.

8. Radhakishun NN, de Wit M, van Vliet M, von Rosenstiel IA, Beijnen JH, Brandjes DP, Diamant M. Impaired quality of life in treatment-seeking obese children of Dutch, Moroccan, Turkish and Surinamese descent. Public Health Nutr. 2016;19(5):796–803. DOI: 10.1017/S1368980015002074. PMID: 26205554.

9. Jalali-Farahani S, Shojaei FA, Parvin P, Amiri P. Comparison of health-related quality of life (HRQoL) among healthy, obese and chronically ill Iranian children. BMC Public Health. 2018;18(1):1337. DOI: 10.1186/s12889-018-6239-2. PMID: 30509220.

10. Chan CM, Wang WC. Quality of life in overweight and obese young Chinese children: a mixed-method study. Health Qual Life Outcomes. 2013;11:33. DOI: 10.1186/1477-7525-11-33. PMID: 23496917.

11. Mastorci F, Piaggi P, Doveri C, Trivellini G, Marinaro I, Casu A, et al. Relationship between Weight Status and Health-Related Quality of Life in a Sample of Early Adolescents from Central and Northern Italy: A Cross-Sectional Study of the AVATAR Project Participants. Int J Environ Res Public Health. 2021;18(16):8782. DOI: 10.3390/ijerph18168782. PMID: 34444531.

12. Nascimento MM, Melo TR, Pinto RM, Morales NM, Mendonça TM, Paro HB, Silva CH. Parents' perception of health-related quality of life in children and adolescents with excess weight. J Pediatr (Rio J). 2016;92(1):65–72. DOI: 10.1016/j.jped.2015.04.006. PMID: 26397741.

13. Petersen S, Moodie M, Mavoa H, Waqa G, Goundar R, Swinburn B. Relationship between overweight and health-related quality of life in secondary school children in Fiji: results from a cross-sectional population-based study. Int J Obes (Lond). 2014;38(4):539–46. DOI: 10.1038/ijo.2013.212. PMID: 24232500.

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ОЦІНКА ЯКОСТІ ЖИТТЯ ДІТЕЙ З НАДЛИШКОВОЮ МАСОЮ ТІЛА ТА ОЖИРІННЯМ

Ціллю дослідження є вивчення та оцінка якості життя у дітей з ожирінням. Дослідження було виконано у два етапи, застосовувалися статистичний і соціологічний методи та було проведено: вивчення поширеності надмірної ваги і ожиріння та оцінка якості життя дітей з ожирінням. У ході першого етапу дослідження ожиріння та надлишкову масу тіла було виявлено у 280 (58,4±3,4 ‰) та 440 (91,9±4,2 ‰) осіб відповідно. При оцінці якості життя 280 дітей з ожирінням на другому етапі, встановлено, що відповідний середній показник (60,7±0,5 %) знаходився у межах від 39,3 % до 90,6 % та відповідав середньому рівню варіабельності (CV=12,9 %). Відмічена значна різниця середніх показників якості життя у пацієнтів з ускладненими формами захворювання, ніж без ускладнень – 48,3±1,0 % і 62,6±0,43 % ($p<0,001$) відповідно. При окремому вивченні обмежень, які впливають на якість життя дітей з ожирінням, виявлено, що найбільш значущими були обмеження у фізичній R_{xy}=(-6,83) і психоемоційній R_{xy}=(-4,42) сферах, а саме такі фактори як: обмеження у виконанні тяжких фізичних навантажень (67,9±3 %), при підйомі вгору по сходах (56,1±3,2 %), скарги на швидку втомлюваність (37,8±3,2 %), почуття тривоги (39,7±3,2 %), пригніченості (41,4±3,2 %), дратівливості (36,3±3,1 %) та низька самооцінка (51,5±3,3 %). В результаті дослідження ми дійшли до висновків:

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використання методики оцінки якості життя дозволило провести всебічне вивчення стану здоров'я дітей та підлітків з ожирінням. Дані відносного показника якості життя рекомендовано вносити в історію розвитку дитини (форма №112/о) або електронну базу для покращення динамічного спостереження.

Ключові слова: *якість життя, фізичні фактори, психоемоційні фактори, обмеження, комплексна оцінка.*

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ОЦЕНКА КАЧЕСТВА ЖИЗНИ У ДЕТЕЙ С ИЗБЫТОЧНОЙ МАССОЙ ТЕЛА И ОЖИРЕНИЕМ

Целью исследования является изучение и оценка качество жизни у детей с ожирением. Исследование было выполнено в два этапа, применялись статистический и социологический методы; были проведены: изучение распространенности избыточного веса и ожирения, а также оценка качества жизни детей с ожирением. В ходе первого этапа исследования ожирение и избыточная масса тела были выявлены у 280 (58,4±3,4 ‰) и 440 (91,9±4,2 ‰) детей соответственно. При оценке качества жизни 280 детей с ожирением на втором этапе установлено, что соответствующий средний показатель (60,7±0,5 %) находился в пределах от 39,3 % до 90,6 % и соответствовал среднему уровню вариабельности (CV=12,9 %). Отмечена значительная разница средних показателей качества жизни у пациентов с осложненными формами заболевания и без осложнений – 48,3±1,0 % и 62,6±0,43 % ($p<0,001$) соответственно. При отдельном изучении ограничений, влияющих на качество жизни детей с ожирением, выявлено, что наиболее значимыми были ограничения в физической R_{xy}=(-6,83) и психоэмоциональной R_{xy}=(-4,42) сферах, а именно такие факторы как: ограничения в выполнении тяжелых физических нагрузок (67,9±3 %), при подъеме вверх по лестнице (56,1±3,2 %), жалобы на быструю утомляемость (37,8±3,2 %), чувство тревоги (39, 7±3,2 %), подавленности (41,4±3,2 %), раздражительности (36,3±3,1 %) и низкая самооценка (51,5±3,3 %). В результате исследования мы пришли к следующим выводам: использование методики оценки качества жизни позволило провести всестороннее изучение состояния здоровья детей и подростков с ожирением. Данные относительного показателя качества жизни рекомендуется вносить в историю развития ребенка (форма №112/о) или электронную базу для улучшения динамического наблюдения.

Ключевые слова: *качество жизни, физические факторы, психоэмоциональные факторы, ограничения, комплексная оценка.*

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