

TRANSLATION AND VALIDATION OF ECOHIS SCALE IN TAMIL LANGUAGE

Type of manuscript: Research article

Running title: Translation and validation of ecohis scale in Tamil language.

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Total number of words: 2,182

Abstract

Introduction:

The Early Childhood Oral Health Impact Scale (ECOHIS) is a parent – assessed oral health related quality of life measure developed to assess the impact of oral health problems on preschool children.

Aim:

The aim of this study was to develop a Tamil version of the ECOHIS and evaluate its validity and reliability among preschool children in Tamilnadu population.

Objective:

The objective of this study is to evaluate the validity and reliability of the Tamil version of the ECOHIS among preschool children in Tamilnadu population.

Materials and methods: The original English version of the ECOHIS was translated into Tamil language through many stages. The translation process includes face validity and content validity assessments. A convenient sample of parents of pre-school children ($n = 50$) were recruited for validation. The sample of 50 parents self-completed the derived Tamil version of the ECOHIS and repeated the ratings of the measure after a period of one week to enable reliability assessments. Validity of the measure was assessed by comparing the pre and post ratings of the Tamil version of the ECOHIS scores. Reliability of the measure was assessed by determining the internal reliability.

Results: The Tamil version ECOHIS showed acceptable validity and reliability in the present study. The standardized Cronbach's alpha of the Tamil version ECOHIS was 0.998. The Cronbach's alpha coefficient of each item of Tamil version ECOHIS, were found to be from 0.995 to 1.000.

Conclusion: The Tamil version of the ECOHIS was developed and found to be reliable. These findings can be used to assess oral health related quality of life in children among Tamil speaking population.

Keywords: Preschool children, oral health quality of life, validity, reliability, early childhood caries.

INTRODUCTION:

Oral health problems play a major role in the children of age between 0-5[1,2]. Early childhood caries is one of the oral health problems which affects the growth, behaviour, and psychological development of children[2]. Early Childhood Caries is defined as the presence of one or more decayed (non-cavitated or cavitated lesions), missing (due to caries) or filled tooth surfaces in any primary tooth in a preschool-age child between birth and 71 months of age. Its consequences can affect the immediate and long-term quality of life of the child's family[1]. Among oral diseases, the dental caries is an important dental public problem in India and is predominantly a disease of childhood[3]. Since the impact of oral health problems in young children affects the developmental and emotional well being, the impact of oral health related quality of life in children between the age of 0-5 has to be measured[4].

There are many questionnaires available to measure the oral health related quality of life in children. One such instrument is the Early Childhood Oral health Impact scale. It has been specifically developed and validated for preschool children in English speaking populations [4,5]. The ECOHIS is a parent-assessed oral health related quality of life, developed to assess the impact of dental caries on preschool age children and their families [6,7].

The ECOHIS questionnaire is filled out by parents. Up to the age of five, children have difficulty in understanding basic health concepts and are incapable of adequately expressing themselves and have a tendency to allow exaggerated responses [4]. Children's self-concept and health cognition is largely age dependent. According to child developmental psychology, the age of six marks the start of abstract thinking and self-concept. Children begin to match their physical features and personality traits to those of other children or to social norms [7]. Their ability to create critical judgments relating to their look, quality of friendships and other people's thoughts, emotions and behaviour gradually develops throughout middle childhood (six to ten years) [4,6,7].

Tamil is one of the longest-surviving classical languages. It is a Dravidian language predominantly spoken by the Tamil people of India. Telugu, Malayalam and Kannada are other dravidian languages of India. In Tamil Nadu, most studies have targeted only on the risk factors for early childhood caries and its behavioural, clinical and microbiological characteristics and complications [8]. No studies have been reported in Tamil literature concerning the ECOHIS for the assessment of impact of oral health related quality of life. Among the dravidian languages of India, ECOHIS has been translated and validated into Malayalam version by Bhat SG et al to develop and validate the M-ECOHIS to use among Malayalam speaking populations. [9]. For any questionnaire based study, the questionnaires has to be translated and validated in different languages for easy understanding of participants among their respective communities. In order to evaluate the impact of oral health related quality of life in children of age between zero to five among Tamil Nadu population, the ECOHIS has to be translated and validated in Tamil language for ease of understanding of parents.

Like several such instruments, the Early Childhood Oral Health Impact Scale (ECOHIS) was developed in English and needs translation and validation in alternative languages if it's to be employed in different languages. The ECOHIS has been tested and validated in the United States [10], Canada [8], China [11], Iran [7] and Brazil [4]. It is imperative to evaluate the various language versions of this instrument to assure that every version exhibits psychometric properties similar to the original version and guarantee its effective utilization in cross-cultural comparisons [4,6].

The goal of the study was to develop and validate a Tamil language version of the ECOHIS so that it can be used among Tamil-speaking populations. The precise objectives of the study were to translate the English version ECOHIS into Tamil and to evaluate the internal consistency, face validity and content validity of this Tamil version of the ECOHIS [3,4,6,7].

1) MATERIALS AND METHODS:

ECOHIS consists of 13 questions and has two main parts: part one is the child impact section and part two is the family impact section. In the child impact section, there are four domains: child symptom, child function, child psychology, child self-image and social interaction. In the family impact section, there are two domains: parental distress and family function. The scale is scored with responses ranging from "Never" to "Very often" (equivalent to scores of 0-4) plus a "Don't know" option. Item scores are simply added to create a total scale score [4,6,7].

Ethical approval

The present study was done after obtaining Ethical approval from the Institutional review board of Saveetha Dental College.

Study design

The survey was conducted in a play school in Chennai. This was one of the first studies to translate and validate the ECOHIS in Tamil language. A sample of 50 parents in a play school, Chennai, India was included in the study. The study was undertaken in two stages stage 1 and Stage 2. Stage 1 comprised formulating, designing, and validating the questionnaire, whereas Stage 2 tested the validated questionnaire among 50 parents.

Stage 1 (designing, translation and validation of questionnaire)

The English version of ECOHIS was translated into Tamil language by a Tamil literature graduate. Then face validation of the questionnaire was performed by circulating the questionnaire to 10 qualified Paediatric dentists [12]. A panel discussion was conducted among 10 qualified Paediatric dentists. There was a good agreement between the investigators, with a rating of >0.7. Then for content validation, the translated Tamil version of ECOHIS was distributed to 20 parents as a pilot study to check the understanding level of the parents. The answers from the parents were found to be positive.

Stage 2 (testing of validated questionnaire)

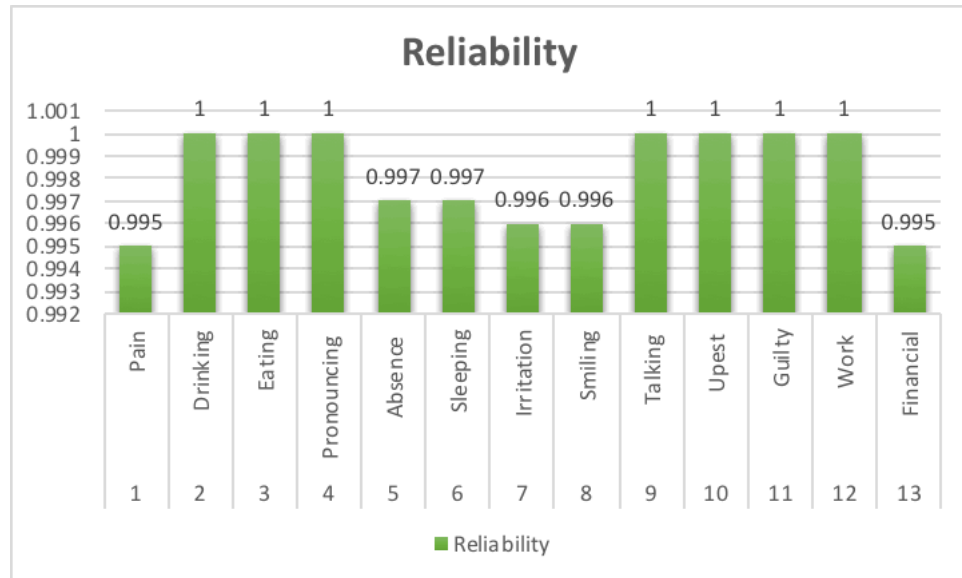
The translated Tamil version ECOHIS was distributed to 50 parents for validation. The validation was carried out by pre and post evaluation of the Tamil version of ECOHIS.

Statistical analysis

Data were collected and entered into SPSS software version (SPSS Inc., Chicago, IL, USA) 20.0 for percentages. Internal consistency reliability was tested using the data gathered from the sample of 50 parents. It was estimated through Cronbach’s alpha internal reliability. The Cronbach’s alpha value for each and every item was found to be between 0.995 to 1.000.

RESULTS:

Figure1:



The standardized Cronbach's alpha of the Tamil version ECOHIS was 0.998 .Cronbach's alpha ranged between 0.995 and 1.000.The Cronbach's alpha coefficient of each item of Tamil version ECOHIS, when tested separately were found to be from 0.995 to 1.000(Figure 1). The Cronbach’s alpha for “pain” and “financial impact” was found to be 0.995 ,for “difficulty in drinking” , “difficulty in eating” , “difficulty in pronouncing” , “difficulty in talking” , “upset” , “guilt” and “work” the value was found to be 1.000 ; for “absence” and “difficulty in sleeping” the value was found to be 0.997 ; for “irritation” and “difficulty in smiling”the value was 0.996.These values demonstrated that the the tamil version ECOHIS was found to be highly reliable

Table 2: Inter item correlation

	Pain - I	Pain -II
Pain - I	1	0.991
Pain -II	0.991	1
	Drinking-I	Drinking-II
Drinking-I	1	1
Dinking-II	1	1
	Eating-I	Eating -II
Eating-I	1	1
Eating-II	1	1
	Pronouncing-I	Pronouncing-II
Pronouncing-I	1	1
Pronouncing-II	1	1
	Absence-I	Absence-II
Absence-I	1	0.994
Absence-II	0.994	1
	Sleeping-I	Sleeping-II
Sleeping-I	1	0.993
Sleeping-II	0.993	1

	Irritation-I	Irritation-II
Irritation-I	1	0.993
Irritation-II	0.993	1
	Smiling-I	Smiling-II
Smiling-I	1	0.992
Smiling-II	0.992	1
	Talking -I	Talking-II
Talking-I	1	1
Talking-II	1	1

	Upset-I	Upset-II
Upset-I	1	1
Upset-II	1	1
	Guilty-I	Guilty-II
Guilty-I	1	1
Guilty-II	1	1
	Work-I	Work-II
Work-I	1	1
Work-II	1	1
	Financial-I	Financial-II
Financial-I	1	0.989
Financial-II	0.989	1

The inter-item correlation coefficients between the pre and post evaluation of the 13 items of the Tamil version ECOHIS ranged from 0.989 to 1 (table 2). The weakest relationships were between the items, "oral/dental pain" and "financial impacts on family". On the other hand, the strongest correlation was found between "difficulty in drinking", "difficulty in eating" and "difficulty in pronouncing" items. These results together suggested good internal consistency reliability for Tamil version ECOHIS with no item being irrelevant.

DISCUSSION:

The Early Childhood Oral Health Impact Scale (ECOHIS) is a recently developed oral health-related quality of life instrument designed to assess the impact of oral health problems in 0–5-year-old children. It comprises of two sections namely child and family impact sections. This instrument is a questionnaire based instrument and consists of 13 items. Since assessment of oral health problems has become an integral part of many health programs, it is necessary to translate and validate the instrument in Tamil language for ease of understanding of parents as well as to assess the impact of oral health related quality of life in preschool children among Tamil Nadu population.

Thus, this study aims at translating and validating the ECOHIS in Tamil language. The Tamil version of the ECOHIS was developed and its reliability was tested using Cronbach's alpha internal consistency. Its 13 items were all considered to be understandable and acceptable by those participated in the pilot study as well as the main study. All inter-item correlations were positive and above the recommended level of 0.2. Furthermore, the Cronbach's alpha coefficient of the whole Tamil version ECOHIS and its child and family sections (0.998, 0.997 and 0.998 respectively) were above the recommended value of 0.70. These results demonstrated good internal consistency reliability for Tamil version. The Cronbach's alpha values were close to those of the original English questionnaire (0.91 and 0.95 for child and family sections respectively) [13]. The ECOHIS has been translated in several languages to assess the impact of oral health related quality of life in children among their respective communities [9].

The ECOHIS has been translated and validated in Chinese language by the author Lee GH et al to enable assessments of preschool child oral health-related quality of life in Chinese speaking communities.

The Cronbach's alpha values of the Tamil version ECOHIS was found to be close to those of the Chinese version of ECOHIS (0.91 for whole scale respectively) [11].

The ECOHIS has been translated and validated in French language by the author Shanshan et al to develop and validate a French language version of the ECOHIS so that it could be used among French-speaking populations. The Cronbach's alpha values of Tamil

version of ECOHIS were found to be higher than the of the French version of ECOHIS (0.79 , 0.82 for both child and family impact sections and for whole scale respectively) [8]

The ECOHIS has been translated and validated to Malayalam language by Bhat SG et al to develop and validate the M-ECOHIS to use among Malayalam speaking populations. The Cronbach's alpha value of the Tamil version of ECOHIS was found to be higher than the Malayalam version of ECOHIS (0.879 for whole scale respectively) [9].

It should be remembered that the ECOHIS is basically and entirely based on the perceptions of parents/caregivers and their understanding of health and illness of the child. Each and every parents view on their child's health and illness differs [14,15]. This issue becomes more important when a child has been taken care by different people, For example mother and grandmother, because mother and grandmother belongs to different period of life and the care given by the mother and grandmother to the child will be different [16,17]. This instrument evaluates the oral health related quality of life of the child since birth, and assesses the whole life instead of a short period of life [18,19,20]. However, assessing the whole life has two limitations: (1) the period of assessment was different from child to child based on their age, and (2) some parents were confused whether they should include impacts of teething periods [19,20,21]. Therefore in the present study an explanation has been included in the introduction section of the questionnaire to explain whether respondents should include teething difficulty as an adverse oral conditions.

As explained in the materials and methods, during the sample recruitment, only the parents were targeted and not the children. Data collectors asked the parents, if they had any 0 to 5 year-old child [22]. Those who answered 'yes' were invited into the study. Such an unequal age distribution was not expected and was not realized until the data was analyzed [16,21]. A slightly better distribution might have been obtained if the age was considered as a continuous variable by asking children's date of birth instead of age in years [22]. However, the unequal age distribution was not considered a major problem, as this was a validation study and the sample size was moderate.

Considering the strengths, limitations, and results of this study, the Tamil version ECOHIS demonstrated acceptable standards. Its psychometric properties can be reviewed while being used on larger and more diverse samples. Its appropriateness can be used with children of TamilNadu parents who speak Tamil.

7) CONCLUSION:

In conclusion, the findings of the study suggest that this Tamil language version of ECOHIS has good internal reliability, face validity and content validity. It is therefore appropriate to use it and to describe the oral health related quality of life in 0–5 year olds with Tamil-speaking parents.

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