

# Translation and validation of the instrument for the oral health-related quality of life assessment in 3 to 5 years old children in Bosnia-Herzegovina

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## Abstract

**Introduction:** During 2007. in the U.S. was developed the questionnaire for caregivers with 13 items for assessing the oral health-related quality of life in children 3-5 years of age, The Early Childhood Oral Health Impact Scale, The ECOHIS. The aim of this study was to perform the first part of the adaptation process for this instrument in Bosnia-Herzegovina: translation, cross-cultural adaptation and the comprehensibility testing.

**Methods:** ECOHIS was translated from English into the one of the languages in Bosnia-Herzegovina using a standardized forward-backward translation method. Two licensed, professional English-language translators, one dentist and one pediatrician, participated in the development of the preliminary BH-ECOHIS version. All translators were native Bosnian speakers. After translation and adaptation of ECOHIS to Bosnia and Herzegovina setting, pilot-research was performed in order to check the comprehensibility of the questionnaire.

**Results:** The original and the back-translated version were the same. Because not all children in Bosnia-Herzegovina attend preschool, school or daycare, we replaced the question number five from the original English version "missed preschool, daycare or school" with "had difficulties in everyday activities". Translated and culturally adapted version of the ECOHIS was applied in a form of an interview (N=16). Parents/caregivers had no difficulties to understand the questionnaire.

**Conclusions:** BH-ECOHIS showed excellent comprehensibility. Next step in the validation process should be the testing of its measurement characteristic. © 2012 All rights reserved

*Keywords: ECOHIS, translation, validation*

## Introduction

A large number of instruments for measuring social impacts of oral disorders have been developed during the last two decades (1). Instruments for testing the effects of the oral health on everyday living for adult population and for children from 8 to 10 and from 11 to 14 years have already been translated in Bosnia-Herzegovina (2-4). Children younger than seven do not have a perception of days in the week, or a percep-

tion of a month or a season (5). At about 6 years, they become capable of abstract thinking, which means that children younger than 6 do not have perception of health or disease (6). The burden of responsibility for general and oral health in very young children lies on their parents (5). Considering all that was previously said, in 2007. was developed the questionnaire caregivers with 13 items for assessing the oral health-related quality of life in population of children 3-5 years of age (7). Questionnaire, named the Early Childhood Oral Health Impact Scale (ECOHIS), has been developed in the United States in English language (Appendix 1). The ECOHIS requires translation and validation if used in other languages, or if used in cultural unique region. The ECOHIS has been developed from the

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initial pull of 45 questions, recruited for the development of P-CPQ, which is a questionnaire for parents/caregivers of children 6 to 14 years. These questions were reduced by dentists to 36 items. Further reduction, made by parents/caregivers, led to 13 final questions (8). The original ECOHIS questionnaire has two parts. The first part, Child Impact Section (CIS) has 9 items, and the second part, Family Impact Section (FIS), 4 items. CIS has four subscales: child symptom, child function, child psychology and child self-image/social interaction. The Family Impact Section, or FIS, has two subscales: parental distress and family function. Answers are given in a form of the five-step Likert scale. Response options record frequency of the event, considering the entire life of the child. Since 2007, the ECOHIS has been translated and adapted for use in many languages. Authors of the Brazilian (9) and French (10) version consider ECOHIS as a questionnaire for children 0-5 years of age, and not for children the 3-5 years, which is a recommendation from the American authors. During the development of the French version, referral time for questions was the previous two weeks, and not the entire life of the child, as in the American version. The aim of this study was to develop the Bosnia-Herzegovina version of the ECOHIS.

## Methods

During this study, we performed the first part of the adaptation process for the ECOHIS: translation of the English version into the one of the languages in Bosnia and Herzegovina, cross-cultural adaptation of the questionnaire, and testing its comprehensibility in a qualitative study.

### *Structure of the instrument*

ECOHIS consists of 13 questions. The response options, according to five-point Likert scale, are: "Never" = 0; "Once/twice" = 1; "Sometimes" = 2; "Often" = 3; and "Every day/almost every day" = 4. An overall ECOHIS score should be computed by addition of all item scores, and scores for each of the two domains also. The total score can vary from 0 to 52. The sixth answer, option "Don't know", was added by the American authors of the ECOHIS. ECO-

HIS scores are calculated as a simple sum of the response codes for CIS and FIS, after recording "Don't know" answer as the missing answer. If a questionnaire has two or more "Don't know" answers in CIS and/or one in FIS section, the participant should be excluded. Jokovic (8) stress the importance of including "Don't know" response option in studies where respondents are asked to assess someone else's health or quality of life. By Jokovic (8), "Don't know" answer should be treated as a reflection of the construct being measured *i.e.* Oral Health-Related Quality of Life - OHRQoL, rather than a limitation of this scale.

### *Translation into the Bosnian language*

Translation methodology had six steps (11):

1. Dentist with experience in work with children, previously participated in translation and validation of OHIP-BH49, Child Perceptions Questionnaire for children aged 8 to 10 years old - CPQ<sub>8-10</sub> and Child Perceptions Questionnaire for children aged 11 to 14 years old - CPQ<sub>11-14</sub> (2,3,4), translated the ECOHIS from English into the Bosnian language,
2. Pediatrician who works with very young children on daily bases translated the ECOHIS from English into Bosnian,
3. Licensed translator with experience in translating the English manuscripts in area of medical science, dentistry and social science translated the ECOHIS from Bosnian into the English,
4. All three versions were compared, and after minor adaptation, preliminary version was made,
5. Translated version of the ECOHIS was back-translated into English by the second licensed translator,
6. English translation was compared to the original English language version of the ECOHIS, and evaluated differences between translated English version and the original.

### *Cross-cultural adaptation*

Cross-cultural adaptation was conducted according to the international instructions (12). One question, no. 5, required some changes, because many young children in Bosnia and Herzegovina do not attend preschool, daycare or school.

### *Field study for assessing the comprehensibility of the questionnaire*

After the preliminary version of the BH-ECOHIS was made, we assessed the comprehensibility of the questionnaire. BH-ECOHIS was applied in a form of an interview to a study sample of 16 children. We focused on the comprehensibility of the words used in every item and on the sentence construction. Subjects were randomly selected. To be included in the study, children had to be 3-5 years old and accompanied by a Bosnian-speaking caregiver. The field study was carried out in The Canton Health Centre "Dom zdravlja Stari Grad", Department of Dentistry and in The Department of Pediatrics. All children were interviewed while waiting for the appointment at the dentist or pediatrician, regardless they had some acute dental problem or not. The introduction and 13 questions were read to the parent/caregiver from the printed questionnaire. The interviewer wrote the answers. Answers were not statistically analyzed because this was a qualitative study on the comprehensibility of the questionnaire. This study was in accordance with the ethical standards and Declaration of Helsinki. The caregivers gave their written consent before starting the interview.

### **Results**

During the final stage of the translation process, comparison of the original and the back-translated version showed no differences. No changes had to be made on the translated version. Cross-cultural adaptation of the questionnaire demanded replacement of the question no. 5 in the English version: „how often has your child missed preschool, daycare or school,„ with: „had difficulties doing daily activities (e.g. playing, jumping, running or missing school, preschool or daycare). Comprehensibility of the Bosnia-Herzegovina version ( BH-ECOHIS) was tested on a sample of 16 children, 9/16 or 56% girls and 7/16 or 44% boys. They were accompanied by 9/16 or 56% mothers, 4/16 or 25% fathers and 3/16 or 19% grandmothers. Not any of those 16 subjects had difficulties to understand the items of the questionnaire. We had no invalid questionnaires. Only two “Don't know” answers were noted in two separate questionnaires. We had no need to change the BH-ECOHIS after the comprehensibility test.

### **Discussion**

Our study resulted with the Bosnia-Herzegovina version of the questionnaire for assessing the oral health related quality of life in children 3 to 5 years of age (Appendix 2). How the quality of life is influenced by oral health is getting more and more interesting for dental researchers. Instrument for assessing effects of oral health on everyday living of the adult population has already been translated in Bosnia and Herzegovina (2). In the last eight years, similar instruments were developed for children (7, 13, 14). Those instruments were mostly developed in English speaking region, and they are not available in countries with other languages. Translation and verification of the instruments are therefore very important for precise and correct life quality assessment. During the validation and adaptation process, changes in original version are inevitable. For example, during the verification of the Brazilian version of ECOHIS, changes were made in question number 5. due to cultural differences between Brazil and the U.S. Questionnaire with the original item „missing preschool, daycare or school“ was compared to the questionnaire where the item was replaced with „had difficulties doing daily activities (e.g. playing, jumping, running and going to school, preschool or daycare)“. After testing reliability and construct validity, no change in results was observed between two versions of the questionnaire (8). We made the same replacement in the BH-ECOHIS version. General recommendation is that the BH-ECOHIS should be used in children 3-5 years of age. The questions could refer to the period that best suits the researcher, but we recommend, according to the American authors, the entire life of the child. The question no. 13, “has your child had dental problems or dental treatments that had a financial impact on your family“ has not been changed, although the dental services for children in public institutions are free of charge in Bosnia and Herzegovina. A caregiver can decide to solve child's dental problem in a private practice.

### **Conclusions**

In our study, we translated the ECOHIS (Early Childhood Oral Health Impact Scale) from English into the one of the languages in Bosnia and

Herzegovina using the forward-backward translation method. Cross-cultural adaptation, including a qualitative study on the comprehensibility of this measurement, was also conducted. The BH-ECOHis showed very good comprehensibility. Next step in the validation of the BH-ECOHis should be the verification of its psychometric properties in a separate research.

## Competing interests

None declared

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## Appendix 1

### *The Early Childhood Oral Health Impact Scale (ECOHis)*

"Problems with the teeth, mouth or jaws and their treatment can affect the well-being and everyday lives of children and their families. For each of the following questions please circle the number next to the response that best describes your child's experiences or your own. Consider the child's entire life from birth until now when answering each question. If a question does not apply, check 'Never'" Response options: 1. Never, 2. Hardly ever, 3. Occasionally, 4. Often, 5. Very often and 6. Don't know.

1. How often has your child had pain in the teeth, mouth or jaws? (Child symptoms domain)

How often has your child.....because of dental problems or dental treatments? (*Child function domain*)

2. had difficulty drinking hot or cold beverages

3. had difficulty eating some foods
4. had difficulty pronouncing any words
5. missed preschool, daycare or school

How often has your child.....because of dental problems or dental treatments? (*Child psychological domain*)

6. had trouble sleeping
7. been irritable or frustrated

How often as your child.....because of dental problems or dental treatments? (*Child self-image/social interaction domain*)

8. avoided smiling or laughing when around other children
9. avoided talking with other children

How often have you or another family member.....because of your child's dental problems or dental treatments? (*Parent distress domain*)

10. been upset
11. felt guilty

How often.... (*Family function domain*)

12. have you or another family member taken time off from work .....because of your child's dental problems or dental treatments
13. has your child had dental problems or dental treatments that had a financial impact on your family?

## Appendix 2

*Bosanskohercegovački upitnik za mjerenje utjecaja oralnog zdravlja u ranom djetinjstvu (BH-ECOHIS)*  
Problemi sa zubima, ustima ili čeljustima i njihovo liječenje može utjecati na dobrobit i svakodnevnicu djece i njihovih obitelji. Za svako od sljedećih pitanja, molim Vas da zaokružite broj koji se nalazi pored odgovora, a koji najbolje opisuje iskustvo Vašeg djeteta, ili Vaše vlastito. Kada odgovarate na pitanja, uzmite u obzir ..... period života djeteta. Ukoliko ne možete odgovoriti na pitanje, jer se ono ne može primijeniti u Vašem slučaju, zaokružite „Nikad“. Mogući odgovori: 1. Nikad, 2. Skoro nikad, 3. Ponekad, 4. Često, 5. Veoma često i 6. Ne znam .

### Utjecaj na dijete

*Domena simptomatologije djeteta*

1. Koliko često je Vaše dijete imalo zubobolju, bol u ustima ili vilici?

*Domena funkcionisanja djeteta*

2. Koliko često je Vaše dijete imalo poteškoće kada je pilo vruće ili hladne napitke zbog stomatoloških problema ili stomatološke terapije?

3. Koliko često je Vaše dijete imalo poteškoće pri jelu zbog stomatoloških problema ili stomatološke terapije?
4. Koliko često je Vaše dijete imalo poteškoće prilikom izgovora nekih riječi zbog stomatoloških problema ili stomatološke terapije?
5. Koliko često je Vaše dijete imalo poteškoće u svakodnevnim aktivnostima (npr. igri, trčanju, skakanju ili je izostalo iz igraonice, obdaništa ili škole) zbog stomatoloških problema ili stomatološke terapije?

#### *Domena psihologije djeteta*

6. Koliko često je Vaše dijete teško zaspalo ili se budilo zbog stomatoloških problema ili stomatološke terapije?
7. Koliko često je Vaše dijete bilo nervozno ili nezadovoljno zbog stomatoloških problema ili stomatološke terapije?

#### *Domena samopercepcije/socijalnih interakcija djeteta*

8. Koliko često je Vaše dijete izbjegavalo osmjehivati se ili smijati kada je bilo okruženo drugom djecom zbog stomatoloških problema ili stomatološke terapije?
9. Koliko često je Vaše dijete izbjegavalo razgovarati sa ostalom djecom zbog stomatoloških problema ili stomatološke terapije?

### **Utjecaj na obitelj**

#### *Domena roditeljske uznemirenosti*

10. Koliko ste Vi ili neki drugi član porodice bili uznemireni zbog stomatoloških problema ili stomatološke terapije Vašeg djeteta?
11. Koliko ste se Vi ili neki drugi član porodice osjećali krivim zbog stomatoloških problema ili stomatološke terapije Vašeg djeteta?

#### *Domena funkcioniranja porodice*

12. Koliko često ste Vi ili drugi član obitelji izostali s posla zbog stomatoloških problema ili stomatološke terapije Vašeg djeteta?
13. Koliko često je Vaše dijete imalo stomatoloških problema ili stomatološku terapiju koja je predstavljala značajan novčani izdatak za Vašu porodicu?

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