



Development and Validation of Tamil Version of Ecohis Scale T Ecohis: A Cross Sectional Study

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ABSTRACT

The Early Childhood Oral Health Impact Scale (ECOHIS) has been developed in English for determining oral health-related quality of life (OHRQoL) in the children of age between 3-12 years. It has been translated and validated in different languages to suit different cultures. The ECOHIS is, till date, the only tool available for research in this field on children. A similar version of this tool is not available for use in the local language Tamil. This study aimed to develop and validate a Tamil version of the ECOHIS (T-ECOHIS). The ECOHIS was translated into Tamil by forward-backward translation and tested for face and content validity. The parents of 100 children were administered the T-ECOHIS. The children were examined for the presence of early childhood caries (ECC) which was recorded using the DMFS and PUFA index. Data were analysed by chi-squared test. The mean of dmft and pufa in children was 1.44 ± 1.21 and 0.10 ± 0.36 respectively. The internal consistency reliability of the ECOHIS was tested with the help of Cronbach's alpha test and item total correlation. The Cronbach's alpha value of the ECOHIS scale was marked to be 0.735.

Key words: ECOHIS, Early Childhood Caries, Oral health, Quality of Life

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INTRODUCTION

The impacts of early childhood caries (ECC) in young kids amplify past the mouth affecting the quality of life these children [1]. Tooth misfortune in some of the situations is unavoidable, and it can bring about not just orthodontic and tasteful issues, yet more critically, challenges in pronunciation. Aesthetic issues and pronunciation challenges may bring about mental and relationship issues. The concept of health has evolved thanks to contributions from researchers and successive declarations issued by world governments and international agencies [2].

The World Health Organization (WHO) defined health in its broader sense in its 1948 constitution as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity [3]. The status of oral health

of a child plays a major role because oral health of a child will determine the child's socialization, self-confidence, and learning abilities [4,5].

Numerous indices are available to evaluate the oral health-related quality of life (OHRQoL). In which one of them is the Early Childhood Oral Health Impact Scale (ECOHIS). ECOHIS is a successful questionnaire method used in this field [6]. This questionnaire was given to parents and primary caretaker for evaluation. This questionnaire contains 13 questions which are disturbed under various sub-classes. Various sub-classes are: child symptom, child function, child psychology, child self-image, social interaction, parental distress, and family function. The scale has six options to respond and these recorded to know how often an event has occurred in a child's life: 0-Never, 1-Hardly ever, 2-Occasionally, 3-Often, and 4-Very often, 5-Don't know.

This questionnaire was first designed and used in the UK and USA to assess the impact of oral health problems on the quality of life in children and their families [4,6]. Later, it was translated in different languages in various regions of the globe

to adapt their cultural background. Tamilnadu constitutes the southern part of India, in which the most commonly used language is Tamil. There is no validation of oral health scale in this local language. Our department is passionate about child care; we have published numerous high quality articles in this domain over the past 3 years [7–25]. With this inspiration we planned to pursue research on the impact of Early Childhood caries. Hence this study was aimed to develop and validate the Tamil version of the ECOHIS (T-ECOHIS).

MATERIALS AND METHODS

A cross sectional outline was utilized as a part of the study. In this cross-sectional, 100 parents of 3-12 years old children who visited Saveetha Dental College for regular dental check-up were selected using random sampling. The inclusion criteria consisted of parents or care-taker of 3-12 years old children from both sexes who gave informed consent for the study. Children diagnosed with Early Childhood Caries, having one or more cavitated lesions were considered part of the study. The exclusion criteria were those who didn't sign informed consent for the study. Informed consent was given and obtained from the parents and then the questionnaire was given.

The ECOHIS questionnaire contains 13 questions distributed between two categories: 1) Impact of oral health on child, and 2) Impact of oral health on family. Item scores are added and they have a score for both the categories. Impact of oral health on child and family will give a score that ranges from 0 to 36 and 0 to 16, respectively.

The ECOHIS questionnaire was given and was explained to parents and primary care-taker of the child and data were collected. Additionally, to evaluate the impact of dental health and the child's oral cavity was examined on a dental unit with mouth mirror, and an explorer. The dmft (decay, missing, filling teeth) and pufa (pulpal inflammation, ulceration, fistula, and abscess) scores were recorded according to the WHO specification. Mean and standard deviation were calculated with the scores accordingly. After all the clinical examinations, and data collection, the collected data was tabulated using Microsoft Excel 2010, were analysed with IBM.SPSS statistics software 23.0 Version. To describe the

data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and the mean & S.D was used for continuous variables.

RESULTS AND DISCUSSION

The results showed that of 100 children participating in the study, 62% boys and 38% girls. In which the questionnaires were filled 82% by mothers and 18% by fathers. The majority of the parents were high school and college graduates. The reliability of the T-ECOHIS was established using internal consistency reliability, inter-rater reliability. The mean of dmft and pufa in children was 1.44 ± 1.21 and 0.10 ± 0.36 respectively. The internal consistency reliability of the ECOHIS was tested with the help of Cronbach's alpha test and item total correlation. The cronbach's alpha value of the ECOHIS scale was marked to be 0.735. The item corrected-total correlations ranged from 0.104 to 0.582. In which, the lowest value was related to "oral/ dental pain" (0.104) followed by "taken time off from work" (0.137) and so on (Table 1).

Inter-rater reliability (IRR) was verified by Cohen's Kappa, Inter-observer reliability of the tool was determined with the help of intra-class correlation coefficient (ICC). Cohen's kappa value was found to be 0.608. The interclass correlation coefficient was found to be 0.735 with 95% confidence interval, 0.606-0.836. The article describes ECOHIS to assess the impact of oral health problems. With the help of health professionals and parents this study showed relationship between children's well-being and oral health [26]. The reliability of a test

Table 1: Internal consistency reliability of the T-ECOHIS: Item- total statistics.

Variables	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Oral/dental pain	0.104	0.755
Difficulty in drinking	0.236	0.731
Difficulty in eating	0.179	0.746
Difficulty in pronouncing	0.515	0.698
Missed school or playschool	0.478	0.704
Trouble sleeping	0.499	0.706
Frustrated or irritated	0.475	0.71
Avoided smiling	0.345	0.721
Avoided talking	0.34	0.722
Been upset	0.462	0.705
Felt guilty	0.425	0.712
Taken time off from work	0.137	0.742
Financial impact	0.582	0.69

instrument concerns the extent to which the instrument yields the same result on repeated trials. Though unreliability is present to a certain extent, there will generally be a good deal of consistency in the results of a quality instrument gathered at different times. The tendency towards consistency found in repeated measurements is referred to as reliability. Internal consistency reliability, interrater reliability is all measures of reliability of a tool.

Internal consistency of the tool is measured by estimating the Cronbach's alpha coefficient and the item total correlation. Cronbach's alpha is a coefficient (a number between 0 and 1) that is used to rate the internal consistency or homogeneity or correlation of the items in a test. A good test is one that assesses different aspects of the trait being studied. If a test has a strong internal consistency it should show only moderate correlation among items (0.7-0.9) [27]. If the correlations between items are too low, it is likely that they are measuring different traits, and therefore, should not all be included in a test that is supposed to measure one trait. If item correlations are too high, it is likely that some items are redundant and should be removed from the test. The results of this validation process indicated that Cronbach's alpha was 0.735, which was above the recommended value of 0.70 [28]. Indicating that all items possess good internal consistency.

The mean of dmft in this study was 1.44 ± 1.21 , while in a study in Brazil it was 2.1 ± 3.1 , with 54% of children in that study having a dmft value of zero [29]. In addition, in the study by Pani et al. the mean of dmft was 2.7 ± 4 [30]. The results indicated that in this study, compared with the two studies mentioned above, the children's oral and dental health status was better.

In this study, the impact of oral and dental health on children's quality of life exhibited a significant relationship with age, i.e. an increase in age resulted in a decrease in quality of life, consistent with the results of a study by Li et al, in which the quality of life exhibited a significant relationship with age, i.e. an increase in age increased the impact of oral health on quality of life [31].

The aim of this study was to validate the ECOHIS questionnaire, which was subject to the variable "living conditions" in order to determine the

sensitivity. One of the drawbacks of this study was the unequal population of children's age groups. By considering the fact that parents were included in the study, whose children were at the age range of 3-12 years old, the unequal distribution of children's age was unpredictable. By considering the small sample size in this study, it does not seem that unequal distribution of age disrupts the study validity. Such a limitation exists in similar studies that had larger sample sizes compared to this study [32].

Oral hygiene is necessary for the overall well-being of the children. Although various scales are available to quantify the impact of oral health, language barriers yield in inconsistent results. The study proves that Tamil version of ECOHIS can be used as a valuable tool to evaluate the impact of Early childhood caries in Children.

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