SHORENA KARTVELISHVILI, IVANE CHKHAIDZE

A BRIEF OVERVIEW OF QUESTIONNAIRES ASSESSING THE QUALITY OF LIFE OF CHILDREN WITH BRONCHIAL ASTHMA

M. Iashvili Central Children's Hospital, Tbilisi State Medical University, Tbilisi, Georgia

შორენა ქართველიშვილი, ივანე ჩხაიძე

ბრონქული ასთმის მქონე ბავშვების ცხოვრების ხარისხის შესაფასებელი კითხვარების მოკლე მიმოხილვა

მ. იაშვილის სახელობის ბავშვთა ცენტრალური საავადმყოფო, თსსუ, საქართველო

რეზიუმე

ჩვენი მიზანი იყო წარმოგვედგინა დღეისათვის კლინიკურ პრაქტიკაში გამოყენებული პედიატრიული ასთმის ცხოვრების ხარისხის შეფასების ინსტრუმენტები, მათი როლი და მნიშვნელობა ასთმის კლასიფიკაციის და მართვის საკითხში. განვიხილეთ 6 კითხვარი: 1) ასთმის მქონე ბავშვების ჯანმრთელობის შეფასება, მოწოდებული ამერიკის პედიატრთა აკადემიის მიერ - Child Health Survey for Asthma (CHSA) developed by the American Academy of Pediatrics; 2) ბავშვთა ჯანმრთელობის კვლევა ასთმა-ბავშვის ვერსია - Child Health Survey for Asthma-Child Version (CHSA-C) developed by the American Academy of Pediatrics; 3) პედიატრიული ასთმის ცხოვრების ხარისხის კითხვარი - Pediatric Asthma Quality of Life Questionnaire (PAQLQ) - developed by E.F. Juniper; 4) პედიატრიული ასთმის ცხოვრების ხარისხის კითხვარი მშობლებისთვის - Pediatric Asthma Caregiver Quality of Life Questionnaire (PACQLQ) - developed by E.F. Juniper; 5) ცხოვრების ხარისხის შესაფასებელი ილუსტრირებული კითხვარი ბავშვებისთვის - Pictorial Quality of Life Measure for Young Children With Asthma (Pictorial PAQLQ) - developed by R.S. Everhart and B.H. Fiese); 6) პედიატრიული ცხოვრების ხარისხის აღწერილობითი კითხვარი 3.0 ასთმის მოდული - Pediatric Quality of Life Inventory 3.0 Asthma Module - PedsQL™ (of the Pediatric Quality of Life Inventory) - developed by J.W. Varni.

ჯანმრთელობასთან ასოცირებული ცხოვრების ხარისხის გამოყენებამ ბავშვის სიცოცხლის ხარისხზე ასთმის ზეგავლენის მნიშვნელოვანი და უფრო ყოველმხრივი შეფასების საშუალებას გვაძლევს და შეიძლება ძალიან სასარგებლო აღმოჩნდეს ასთმის სწორი მართვისათვის და პროგნოზისათვის. გასათვალისწინებელია ისიც, რომ ასთმის ზეგავლენა ცხოვრების ხარისხზე სხვადასხვა ქვეყანაში სხადასხვაა, რასაც განაპირობებს ერის კულტურული, სოციალური, ფსიქოსომატური, ნუტრიციული თავისებურებები. ამიტომ, ბავშვთა ასთმის ცხოვრების ხარისხის შესაფასებელი ინსტრუმენტების ვალიდაცია საქართველოში აუცილებელი და მნიშვნელოვანია.

Bronchial asthma is one of the most common chronic diseases and a global health concern. According to Global Health Metrics, in 2020, 261 million people worldwide were diagnosed with asthma. Asthma is a special and potentially dangerous chronic disease that places a significant Health-related quality of life (HRQOL) burden on patients, their families, and the community. Despite hundreds of researches carried out on asthma prevalence in different populations, it is difficult to accurately compare asthma prevalence data in different regions of the world, due to the lack of a universally accepted definition of asthma. The global prevalence of asthma in populations of different countries ranges from 0.19% (China) to 20.96% (Australia) [1,2].

The morbidity rate of asthma is high in Georgia as well. According to official epidemiological data in Georgia, the number of new cases with bronchial asthma has been steadily high for the last 10 years: 3189 cases in 2008, 3285 cases in 2010, and 3261 cases in 2015. The rate of new cases in children is almost similar: 588 cases in 2008 and 559 cases in 2015. At the same time, a decline in the number of registered cases is observed: 16,443 registered bronchial asthma cases in 2008 were reduced to 12,664 cases in 2015. The total prevalence rate of registered cases of asthma and status asthmaticus in Georgia in 2019 is 286.7 and the incidence rate is 59 [3]. However, it is most likely that the officially registered rate of bronchial asthma is lower than the actual situation in the country.

Asthma in children appears to be a public health priority worldwide because of its social values (epidemiology, its impact on quality of life, long-term outcomes, direct and indirect costs). Improperly

managed asthma affects not only the health of the child but also the development of the child, his/her academic performance, the quality of life of the child and his family, causes deterioration of the condition and respiratory disabilities, increases the risk of premature death. In addition, asthma is associated with health care costs. Thus, pediatric asthma is a significant economic burden for patients, their families, and the community.

The impact of chronic disease on a patient's life can be assessed by the Quality of Life Questionnaire (QoL). The parameters of the questionnaire show the subjective impact of the disease on the patient's physical, emotional, social, and cognitive performance. The quality of life questionnaire reveals the difference between an individual's intentions and the reduced capabilities caused by the disease. In clinical practice, quality of life assessment is important not only for evaluation of the disease symptoms or side effects of medications, but also for effective treatment, and monitoring and identifying health status changes in the population. For these reasons, interest in quality-of-life research and the introduction of quality-of-life assessment instruments in clinical practice is constant and is being used extensively in different countries [4,5,6,7].

According to the Global Initiative for Asthma (GINA), the primary goals of asthma treatment are to control asthma symptoms, prevent complications, and improve patients' QoL [1]. Despite these goals, the QoL of children with asthma is lower than that of their healthy peers, and it is lower than that of children with heart disease and diabetes [8]. The low QoL of the children with asthma is mainly due to the limited activity and increased levels, negative emotions, and fatigue.

Assessing health-related QoL in clinical practice allows us to better understand the impact of the disease on the life of the individual patient, facilitates monitoring the course of the disease, and makes it possible to evaluate the effectiveness of treatment. In addition, QoL is determined by taking into account many factors. A better understanding and modification of these factors may improve the QoL of patients with asthma [9].

While clinical and physiological indicators such as asthma symptoms and pulmonary function tests (PFTs) are very important, a Health-Related Quality of Life (HQ QoL) assessment can provide a more important and comprehensive assessment of the impact of asthma on the quality of life of the children with asthma. “Asthma-Related Quality of Life” refers to the understanding of the impact of asthma on a patient's quality of life.

Specific health-related quality of life (HRQOL) questionnaires have been developed since 1990. Today, there are several specific instruments for the assessment of the quality of life of children and adolescents, presented in table:

General characteristics of specific instruments to assess quality of life in children and adolescents with asthma

	Tool	Developed by	Items	Domains (n)	Domains	Age years	Respondent	Year of validation
1	Child Health Survey for Asthma (CHSA)	the American Academy of Pediatrics	48	5	Physical health, Activity [child], Activity [family], Emotional health [child], Emotional health [family]	5-12	Parent	1992
2	Child Health Survey for Asthma-Child Version (CHSA-C)	the American Academy of Pediatrics	25	3	Physical health, children's activities, emotional health	7-16	Parent/ Children	2008

3	Pediatric Asthma Quality of Life Questionnaire (PAQLQ)	E.F. Juniper	23	3	Symptoms, emotions, and activity limitations	7-17	Childre n	1996
4	Pediatric Asthma Caregiver Quality of Life Questionnaire (PACQLQ)	E.F. Juniper	13	2	Activity limitations and emotional function	7-17	Parent	1999
5	Pictorial Quality of Life Measure for Young Children With Asthma (Pictorial PAQLQ)	R.S. Everhart and B.H. Fiese	10	2	Asthma symptoms, child's emotional reaction to the symptoms.	5-7	Tutor Childre n	2009
6	Pediatric Quality of Life Inventory 3.0 Asthma Module - PedsQL™ (of the Pediatric Quality of Life Inventory)	J.W. Varni	28	4	Symptoms of asthma, problems with treatment, concerns, and communication	2-18	Childre n	2004

We provided brief assessment health-related quality of life (HRQOL) questionnaires for children:

1) Child Health Survey for Asthma (Developed by the American Academy of Pediatrics);
2) Child Health Survey for Asthma-Child Version (Developed by the American Academy of Pediatrics);
3) Pediatric Asthma Quality of Life Questionnaire (Developed by E.F. Juniper);
4) Pediatric Asthma Caregiver Quality of Life Questionnaire (Developed by E.F. Juniper);
5) Pictorial Quality of Life Measure for Young Children With Asthma (Developed by R.S. Everhart and B.H. Fiese);
6) Pediatric Quality of Life Inventory 3.0 Asthma Module (of the Pediatric Quality of Life Inventory) (Developed by J.W. Varni).

The purpose of this survey is to provide a brief overview of the QoL instruments for pediatric asthma patients currently used in clinical practice.

QoL instruments developed for adults are not appropriate for use with children. There are several special considerations in developing pediatric instruments which are described as "4 Ds of childhood": developmental changes, dependence on adults, disease epidemiology that is different from adults, and specific childhood characteristics [10]. Because of these challenges, pediatric QoL instruments are relatively less developed than adult instruments, although they are becoming more and more sophisticated with the help of modern technologies [11,12].

When assessing QoL in children, the researcher should take into account 2 interrelated key issues: First, data collection is obtained directly from the child or parent. For children who are too young or too sick to respond, the only logical informants often appear to be their parents. However, parents and children may have different views on the impact of the disease and some aspects of health, such as the emotional load of the child, which is sometimes difficult for parents to notice. Parental assessments may also be incomplete because most school-age and older children are away from their parents for many hours every day. Thus, information about QoL should be obtained from both the parent and the child [13]. The researcher should also consider if the specific instrument is designed and recommended for the given age category of the child or to put it otherwise pediatric instruments should be used according to the age

categories. Children's developmental characteristics/abilities shape their understanding of health. QoL dimension measurements may appear less differentiated for the younger child. In very young children, QoL measurements may be limited to whether the child is temporarily upset, frustrated, angry, frightened, and/or suffering from pain as a result of asthma. Asking children under the age of 10 to make complex, qualitative judgments about their QoL may be beyond their developmental capabilities.

Thus, pediatric questionnaires should be used with caution in young children. As children grow, they become more aware of the more abstract concepts associated with QoL. Appropriate management and available study resources are needed in this regard; In general, collecting data from children takes more time, and most likely young children may require the help of an interviewer to elicit necessary information. Researchers need to obtain QoL data for pediatric researches, however, they need to select child-friendly and child-appropriate survey methods and instruments appropriate for administration to children or their parents.

Here is an overview of pediatric asthma QoL instruments. This review does not contain the Childhood Asthma Questionnaires, which were originally developed in three different forms for children of different ages (Form A for 4-7 years, Form B for 8-11 years, Form C for 12-16 years).

1. A Questionnaire for Assessment of the Health Status in Children with Asthma, provided by the American Academy of Pediatrics; Child Health Survey for Asthma (Developed by the American Academy of Pediatrics) [14].

Health Assessment Questionnaire for Children with Asthma (Child Health Survey for Asthma - CHSA) is an instrument completed by parents of children aged 5-12 years with chronic asthma. It takes 20 minutes to complete it. The CHSA was originally designed to give children with asthma and their parents an opportunity to express how the children view their quality of life (QoL). This instrument includes 48 child and family-focused questions divided into 5 subscales:

1) Physical health - 15 questions;
2) Activity [child] - 5 questions;
3) Activity [family] - 6 questions;
4) Emotional health [child] - 5 questions;
5) Emotional health [family] - 17 questions;

The minimum score for each of the 5 domain subscales is 0 and the maximum is 100. Higher scores indicate more positive outcomes or better health status. There are specific questions that relate to how a child's health status affects the child and the family. For example, questions about family activities include: "We changed our family plans or trips because we were not sure when the attack might happen"; "We canceled social plans because our son had an asthma problem"; And "We avoided activities or places that could trigger an attack (e.g., visiting a zoo or a farm, camping, or going outside in the cold)." The answers are: “all of the time,” “most of the time,” “some of the time,” “little of the time,” and “none of the time.” The questions about the emotional health of the child and the emotional health of the family also can refer to how much the degree of impairment due to asthma matters to the child and the family. The CHSA gives 5 subscale scores (Physical Health, Child Activity, Family Activity, Child Emotional Health, and Family Emotional Health).

The strength of the CHSA Questionnaire is that the instrument is freely available and has well-defined psychometric properties. Perceived impact of asthma on QoL might be inferred from family activity subscale (changes in family activities because of the child’s asthma), emotional health subscale (child frustration and anger related to asthma and asthma treatment), and family emotional health subscale (bother associated with asthma management, frustrations, concerns and worries, and stress for the family because of the child’s asthma). This instrument has been used in socio-economically and ethnically diverse populations in the United States and a special version has been developed for Spanish-speaking US residents. In addition, there exists an accompanying version of CHSA, which can be completed by the child (CHSA-C). Weaknesses of the survey include limited data on population norms.

Most of the content of CHSA (20 out of 48 scores) contains functional status and health status and may overlap with that of measures of asthma control.

2. Child Health Survey for Asthma (Child Version), developed by the American Academy of Pediatrics [15].

The questionnaire, Child Health Survey for Asthma - Child Version (CHSA-C) is an asthma-specific QoL instrument that has been in use since 2008. It is administered depending on the age of the child and requires an average of 10 minutes to complete. It is based on a CHSA designed for parents. Both, CHSA and CHSA-C, can be used as separate or accompanying instruments. The 25 questions of the instrument include 3 domain scales: physical health (7 questions), children's activities (6 questions), and emotional health (12 questions). 7 questions about physical health are focused on asthma symptoms. 6 questions in the scales of child activities are about asthma-related limitations at school, in playing, and in sports. Topics in emotional health scales include 8 questions related to the feelings about asthma and 4 questions about stress, frustration, anger, and knowledge about asthma medications.

For example, the questions include "My asthma causes stress in my family"; "I am frustrated that other people don't understand what it is like to have asthma"; And "Sometimes I get angry and ask myself, 'Why is this happening?' Answers are: "Strongly disagree", "Disagree", "Not sure", "Agree", and "Strongly agree". The questions that focus on emotional health, stress, frustration, and anger may reflect the degree to which impairment from asthma matters to the child, as well as the child's perception of the impact on the family. Scores for each question are calculated from 0 to 100, with 100 being the most positive.

CHSA-C Strength is that it is suitable for children aged 7-16. Weaknesses of CHSA-C are limited published psychometric properties, lack of population norms, overlap in content with measures of asthma control regarding the assessment of symptoms and functional status, and lack of published information about the use of the questionnaire.

3. Pediatric Asthma Quality of Life Questionnaire (PAQLQ), developed by E.F. Juniper [16].

The Pediatric Asthma Quality of Life Questionnaire (PAQLQ), was developed in the mid-1990s by E.F. Juniper and colleagues, for children (aged 7–17 years). For the development of the original version, a list of 77 candidate questions was generated from a variety of sources, including interviews with health professionals, reviews of the medical literature, and interviews with children and parents, who were encouraged to suggest aspects of their asthma that were particularly burdensome in their daily lives, including emotional and physical effects. After processing the information, a questionnaire was developed, which consists of 23 questions, and is divided into 3 domain subscales and includes:

1) Asthma symptoms (10 questions)
2) The child's emotional reaction to the symptoms (8 questions)
3) Asthma-related activity limitations (5 questions)

A Likert Response Scale is used to evaluate all these questions: (1 = "extremely bothered"; 7 = "not bothered"). 10-15 minutes is enough to complete the questionnaire. This instrument can also be found in the Standardized Pediatric Asthma Quality of Life Questionnaire (PAQLQ-S). Although E.F. Juniper's questionnaire is a flexible instrument and has got quite good measurement properties, (e.g., internal consistency and test-retest reliability, persuasive cross-sectional compliance with other units of measurement, and flexibility to modify and group differences, and the fact that it is translated into many languages), the age-specific psychometric information about PAQLQ is limited and the wide age range crosses several significantly different stages. Furthermore, information on the discriminant validity of the lower scales is not available.

4. Pediatric Asthma Quality of Life Questionnaire for Parents - Pediatric Asthma Caregiver Quality of Life Questionnaire, developed by E.F. Juniper [17].

The Pediatric Asthma Quality of Life Questionnaire for Parents (PAQLQ), developed in the mid-1990s by E.F. Juniper and colleagues, was designed to measure the impact of the child's asthma on caregivers (parents) QoL. It takes 3–5 minutes to complete it. The tool contains 13 questions, which are divided into 2 domains: activity limitations - 4 questions (e.g., interference with work or sleep) and emotional function - 9 questions (e.g., upset due to child's symptoms, worry over medication side effects). Respondents are asked to rate how the children's asthma has interfered with their normal daily activities

and how this has made the parent feel. Scores are calculated using a 7-point system of the Likert response scale (eg, 1 = "very worried"; 7 = "not worried"). The total score of the PAQLQ is the mean of all 13 questions.

The strengths of PACQLQ: This is a short, easy-to-perform tool for assessing the impact of asthma on caregivers and not children's QoL. The PAQLQ was initially tested on a small group of parents (n = 52) in Canada and was able to identify changes in both activity and emotional domains among parents who reported that their child's asthma status had changed. However, this tool has subsequently been used in many studies of pediatric asthma in diverse populations and is available in many languages. Its limitations include the potential overlap with measures of asthma control.

5. Quality-of-Life Illustrated Questionnaire for Children - PAQLQ - Pictorial Quality of Life Measure for Young Children with Asthma, developed by R.S. Everhart and B.H. Fiese [18].

The Pictorial Quality of Life Measure for Young Children With Asthma (Pictorial PAQLQ) is a relatively new asthma-specific QoL instrument with illustrations, specially designed for 5-7 age group children, adapted from the PAQLQ that had been developed by Juniper. Information on the time required to complete this instrument was not reported. The questionnaire is divided into 2 domains: 10 questions about asthma symptoms, 5 questions about the child's emotional reaction to the symptoms. The items in the symptoms subscale focus on the frequency of symptoms (e.g., cough, wheeze, difficulty sleeping, etc.) that bother the child. Emotional domain questions inquire about feelings, such as anxiety, anger, worry, caused by asthma. This tool was designed for the so-called "pencil-and-paper" administration. The pictorial response format allows the child to anchor his or her response decisions among 3 thermometers, which are empty, half-filled, and filled, to represent “none,” “some,” or “all of the time.” Children are asked to rate each question (unit) using the given thermometers. The total QoL is calculated by summing all the answers.

The questionnaire is administered by an interviewer to provide direct reporting from children with asthma. This is particularly important because the information provided by children may differ from the information received from their parents. However, only a handful of tools are currently available for this age group. This is why many researchers are pinning their hopes on using this new tool. Initial testing of this instrument revealed adequate psychometric properties and provided preliminary evidence of coherence, discriminant, and predictive validity for the overall score. But its weakness is that the questionnaire has some limitations. No discriminant validity information is available for the subscores and further testing to confirm the proposed factor structure and provide further validation is needed.

6. Pediatric Quality of Life Inventory 3.0 Asthma Module - PedsQL™ (of the Pediatric Quality of Life Inventory) developed by J.W. Varni [19].

The Pediatric Quality of Life Inventory 3.0 Asthma Module (PedsQL 3.0 Asthma Module) is one of many disease-specific modules that are part of the Pediatric Quality of Life Questionnaire (PedsQL). The PedsQL Measurement Model uses a so-called "modular" approach, with generic and disease-specific scales. It is noteworthy that the generic QoL Module, not the Asthma Module, contains the QoL questions. The PedsQL 3.0 Asthma Module is integrated with this generic QoL instrument. The Asthma Module collects additional information on specific issues related to social relations, worry, and asthma treatment; However, it does not measure the child’s or caregiver's perception of the impact of asthma on the child’s QoL. Information on the time required to complete this instrument has not been reported. It is a tool that collects information from both the parent and the child. The asthma module is designed for children and adults aged 2-18 years. There are 4 versions of this module for different age groups: for children and parents aged 2-4 years, 5-7 years, 8-12 years, and 13-18 years. There are 4 scales in the disease-specific Asthma Module:

1) Asthma Symptoms -11 questions;
2) Treatment problems - 11 questions;
3) worry - 3 questions;
4) Communication - 3 questions;

The PedsQL 3.0 Asthma Module focuses more on the assessment of asthma symptoms and problems than on general QoL. The questions are based on the previous experience of the generic PedsQL, focus groups, cognitive interviews, pretesting, and field testing. A 5-point scale is used: 0 = 100, 1 = 75, 2 = 50, 3 = 25, 4 = 0. Higher scores indicate a better QoL. For self-report by a young child, a simplified 3-point scale is used for self-assessment (0 = "not at all a problem", 2 = "sometimes a problem" and 4 = "a lot of a problem"). The reliability and validity of this tool have been evaluated in several different studies.

A modified version of the PedsQL 3.0 Asthma Module, called the PedsQL 3.0 SF22 Asthma Module, includes questions about asthma symptoms (e.g., problems with asthma symptoms, 11 questions) and treatment problems (e.g., problems with medications or inhalers, 11 questions). These 2 components were considered to be most relevant and were retained in the PedsQL 3.0 SF22 Asthma Module, which has demonstrated a fairly high degree of reliability (Cronbach's $\alpha \geq 70$) and validity.

Although the PedsQL core instrument is well defined and versions for 3 different age groups were developed, the psychometric properties of the asthma module instrument are still emerging. Weaknesses include the fact that the instrument's questions are dominated by questions of asthma management—that the asthma module does not directly assess the child's perspective on how his or her life is affected by asthma, or how much asthma bothers him or her. There are limited published data on population norms, respondent burden, and the minimally important differences.

Thus, currently, available QoL tools vary according to their domains. By definition, asthma instruments should measure patients' perceptions of the impact of asthma on the quality of their lives. Many current QoL instruments measure a different domain, impairment, which may include the patient's symptoms or functional status (i.e., the ability to perform daily activities or minimum physical activities). Some instruments measure the impact of asthma on social, psychological, and emotional well-being, as well as financial status. Although, in general, we would expect higher symptom levels and poorer functional status to be associated with reduced QoL, a patient's perspective on the impact of the disease can vary considerably according to the patient's priorities, expectations, and lifestyle.

So, a key defining characteristic of any measurement of QoL is that it should assess the degree to which impairment matters to the patient. It is important to identify exactly what an instrument measures and what domain(s) generate the scores derived from the questionnaire.

In conclusion, quality of life determinants is extremely important for parents, family members, physicians, and public health professionals. Its study and correct evaluation can be very useful for the proper management and prognosis of asthma. The impact of asthma on quality of life is different in different countries, which is determined by the cultural, social, psychosomatic, nutritional characteristics of the nation, therefore, validation of the instruments for assessing the quality of life of children with asthma in Georgia is necessary and important.

References

1. https://ginasthma.org/gina-reports/, 2020
2. Asthma—Level 3 cause, 2020. Available at https://www.thelancet.com/pb-assets/Lancet/gbd/summaries/diseases/asthma.pdf
3. National Center for Disease Control & Public Health, Georgia (NCDC & PH). Statistical Reference 2019
4. https://www.ncdc.ge/Pages/User/News.aspx?ID=fad4aa1f-2eab-4792-bf4d-5792f58c1782.
5. Sangnimitchaikul W, Srisatidnarakul B, Ladores S. The Effectiveness of a Family-Based Asthma Self-Management Program in Enhancing the Asthma Health Outcomes in School-Age Children.CompChild Adol. Nurs. 2021.7:1-15
6. Shaikhan FM, Makhlouf MM. Quality of life among caregivers of asthmatic children attending pulmonology clinics at Hamad General Hospital, Qatar. SAGE Open Med. 2020 Nov 24;8:2050312120973500.;
7. Matsunaga NY, Gianfrancesco L, Mazzola TN, Oliveira MS, Morcillo AM, Ribeiro MÂGO, Ribeiro JD, Hashimoto S, Toro AADC. Differences between patients who achieved asthma control and those who remain uncontrolled after standardized severe asthma care strategy. J Asthma. 2020 Dec 2:1-13;

8. Alreshidi NM, Livesley J, Al-Kalaldeh M, Long T. The Impact of a School-based, Nurse-delivered Asthma Health Education Program on Quality of Life, Knowledge, and Attitudes of Saudi Children with Asthma. Compr Child Adolesc Nurs. 2020 Oct 6:1-15.
9. Varni JW, Burwinkle TM, Rapoff MA, Kamps JL, Olson N. The PedsQL in pediatric asthma: reliability and validity of the Pediatric Quality of Life Inventory generic core scales and asthma module. *J Behav Med.* 2004;27(3):297–318.
10. Petsios KT, Priftis KN, Hatziagorou E, Tsanakas JN, Antonogeorgos G, Matziou VN. Determinants of quality of life in children with asthma. Pediatr Pulm.2013 Dec;48(12):1171-80.
11. Forrest CB, Shipman SA, Dougherty D, Miller MR. Outcomes Research in Pediatric Settings: Recent Trends and Future Directions. *Pediatrics.* 2003;111(1):171–178.
12. Hsia BC, Singh AK, Njeze O, Cosar E, Mowrey WB, Feldman J, Reznik M, Jariwala SP. Developing and evaluating ASTHMAXcel adventures: A novel gamified mobile application for pediatric patients with asthma. Ann Allergy Asthma Immunol. 2020 Nov;125(5):581-588.;
13. Davis SR, Peters D, Calvo RA, Sawyer SM, Foster JM, Smith LD. A consumer designed smartphone app for young people with asthma: pilot of engagement and acceptability. J Asthma. 2021 Feb;58(2):253-261
14. Ungar WJ, Boydell K, Dell S, Feldman BM, Marshall D, Willan A, Wright JG. A parent-child dyad approach to the assessment of health status and health-related quality of life in children with asthma. Pharmacoeconomics. 2012 Aug 1;30(8):697-712
15. Asmussen L, Olson LM, Grant EN, Fagan J, Weiss KB. Reliability and validity of the Children's Health Survey for Asthma. Pediatrics. 1999 Dec;104(6):e71.
16. Radecki L, Olson L, Frintner M, and Weiss K. Reliability and Validity of the Children's Health Survey for Asthma–Child Version. Pediatric Asthma, Allergy & Immunology. 2008 Jun.89-98.
17. Juniper EF, Guyatt GH, Feeny DH, Ferrie PJ, Griffith LE, Townsend M. Measuring quality of life in children with asthma. Qual Life Res 1996;5:35-46.
18. Juniper EF, Guyatt GH, Feeny DH, Ferrie PJ, Griffith LE, Townsend M. Measuring quality of life in the parents of children with asthma. Quality of Life Research 1996; 5: 27-34.
19. Everhart RS, Fiese BH. Development and initial validation of a pictorial quality of life measure for young children with asthma. J Pediatr Psychol. 2009 Oct;34(9):966-76.
20. Varni JW, Burwinkle TM, Rapoff MA, Kamps JL, Olson N. The PedsQL in pediatric asthma: reliability and validity of the Pediatric Quality of Life Inventory generic core scales and asthma module. J BehavMed. 2004; 27(3):297-318.
21. Roncada C, Mattiello R, Pitrez PM, Sarria EE. Specific instruments to assess quality of life in children and adolescents with asthma. J Pediatr (Rio J). 2013 May-Jun;89(3):217

ШОРЕНА КАРТВЕЛИШВИЛИ, ИВАНЕ ЧХАИДЗЕ

КРАТКИЙ ОБЗОР ОПРОСНИКОВ, ОЦЕНИВАЮЩИХ КАЧЕСТВО ЖИЗНИ ДЕТЕЙ С БРОНХИАЛЬНОЙ АСТМОЙ

Центральная детская больница им. М.Иашвили, ТГМУ, Тбилиси, Грузия

РЕЗЮМЕ

Нашей целью было представить инструменты оценки качества жизни (Qol), используемые в настоящее время в клинической практике, их роль и важность в классификации и лечении астмы. Мы рассмотрели 6 анкет: 1) Оценка состояния здоровья детей с астмой, предоставленная Американской академией педиатрии. Child Health Survey for Asthma (CHSA) - Developed by the American Academy of Pediatrics; 2) Обследование здоровья детей, версия для детей с астмой - Child Health Survey for Asthma-Child Version (CHSA-C) -Developed by the American Academy of Pediatrics; 3) Опросник качества жизни при детской астме - Pediatric Asthma Quality of Life Questionnaire (PAQLQ) -Developed by E.F. Juniper; 4) Опросник качества жизни для родителей с детской астмой - Pediatric Asthma Caregiver Quality of Life Questionnaire (PACQLQ) -Developed by E.F. Juniper; 5) Иллюстрированный опросник для оценки качества жизни детей - Pictorial Quality of Life Measure

for Young Children With Asthma (Pictorial PAQLQ) -Developed by R.S. Everhart and B.H. Fiese); 6) Педиатрический описательный вопросник качества жизни 3.0 Модуль астмы - Pediatric Quality of Life Inventory 3.0 Asthma Module - PedsQL™ (of the Pediatric Quality of Life Inventory) - Developed by J.W. Varni.

Оценка качества жизни, связанного со здоровьем, может обеспечить более полную и всестороннюю оценку влияния астмы на качество жизни ребенка. В разных странах, в связи с культурными, социальными, психосоматическими, нутриентными особенностями нации, поэтому валидация инструментов для оценки качества жизни детей с астмой необходима и важна в Грузии.

SHORENA KARTVELISHVILI, IVANE CHKHAIDZE

A BRIEF OVERVIEW OF QUESTIONNAIRES ASSESSING THE QUALITY OF LIFE OF CHILDREN WITH BRONCHIAL ASTHMA

M. Iashvili Central Children's Hospital, Tbilisi State Medical University, Tbilisi, Georgia

SUMMARY

Our aim was to present the Qol Quality of Life Assessment (Qol) tools which are currently used in clinical practice, their role and importance in the classification and management of asthma. We reviewed 6 questionnaires: 1) Child Health Survey for Asthma (CHSA) -Developed by the American Academy of Pediatrics; 2) Child Health Survey for Asthma-Child Version (CHSA-C) -Developed by the American Academy of Pediatrics; 3) Pediatric Asthma Quality of Life Questionnaire (PAQLQ) - Developed by E.F. Juniper; 4) Pediatric Asthma Caregiver Quality of Life Questionnaire (PACQLQ) - Developed by E.F. Juniper; 5) Pictorial Quality of Life Measure for Young Children With Asthma (Pictorial PAQLQ) -Developed by R.S. Everhart and B.H. Fiese; 6) Pediatric Quality of Life Inventory 3.0 Asthma Module (of the Pediatric Quality of Life Inventory) (Developed by J.W. Varni).

Assessing health-related quality of life (HRQOL) can provide a significant and more comprehensive assessment of the impact of asthma on a child's quality of life. Its (QoL) study and correct evaluation can be very useful for the proper management and prognosis of asthma. The impact of asthma on quality of life is different in different countries, which is determined by the cultural, social, psychosomatic, nutritional characteristics of the nation, therefore, validation of the instruments for assessing the quality of life of children with asthma in Georgia is necessary and important.

Keywords: questionnaires, quality of life, children, bronchial asthma