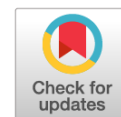


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Oxford ankle foot questionnaire: Localization in Russia

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BACKGROUND: According to literature data, the Oxford Foot Questionnaire for children is a valid instrument for the assessment of complaints and therefore requires adaptation in Russian.

AIM: Russian localization of the Oxford Ankle Foot Questionnaire.

MATERIALS AND METHODS: Localization of the questionnaire was gradually carried out in accordance with international standards. To specify the accuracy of anatomical comprehension of the lower extremity, 35 children aged 5–16 years old and their parents were interviewed preliminary. For final validation of the Russian version, the pilot testing was performed in 20 children aged 5–16 years and their parents.

RESULTS: As all the interviewed children correctly anatomically specified the “leg,” 91.4% of them correctly pointed out the “foot,” and only 20.0% of children, and 57.0% of the parents were able to find the “ankle joint,” we translated the phrase “ankle and foot” as “стопа.” This was represented in the title and text of the questionnaire items. The final questionnaire version survey illustrated that, generally, children and their parents answered all questions without any difficulties, and additions and clarifications were not essential.

CONCLUSIONS: This Russian version of the Oxford Ankle Foot Questionnaire is the only instrument used for the assessment of different foot complaints in children aged 5–16 years and parents' opinion on how much the existing pathology affects the physical, social, and emotional components of children's complaints.

Keywords: Oxford questionnaire; validation; localization; questionnaire survey; foot; children; complaints.

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Оксфордский опросник оценки состояния стопы у детей (Oxford Ankle Foot Questionnaire): лингвокультурная адаптация в России

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Обоснование. Согласно данным литературы Оксфордский опросник оценки состояния стопы у детей является валидным средством оценки структуры жалоб, что вызывает необходимость создания адаптированной русскоязычной версии.

Цель — лингвокультурная адаптация русскоязычной версии Оксфордского опросника оценки состояния стопы у детей.

Материалы и методы. Лингвокультурная адаптация опросника была проведена поэтапно с соблюдением международных стандартов. Предварительно были опрошены 35 детей 5–16 лет и их родители для уточнения правильности понимания расположения анатомических областей нижней конечности. Для утверждения русскоязычной версии опросника выполнено пилотное тестирование русскоязычной версии среди 20 детей 5–16 лет и их родителей.

Результаты. Поскольку все опрошенные дети верно определили анатомическую область «нога», 91,4 % детей верно назвали «стопу», но лишь 20,0 % смогли указать на голеностопный сустав и 57,0 % родителей затруднились с определением расположения голеностопного сустава, было принято решение перевести словосочетание ankle and foot как «стопа», что было отражено в названии опросника и тексте вопросов. Анкетирование при помощи финальной версии опросника продемонстрировало, что в целом у детей и их родителей не возникло трудностей с пониманием вопросов анкеты, а дополнения и уточнения не носили принципиального характера.

Заключение. Данная русскоязычная версия Оксфордского опросника оценки состояния стопы является единственным инструментом оценки структуры жалоб у детей 5–16 лет с патологией стоп различной этиологии, а также оценки мнения родителей в отношении того, насколько патология стоп влияет на физический, социальный и эмоциональный компонент жалоб их ребенка.

Ключевые слова: Оксфордский опросник; валидация; адаптация; анкетирование; стопа; дети; жалобы.

Как цитировать:

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BACKGROUND

Foot deformity in children is one of the most common reasons for an orthopedic visit. Foot deformities can be congenital or acquired according to etiology. Neurological diseases are one of the leading causes of acquired foot deformities. In addition, existing methods of quality of life assessment in children does not fully represent the complaint structure [1].

Patient's subjective assessment of treatment efficiency is a valuable tool in research and clinical work. Methods of assessment include special questionnaires and scales aimed at quality of life, quality of life associated with pathology (disease-specific questionnaires) or health, and patient's state of health assessment [2]. A large number of similar questionnaires were developed for adult patients with foot and ankle pathology, but are not adapted in pediatric practice [3].

The Oxford Ankle Foot Questionnaire (OxAFQ) was developed in 2007 by C. Morris et al. This questionnaire aimed to assess the structure of complaints of 5–16 years old children with foot and ankle joint pathology, as well as assess the parents' opinion on the extent of how the foot pathology affects the physical, social, and emotional components of their child's complaints [4].

The OxAFQ consists of three blocks of questions concerning physical, social, and emotional components of complaints structure and includes pediatric and parent versions.

The content validity of the original version of the questionnaire was assessed by developers using a correlation analysis in comparison with parameters of validated questionnaire of children's quality of life (KIDSCREEN), which revealed a statistically significant correlation between the parameters of two questionnaires [1, 5].

In 2009, C. Morris et al. conducted a study to assess the questionnaire validity over time. Authors interviewed 80 patients aged 5–16 years together with their parents. The survey was conducted during the first visit, after two weeks (test-retest), and after two months (validity over time). Consequently, the questionnaire revealed high sensitivity [6].

To date, the questionnaire has been translated and validated in several languages, namely Portuguese [7], Danish [8], Italian [9], Nepali [10], Dutch [11], Arabic [12], Korean [13], Spanish, Swedish [12], and Turkish [14].

Lack of a Russian-language version validation of the questionnaire complicates the comparative studies with regard to complaint structure dynamic assessment in children with foot pathology, whereas high efficiency of the original version of the questionnaire determines the need for validation for application in Russia.

This work aimed to develop a Russian-language version of the OxAFQ in pediatric patients and perform linguistic and cultural adaptation.

MATERIALS AND METHODS

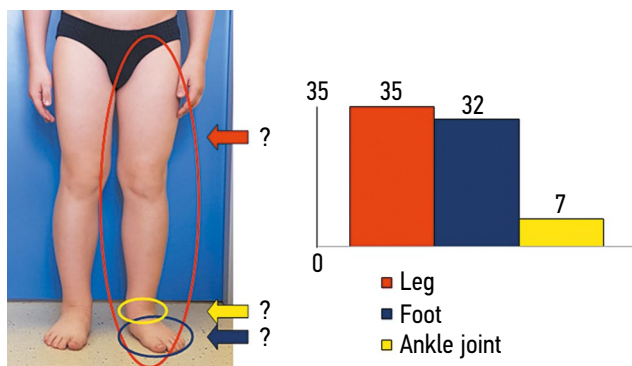
The official permission of the developers (Oxford University Innovation) was obtained for questionnaire translation and cultural adaptation (<https://innovation.ox.ac.uk/outcome-measures/the-oxford-ankle-foot-questionnaire-for-children-oxafq-c/>). The linguistic and cultural adaptation was performed in accordance with global requirements, as well as developer requirements as follows:

1. Translation by two independent Russian-speaking medical translators.
2. Back translation of the questionnaire by two independent medically-trained English native speakers.
3. Work assessment by an independent expert-translator who was not part in the translation.
4. Assessment by an expert commission with the participation of translators and clinical specialists, and creation of a pre-final version of the questionnaire.
5. Questionnaire survey of children with foot pathology and their parents (pilot testing), formation of a final version of the questionnaire.

Inclusion criteria were children aged 5–16 years, presence of congenital or acquired foot pathology (congenital clubfoot, platypodia, congenital anomalies of the feet and ankle joint, osteochondropathy of the foot, benign joint hypermobility syndrome, tarsal coalitions, congenital metatarsus adductus, *hallux valgus*, hereditary sensory-motor polyneuropathy, and infantile cerebral palsy with Gross Motor Function Classification System I–II), and lack of foot surgery. Study participants had to mark the questions and statements that caused difficulties upon answering the questionnaire. An orthopedic specialist took part in the survey, and, if necessary, explained the wording of the question to children and parents.

In the process of forming the final version of the questionnaire, a total of 35 children aged 5–16 years (18 boys and 7 girls, with median age 9 years) and their parents were interviewed about their understanding of the location of the anatomical regions of the lower extremity. This stage of research was performed in order to translate and adapt the stable English phrase of “ankle and foot.” During the expert commission meeting, the option “ankle joint and foot” or “ankle and foot” was proposed. The anatomical nomenclature describes the medial and lateral malleolus (Latin *malleolus medialis et lateralis*). The term “ankle” has a twofold meaning, as unlike the Russian language, it can mean both the ankle region and the ankle joint.

In the pilot testing of the final Russian-language version of the questionnaire, 20 children aged 5–16 years (9 boys and 11 girls, with median age of 9.5 years) and their parents participated.



Picture. Results of children's answers regarding the names of anatomical regions of the lower limb

RESULTS

In order to assess the children's understanding of the term "ankle joint," participants were asked to name the areas of the lower limb pointed by the orthopedic surgeon. These anatomical areas included the leg (hip to foot), foot, and ankle joint, which was listed last (Figure). When difficulties arose, the investigator asked clarifying questions as to whether the child knew what an ankle joint or ankle was.

The Figure shows that all interviewed children correctly identified the anatomical area "leg," 32 children (91.4%) correctly named the "foot," and only seven children (20.0%) were able to indicate the ankle joint. The average age of children who determined the anatomical location of the ankle joint should be noted as 15.3 ± 0.7 years. Majority of children (28/35) (80.0%), who initially could not name the ankle joint, preferred the option "foot" when specifying the answer and could not indicate the ankle. In addition, 57.0% of parents found it difficult to determine the location of the ankle joint. Thus, in order to unify the terminology in the pediatric and parent versions of the questionnaire, the phrase "ankle and foot" was translated as "foot," as reflected in the questionnaire title and question texts.

Questionnaire survey results using the final version of the questionnaire revealed that, in general, children and their parents did not have any difficulties in understanding the questions, and additions and clarifications were not fundamental in nature.

Based on the pilot testing results, the meeting of two expert commissions was held, and the final Russian-language version of the OxAFAQ in children was approved.

DISCUSSION

Currently, the Russian-language versions of validated questionnaires used for foot pathology are not disease-specific or not adapted for children.

The most commonly used pediatric questionnaires which were validated and translated into Russian include

Child Health Questionnaire parental version [15], Childhood Health Assessment Questionnaire [16], Quality of Life in Infants [17], PedsQL™ 4.0 [18] pediatric (5–18 years old) and parental versions, TNO AZL Children's Quality of Life pediatric (6–15 years old) and parental versions [19], Child Health and Illness Profile [20], KINDL pediatric (4–17 years old) and parental versions [21], and KIDSCREEN-52 pediatric version [22].

In 2016, the staff of the V.A. Nasonova Research Institute of Rheumatology validated the Russian-language version of the Foot Functional Index questionnaire for adult patients with rheumatoid arthritis [23]. The OxAFAQ is a validated questionnaire developed for children with foot pathology, which does not have an adapted Russian-language version.

Thus, the presented Russian-language version of the OxAFAQ is currently the only validated tool for assessing the complaint structure in children aged 5–16 years old with foot pathology of various etiologies, as well as opinions of parents on how foot pathology affects the physical, emotional, and social components of their child's complaints.

Semantic difficulties were encountered in translating the phrase "ankle and foot" for children in the final version questionnaire making.

According to literature, children have significantly different semantic and lexical perception of the anatomical areas of their own body. Thus, a study of 141 children aged 5–11 years old to determine their understanding of the anatomical location of parts and areas of their own body revealed that most children were able to name anatomical landmarks in the face and head. In addition, authors revealed that greatest difficulties in children arose when finding the joints (knee, ankle) than when determining the distal parts of the limbs (foot). This is probably due to the fact that the understanding development of the spatial position of the body (body scheme) in comparison with its individual anatomical structures and joints occurs much earlier, namely from the age of three months [24].

W. Waugh and C. Brownell (2015) demonstrated that <6% of 20 months old children understand the words "ankle/ankle joint" (ankle) and <3% are able to independently show this anatomical region on another person, whereas 94% of children understood the word "foot" and 46% could show it. Researchers believe that children under 3 years old are not always able to identify the body structure of another person with their own. Authors assessed the understanding as the ability to show a part of the body on oneself or perform a certain action in relation to a given anatomical region (for example, opening the mouth at the parent's request "open your mouth") [25].

Our study results in assessing the responses of children were comparable with literature data. Thus, adolescents were able to show the anatomical location of the ankle joint.

In addition, 89.3% of primary school-aged children were able to name the anatomical area of the “foot.”

The Russian-language version of the OxAFQ passed through all stages of linguistic and cultural adaptation and can be used in scientific research and everyday clinical practice.

CONCLUSION

According to literature, the OxAFQ is a validated tool for assessing the complaint structure (physical, social, and emotional components) in children aged 5–16 years old. Validated questionnaires and scales enable to unify the process of collecting relevant medical information to the fullest extent and perform a comparative analysis of research results, including those conducted in different countries.

This study presents linguistic and cultural adaptation and pilot testing results of the Russian-language version of this questionnaire.

Questionnaire survey results using the final version of the questionnaire revealed that children and their parents did not have any difficulties in understanding the questions.

Thus, according to pilot testing results, the Russian-language version of the OxAFQ in children was approved, which is the only tool for assessing the complaint structure in children aged 5–16 years old with foot pathology of various etiologies, as well as opinions of parents regarding the extent of how foot pathology affects the physical, social, and emotional components of their child’s complaints.

The Russian-language version of the questionnaire is available at <https://innovation.ox.ac.uk/outcome-measures/>

the-oxford-ankle-foot-questionnaire-for-children-oxafq-c/ upon prior request.

ADDITIONAL INFORMATION

Funding. The study had no external funding.

Conflict of interest. Authors declare no conflict of interest.

Ethical considerations. The study was performed in accordance with the principles of the Helsinki Declaration on Human Rights with written consent from the parents/guardians for the possibility of conducting a questionnaire and approved by the local ethics committee of the I.I. Mechnikov North Western State Medical University (Minutes No. 2 dated 02/12/2020).

The legal representatives of patients gave their voluntary consent to participate in the study and publish the data.

Author contributions. *V.M. Kenis* exercised the leadership and took part in study design development and article text editing. *A.Yu. Dimitrieva* took part in study design development, data collection and processing, literary sources analysis, and article text writing. *N.A. Suponeva* exercised the leadership and took part in study design development and article text editing. *M.A. Piradov* took part in study design development. *D.G. Yusupova* took part in study design development, and article text writing. *A.A. Zimin* and *A.B. Zaitsev* edited the text of the article. *D.V. Derevianko* and *N.V. Polekhina* performed the questionnaire direct translation. *Ramchandani Nisha Mohan* and *Bundhun Pratish* performed the questionnaire back translation.

All authors made significant contributions to research and article preparation and read and approved the final version before its publication.

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