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**TITLE:** Establishingcontent validity and transferability of a new patient-reported outcome instrument for patients with cleft lip and/or palate: the CLEFT-Q

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**LAY ABSTRACT**

**Background:** Treatment of cleft lip and/or palate (CL/P) is intensive and involves multiple procedures to improve ones appearance or facial function. To assess outcomes of treatment in patients with CL/P, a well-developed, valid, and reliable patient-reported outcome instrument is required. The purpose of this thesis was to establish content validity and transferability of the CLEFT-Q. **Methods**: Cognitive interviews with patients and expert feedback were obtained in Study 1. Input was sought on the CLEFT-Q item wording, instructions, response options, and to identify missing content. Studies 2 and 3 involved the translation and cultural adaptation of the CLEFT-Q to evaluate its transferability. **Results:** Three rounds of cognitive interviews with patients and expert feedback were needed to establish content validity of the CLEFT-Q in study 1. Studies 2 and 3 involved the translation and cultural adaptation of the CLEFT-Q from English to 6 different languages including Arabic, Catalan, Dutch, Hindi, Swedish, Turkish, and 3 Spanish language varieties (Colombian, Chilean, and Spain). Translation and cultural adaptation processes provided evidence of the CLEFT-Qs transferability. **Conclusion:** This thesis presents evidence of the CLEFT-Q’s content validity and transferability.

**ABSTRACT**

**Background:** Cleft lip and/or palate (CL/P) is the most common congenital craniofacial anomaly, which may negatively impact one’s appearance, health-related quality of life, and facial function. The course of treatment is intensive and multifaceted. Patients with CL/P can undergo numerous procedures, with the goal of improving their appearance or facial function. To assess the outcomes of treatment in patients, a well-developed, valid, and reliable patient-reported outcome instrument is required. The CLEFT-Q is a new patient-reported outcome instrument developed to evaluate outcomes of treatment in patients aged 8 to 29 years with cleft lip and/or palate. The purpose of this thesis was to establish content validity and transferability of the CLEFT-Q.

**Methods:** Study 1 of this thesis presents findings from cognitive interviews with patients and expert feedback. Patients aged between 6 and 29 years were recruited from 6 plastic surgery clinics. Healthcare providers and experts from 8 countries participated in a focus group or provided individual feedback. Input was sought on all aspects of the CLEFT-Q development, including item wording, instructions, response options, and to identify missing content. Studies 2 and 3 present findings from the translation and cultural adaptation of the CLEFT-Q to evaluate its transferability. Guidelines set forth by the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) were applied.

**Results:** Study 1 involved 69 patients and 44 experts who reviewed the CLEFT-Q. The first draft of the CLEFT-Q consisted of 163 items measuring 12 constructs. Three rounds of interviews and expert feedback were needed to establish content validity. At the completion of the cognitive interviews and expert review, the CLEFT-Q comprised 171 items within 13 scales that measure appearance (of the face, nose, nostrils, teeth, lips, jaws, cleft lip scar), health-related quality of life (psychological, social, school, speech-related distress), and facial function (speech, eating/drinking). Studies 2 and 3 involved the translation and cultural adaptation of the CLEFT-Q from English to 6 different languages including Arabic, Catalan, Dutch, Hindi, Swedish, Turkish, and 3 Spanish language varieties (Colombian, Chilean, and Spain).

A total of 18 (12%), 18 (12%), 7 (5%), and 4 (3%) items were difficult to translate during the forward translations for the Arabic, Swedish, Dutch, and Hindi versions respectively. Among the Spanish varieties (study 3) only 10 (7%) items were difficult to translate into Chilean. Comparison of the back translation to the source language version of the CLEFT-Q identified that the meaning of 40 (26%), 17 (11%), 9 (6%), and 5 (3%) items in the Turkish, Arabic, Hindi, and Swedish translations respectively had changed and required re-translation, and none were changed for the Dutch translation in study 2. Similarly, in study 3, back translations identified 23 (15%), 21 (13%), 12 (8%), and 10 (6%) items in the Colombian, Catalan, Chilean, and Spanish (Spain) versions respectively whose meanings were changed.

Study 2 cognitive debriefing interview participants were mostly below 20 years of age (n= 36, 88%) with CL/P (n=30, 73%). Participants in study 3 were primarily male (n=14, 67%) diagnosed with CL/P (n=17, 81%). Overall, participants in the cognitive debriefing interviews described the CLEFT-Q as understandable and easy to complete.

**Conclusion:** This thesis presents evidence of the CLEFT-Q’s content validity and transferability. After the completion of study 1, no changes were required to the original CLEFT-Q conceptual framework; however, cognitive interviews and expert review allowed us to identify items that required re-wording, re-conceptualizing, to removal, or addition. Finally, the process of translating and culturally adapting the CLEFT-Q in studies 2 and 3 was useful for finalizing the CLEFT-Q scales, and provided evidence of its transferability to other contexts.

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**LIST OF ABBREVIATIONS**

BT Back translator

cHAQ Child Health Assessment Questionnaire

CIHR Canadian Institutes of Health Research

CLA Cleft lip and alveolus

CL Cleft lip

CL/P Cleft lip and/or palate

CP Cleft palate

COA Clinical outcome assessment

ClinRO Clinician-reported outcome

COHIP Child Oral Health Impact Profile

F-K Flesch-Kincaid

FT Forward translator

HRQOL Health-related quality of life

ICHOM International Consortium for Health Outcomes Measurement

ISPOR International Society for Pharmacoeconomics and Outcomes Research

ObsRO Observer-reported outcome

ORH Operation Restore Hope

PRO Patient-reported outcome

QOL Quality of life

QUAN Quantitative

QUAL Qualitative

REDCap Research Electronic Data Capture

SES Socioeconomic status

TCA Translation and cultural adaptation

USA United States of America

WHO World Health Organization

YQOL-FD Youth Quality of Life – Facial Differences

**DECLARATION OF ACADEMIC ACHIEVEMENT**

I, Elena Tsangaris, was the main contributor and primary author for all studies. The details of my and other authors’ contributions are provided at the start of each chapter.