SUMMARY

Introduction. The aim of this study was to translate the Child Oral Impact on Daily Performance index into Serbian language and to evaluate its reliability in practice. Material and Methods. Following internationally established methods, adaptation of the Child Oral Impact on Daily Performance index for children and adolescents in the Serbian speaking areas consisted of three steps: forward translation of the Child Oral Impact on Daily Performance index, backward translation, and a pilot study. Results. A pilot study included 42 participants (21 males and 21 females), mean age of 12.0 ± 1.01 years. All items showed a corrected item-total correlation coefficient above >0.20 and the standardized Cronbach’s alpha coefficient was 0.80. All correlation coefficient values were positive. The prevalence of oral health impact measured by the Child Oral Impact on Daily Performance index was relatively high and 54.8% of the participants reported at least one oral impact on the daily performance in the last 3 months. The most common activities affected were eating (38.1%) and cleaning the teeth (16.7%). Conclusion. The Serbian version of the Child Oral Impact on Daily Performance index is suitable for use in everyday practice and it provides useful information in the evaluation of oral health-related quality of life. The prevalence of oral impacts was high with the most prevalent impact referring to eating. Further clinical research, including larger number of participants, is required for exact verification of the Child Oral Impact on Daily Performance index. Key words: Oral Health; Quality of Life; Surveys and Questionnaires; Child; Adolescent; Dental Health Surveys; Oral Hygiene; Health Behavior

Introduction

The World Health Organization (WHO) defines health as a “state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity” [1]. According to the concept proposed by Terris [2], health is a condition of adequate functioning of the organism in the given genetic and environmental conditions. Thus, the measurement of health must encompass much more than clinical indicators [3]; the clinical measures are insufficient to assess health because they fail to consider functional and psychosocial aspects of health and do not adequately reflect the health status, functioning, concerns and perceived needs of individuals [4, 5]. As a result, an increasing interest in the concepts of health-related

Sažetak


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The C-OIDP index is a well known OHRQoL index and a variety of conditions and therefore most likely to the C-OIDP and COHIP. They include a wide age range used measures in children and adolescents are the CPQ, (SOHO-5) [20]. These indices are designed to cover a variety of oral conditions such as dental caries, malocclusion and craniofacial anomalies. The most frequently used measures in children and adolescents are the CPQ, the C-OIDP and COHIP. They include a wide age range and a variety of conditions and therefore most likely to be of use in a range of studies.

The C-OIDP index is well known OHRQoL index specifically directed at the child-adolescent population. In comparison with other indices, it is theoretically based on the ICIDH framework but focuses only on the third level [14] and demonstrates a strong theoretical coherence and reduces the possibility of double scoring the same oral impacts on different levels [21]. To date, the C-OIDP index has been validated for psychometric properties in Thailand [8], France [9], United Kingdom [10], Peru [22], Brazil [23], Italy [24], and Spain [25]. Also, OIDP index for adults was translated to Serbian and its validity, reliability and responsiveness was tested in the elderly population of Bosnia and Herzegovina and it can be used in further researches [11, 12]. Considering the fact that the OIDP index has been internationally accepted and availability of the Serbian version of OIDP for adults, the aim of this study was to translate the C-OIDP index into Serbian and to assess its reliability in practice.

Material and Methods

The C-OIDP questionnaire was originally constructed in English at the University College London. It was translated and adapted into Serbian language following the published guidelines [26]. The process of cross-cultural adaptation involved three steps: translation of the original C-OIDP into Serbian language, backward translation into English, and a pilot study. The C-OIDP was translated from English to Serbian language by two native Serbian-speaking professional translators familiar with dental terminology in English. Each translator worked independently, without consulting the other, or the research team. The two translations were compared and a consensus forward version was made. It was used in a study with a convenience sample of ten 11 - 14 year-olds to test the clarity of questions. Subsequently, the Serbian version of the questionnaire was translated into English by another professional translator with excellent knowledge of English who had no prior knowledge of the original version. The differences between the backward translation and the original English version were analyzed and discussed by the research team and the translators. The next step was to carry out a pilot study, to test the clarity, appropriateness and cultural relevance of the Serbian version of the C-OIDP (Table 1). During this process, close contact and discussions were maintained with the original research team of the University College London who created the C-OIDP index.

The C-OIDP index was specifically developed for assessing oral well-being and oral impacts on daily activities in the child/adolescent population. It focuses on eight basic daily life activities and behaviours such as: eating, speaking, cleaning the teeth, sleeping, emotional state, smiling, studying and social contacts. The impact on each activity was assessed in terms of frequency (from 0 to 3) and severity (from 0 to 3) (Table 2). Single performance score was calculated by multiplying the frequency and severity scores, with zero score if no impact was reported. To obtain the C-OIDP score for an individual the sum of eight scores was divided by the possible maximum performance scores (eight performances X maximum frequency score (3).
Q1: In the past 3 months, have you had any difficulty .....ACTIVITY/BEHAVIOUR... due to problems with your mouth or teeth? 
P1: Da li ste poslednjih 3 meseci imali ikakve poteškoće tokom ......aktivnosti/ponašanja ...... zbog problema sa ustima ili zubima?
* If the answer is “no”, it will be coded as “0” and you must assess the presence of difficulty with the following ACTIVITY/BEHAVIOUR.
* Ako je odgovor „ne“ vi ćete označiti „0“ i oceniti prisustvo teškoća tokom sledeće aktivnosti/ponašanja!
* If the answer is “yes”, ask questions from Q2 to Q5
* Ako je odgovor „da“, odgovorite na preostala pitanja (2–5).

Q2: Have you had this difficulty on a regular basis over the past three months or only for part of this period? 
P2: Da li ste imali ove poteškoće prilikom jela redovno/povremeno ili kroz određeno razdoblje/kraće vreme?
*If the answer is: „on a regular basis“ ask Q3 
*Ukoliko su se poteškoće javljale redovno/povremeno, zabeležite učestalost teškoće u pitanju br. 3.
*If the answer is: „only for part of this period“ ask Q4
*Ukoliko su se poteškoće javljale kroz određeno razdoblje/kraće vreme, zabeležite trajanje teškoće u pitanju br. 4.

Q3: During the past three months, how often have you had this difficulty?
P3: Koliko često ste u poslednjih 3 meseci imali ovakve poteškoće?
About 3 - 4 times a week or nearly every day
Oko 3-4 puta sedmično ili gotovo svaki dan 3
About 1 - 2 times a week/Jednom/dvaput sedmično 2
About 1 - 2 times a month or less often than once a month
Jednom/dvaput mesečno ili red.

Q4: For how much of the past three months have you had this difficulty? 
P4: Koliko dugo ste u poslednjih 3 meseci imali ovakve poteškoće?
For more than 3 months/Preko 3 meseca ukupno 3
For more than 1, up to 3 months/Od 1 do 3 meseca 2
For one, two days up to a month/Dan-dva, do mesec dana 1

Q5: Using a scale from 0 to 3, where 0 is no effect and 3 a very severe effect, how much effect would you say has the difficulty had on your everyday life? 
P5: Koristeći skalu 0–3, gde 0 označava mali uticaj, a 3 označava vrlo ozbiljan uticaj, koji broj bi najbolje odražavao uticaj poteškoća na svakodnevni život?
No effect/Bez uticaja 0
A fairly minor effect/Mali uticaj 1
A moderate effect/Umeren uticaj 2
A fairly severe effect/Velik uticaj 3

X maximum severity score (3) = 72), and multiplied by 100 to provide a percentage score.

The Serbian version of C-OIDP index was validated in a pilot study. All parents of included children were

Table 2. Scoring of oral impacts on daily performance of schoolchildren
*Tabela 2. Način bodovanja uticaja oralnih tegoba na svakodnevne aktivnosti dece školskog uzrasta

<table>
<thead>
<tr>
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<tr>
<td>No: 0/Yes:1 Ne:0/Da:1</td>
<td>Frequency/Učestalost Duration/Trajanje Q3/P3</td>
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<tr>
<td>Eating/Jelo</td>
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<td>1-3</td>
<td>1-3</td>
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<tr>
<td>Speaking/Govor</td>
<td>0 / 1</td>
<td>1-3</td>
<td>1-3</td>
</tr>
<tr>
<td>Cleaning the teeth/Pranje zuba</td>
<td>0 / 1</td>
<td>1-3</td>
<td>1-3</td>
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<tr>
<td>Sleeping/Spanjanje</td>
<td>0 / 1</td>
<td>1-3</td>
<td>1-3</td>
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<tr>
<td>Emotion/Emocionalno stanje</td>
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<td>1-3</td>
<td>1-3</td>
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<tr>
<td>Smiling/Smejanje</td>
<td>0 / 1</td>
<td>1-3</td>
<td>1-3</td>
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<tr>
<td>Studying/Učenje</td>
<td>0 / 1</td>
<td>1-3</td>
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<tr>
<td>Social contacts/Socijali kontakti</td>
<td>0 / 1</td>
<td>1-3</td>
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fully informed regarding the nature of the study before giving consent. The study included 42 children between the ages of 11 and 14 attending two public schools in Foča, Bosnia and Herzegovina. Two trained dentists conducted the interviews. A face-to-face interview was performed with each child individually, after a short discussion with regard to his/her level of understanding the questions. All words which might have been confusing or possibly misunderstood were replaced by alternative words proposed by children themselves. This testing was conducted in order to make slight changes to the wording of the version adopted.

All statistical tests were done using the SPSS software package, version 20.0 (IBM Corp., Armonk, NY, USA). Internal consistency was evaluated using the corrected item-total correlations, Cronbach’s alpha coefficient and alpha if item deleted.

**Results**

The mean age of the study sample was 12.0±1.01 with equal distribution of males and females. Most participants (88.1%) lived in the urban area, and only 11.9% in the rural area.

The internal consistency analysis of the C-OIDP resulted in a corrected item total values above 0.20 and standardized Cronbach’s alpha coefficient of 0.80 (Table 3). The correlations matrix showed no negative correlation, with values between 0.10 and 0.73 (Table 4).

Overall, 54.8% children reported that they had at least one oral impact in the last three months. The most common affected performances in the total sample were: eating (38.1%) and cleaning the teeth (16.7%) (Table 5). The mean overall C-OIDP was 3.9%. Eating and cleaning the teeth were the performances with the highest intensity (56.25% of subjects with impacts on eating and 42.9% with impacts on cleaning the teeth reported severe intensity); on the other hand, studying was the performance with the lowest intensity.

**Discussion**

There were no great problems with the translation of C-OIDP index and comparison of the original version with the backward translation showed no content or conceptual differences. However, during the pilot study, some problems with understanding the

<table>
<thead>
<tr>
<th>Performance/Performance</th>
<th>Eating/Jelo</th>
<th>Corrected item-total correlation</th>
<th>Cronbach’s alpha coefficient</th>
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<tr>
<td>Eating/Jelo</td>
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<td>0.35</td>
<td>=0.80</td>
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</table>
questions emerged. For this reason, the order of questions was changed, as recommended by the author [10]. Namely, there were problems about understanding the first question: “whether or not problems with mouth and teeth have caused any difficulty with … (performance)…” Wording modifications did not significantly reduce this problem. Thus, the order of questions was changed and children were first asked the fourth question of the original version of the C-OIDP index. They were given a list of common oral problems occurring in this age group. So, the use of the questionnaire was much easier. Also, it has been recommended to show pictures with child’s emotions during daily performance. In this way, the completion time was shortened from 20 to 10 minutes, and the children answered questions much easier.

In terms of reliability, inter-item correlation, corrected item-total correlation and Cronbach’s alpha, indicated that C-OIDP index had excellent internal consistency. All inter-item correlations were positive, and all item-total correlations were above the minimum recommended level of 0.20 [27], showing homogeneity of the index. Furthermore, Cronbach’s alpha was significantly higher than the recommended level [26] and higher than in some previous studies carried out in Italy (0.57), [24] Spain (0.68) [25] and Chile (0.72) [28]. The prevalence of oral impacts on daily performance was high, because 54.8% of participants reported at least one daily activity affected in the last 3 months. The prevalence of oral impacts was higher than in most studies [29, 30] except in studies carried out in Brazil (32.0%) [31], Tanzania (28.6%) [32], and England (40.4%) [10].

The most common oral impact was difficulty eating (38.1%) in accordance with results of other studies using C-OIDP [8, 24]. The prevalence of impacts on the emotional status and smiling were also relatively high. These results were consistent with findings in Italian [24] and Thai schoolchildren [8]. It is apparent that an important reason for the high prevalence of oral impacts in children are natural processes such as exfoliation of primary teeth or spaces due to absence of permanent teeth.

This paper presents only results of a pilot study, while clinical research including larger number of participants (>200) is required for the definitive verification of C-OIDP index in Bosnia and Herzegovina. It is necessary to examine the validity of C-OIDP through the assessment of several subjective health status variables. Also, responsiveness to change should be tested in participants in need for dental treatment. Thus, after validation of C-OIDP, it will be used for the assessment of OHRQoL in children and adolescents in Serbian-speaking areas.

**Conclusion**

The Serbian version of the Child-Oral Impact on Daily Performance index is suitable for use in everyday practice in Serbian-speaking areas and it can provide useful information for assessing oral health-related quality of life. The prevalence of oral impacts was high, and the most prevalent impact was difficulty eating. Clinical researches including larger number of participants are necessary for definitive verification of the Child-Oral Impact on Daily Performance index.

**References**


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