

Translation of English Version of Oral Health Impact Profile-14 into Gujarati

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Abstract

Introduction: Any quality of life (QoL) assessment tool needs to be validated in the language of the participants to whom it is administered. Several language versions of oral health impact profile-14 (OHIP-14) already exist, for example, in German, Swedish, Hebrew, Chinese, Hindi, and Scottish. The present study has tried to establish a Gujarati version of OHIP-14. This Gujarati version of OHIP-14 would be useful to assess the impact of oral health on QoL of dental patients, who understand Gujarati. **Aim:** This study aimed to translate and validate the Gujarati version of OHIP-14. **Materials and Methods:** The original English version of the OHIP-14 was translated using the World Health Organization method (forward-backward translation technique), and then 109 participants were given English as well as Gujarati versions of OHIP-14 questionnaire. Filled questionnaires were collected from the participants and subjected to statistical analysis. **Results:** All the 14 questions showed no statistically significant difference between the English version of OHIP-14 and the translated Gujarati version of OHIP-14. Results of unpaired *t*-test ($P = 0.103$) were not statistically significant. Pearson's correlation coefficient test was 0.990, suggesting that the translated Gujarati version is highly correlated with the original English version. **Conclusions:** The translated Gujarati version of OHIP-14 is a precise, valid, and reliable instrument for assessing oral health-related QoL among Gujarati population.

Keywords: Oral health impact profile-14, quality of life, reliability, translation, validation

INTRODUCTION

Quality of life (QoL) is a wide concept to be investigated from various perspectives. Diseases and a healthy life are closely related with each other by the concept "QoL."^[1] The QoL related to oral health can be explained as the sense of a person, which arises from the satisfaction or dissatisfaction of his or her interest areas of life.^[2]

The prevalence of oral disease such as malocclusion is very high, which has a direct impact on social, physical, psychological as well as economical aspects. Such diseases affect several aspects of life such as appearance, oral functioning, and interpersonal relationships, which has a negative influence on the QoL among the people.^[3] People suffering from malocclusion may have self-consciousness and a painful feeling for their oral health. They would not like to interact socially because of the negative effect of their facial look and feel.^[4]

The oral health impact profile tool abbreviated as OHIP is very popularly used in many countries for conducting

in-depth study about the oral health-related QoL (OHRQoL). OHIP-49 tool possessing 49 questions was used to study about the dysfunction and painful conditions of the oral health.^[3] OHIP-49 tool is lengthy and may execute limitations to be used in some locations. These limitations include wide completion time, increased cost of administration and management of data, and lesser answer rates, when compared to shorter OHIP version. All these limitations can lead to a considerable data loss. For the optimization of OHIP-49 application, Slade^[5] had established a shorter version of this tool with 14 questions (OHIP-14), which has been validated in several languages.

The OHIP-14 was originally developed in English for English-speaking population.^[6] As the OHIP-14 was developed

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in English, it became difficult to administer this questionnaire in non-English-speaking nations and in places where the local dialect was different from English.^[7] Therefore, many translated versions of OHIP-14 were developed.

OHIP-14 has many versions in different languages such as Romanian,^[8] Latvian and Russian,^[9] Greek,^[10] Spanish,^[11] Polish,^[12] and Maltese.^[13] All these translated versions possess a validated and accurate instrument to check OHRQoL among the people of their respective population. Out of these different versions, OHIP-14 Hindi version possess the surveys related to oral health and QoL in Hindi among the population of India.^[14] In Gujarat, till now, few studies have been done for the evaluation of oral health effect on QoL. All of them have used English version of OHIP-14 as Gujarati version (local language version) of OHIP-14 was not available. Hence, the development of Gujarati version of OHIP-14 will help to carry out OHRQoL studies in people who know only Gujarati.

After searching through various databases and search engines such as Google Scholar, EBSCOhost, and PubMed, until March 13, 2016, there was no study which has translated and validated the English version of OHIP-14 into Gujarati language. Therefore, the present study was conducted to validate a Gujarati translation of the OHIP-14 scale for accurate results.

MATERIALS AND METHODS

The study was conducted after obtaining approval from the Sumandeep Vidyapeeth Institutional Ethics Committee. The sample size for the study was calculated on the basis of a previous study^[14] done by Deshpande NC and Nawathe AA. A minimum of 109 respondents were required for the proposed study to get 0.8 reliability to compare with 0.9 population reliability at 1% risk and 90% power. The participants were selected from the OPD of K.M.Shah Dental college and Hospital of the institute.

Inclusion criteria of the study were respondents aged 18 years or more and who know to read and understand Gujarati and English. Individuals who were not willing to take part in the study were excluded from the study.

For translation and validation procedure, first, the English OHIP-14 questionnaire was translated into Gujarati.

Translation procedure

The World Health Organization method^[15] of translation was used to translate English OHIP-14 questionnaire into Gujarati which involves the following steps:

- A bilingual translator translated the OHIP-14 questionnaire from English into Gujarati (forward translation)
- A bilingual expert panel has been assembled by the principal investigator. The panel includes the original translator, experts in health, as well as experts with skill in instrument development and translation. The forward-translated questionnaire has been discussed by

the panel, and suggested recommendations have been incorporated in the questionnaire

- Generated questionnaire after the panel discussion has been again translated into English by a bilingual independent translator. English version of the questionnaire was validated with expert's opinion. Hence, content validity was done with subject expert's opinion (back translation).

Validation procedure

One hundred and nine participants were selected from the institutional OPD according to the inclusion criteria. A signed informed consent form was obtained, and participant information sheet was given to the participants after informing them about the nature of the study and its importance. The participants received English and Gujarati questionnaires of OHIP-14. The filled questionnaires were collected, analyzed, and then the score was obtained. The obtained data were subjected to statistical analysis.

Reliability

To check reliability, validated Gujarati OHIP-14 questionnaire was administered to twenty respondents and their responses were collected for two times. At the first time, questionnaire was given as it was, and during the second time, questions were reshuffled and again this questionnaire was distributed to the same respondents.

Statistical analysis

Each question of the questionnaire was analyzed using Pearson's Chi-square test, likelihood ratio test, and linear-by-linear association test. The entire questionnaire in English and Gujarati was comparatively analyzed using unpaired *t*-test and Pearson's correlation coefficient. To check the reliability of Gujarati OHIP-14 questionnaire, Cronbach's alpha was used. Significance level was at $P < 0.001$.

RESULTS

All the participants of the sample were between 18 and 25 years [Table 1]. All the participants were included from institutional OPD.

In the present study, male and female participants were 79 (72%) and 30 (28%) respectively [Graph 1].

Validation

Result of unpaired *t*-test was not statistically significant ($P = 0.103$) [Table 2].

Pearson's correlation coefficient between English questionnaire and Gujarati questionnaire was 0.990 which showed no difference between English and Gujarati versions of OHIP-

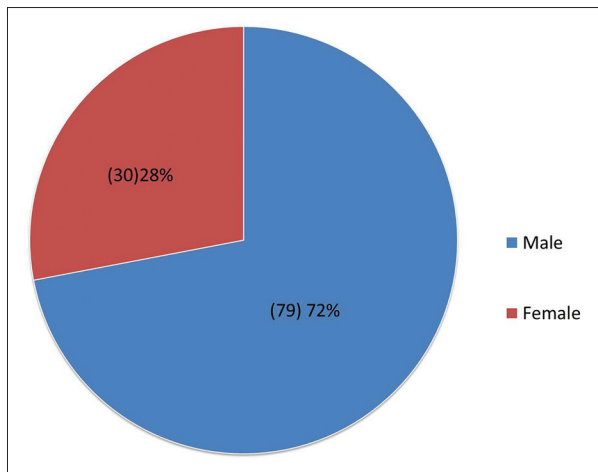
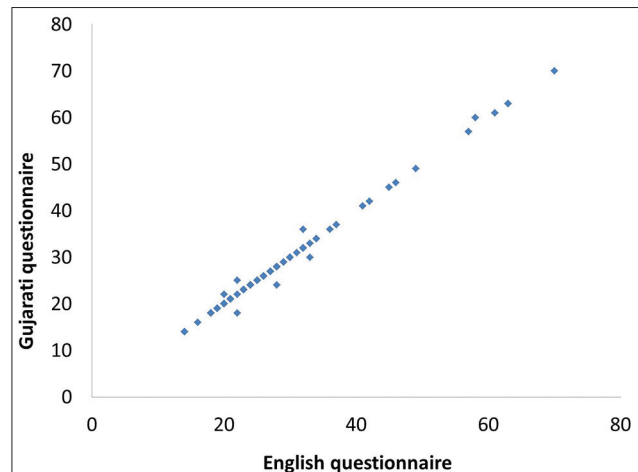
Table 1: Age of the sample

	<i>n</i>	Minimum	Maximum	Mean	SD
Age	107	18.00	25.00	22.8505	1.18005

SD: Standard deviation

Table 2: Comparative result of responses of English and Gujarati questionnaires

Group	<i>n</i>	Mean	Standard deviation	Standard error mean	<i>T</i>	<i>Df</i>	<i>P</i>
English	109	28.1028	10.56600	1.02145	1.646	106	0.103
Gujarati	109	28.0654	10.57968	1.02278			

**Graph 1:** Gender of the sample**Graph 2:** The correlation of English and Gujarati questionnaires

14 questionnaire [Table 3]. Moreover, Graph 2 showed high correlation between English version and Gujarati version of OHIP-14.

Reliability

Reliability was measured using Cronbach's alpha. Cronbach's alpha was obtained for validated Gujarati version of OHIP-14 which was found to be 0.989.

Discussion

Any QoL evaluation tool needs to be validated in the language of the participants for whom it is being used. The OHIP-14 tool was developed in English which can be used in English-speaking population. Thus, when it is to be used for the non-English-speaking country, it has to be validated and translated into their own language for correct results.

To evaluate OHRQoL of Gujarati people, preferably an instrument, which is culturally sensitive, has to be established. However, the development of a new instrument is costly and a time-consuming procedure. Another method would be the translation of the existing instrument OHIP-14 into Gujarati for use among Gujarati people. This Gujarati version of OHIP-14 would be useful to evaluate the effect of oral health on QoL of respondents who speak and understand only Gujarati language. Thus, the present study aimed to validate the Gujarati translation of OHIP-14 to make it a reliable tool/instrument, which bears a close resemblance to the actual version.

If any instrument's reliability is very high, that instrument is considered an effective instrument. The best way to measure the reliability of an instrument is Cronbach's alpha. According to Nunnally and Burstien,^[16] the standard criteria for reliability should have a least value of Cronbach's alpha as 0.7. In the

present study, Cronbach's alpha value is 0.98. This indicates a good uniformity of all questions of Gujarati OHIP-14 questionnaire.

To check validity of the individual question of OHIP-14 in Gujarati, Pearson's Chi-square test, likelihood ratio test, and linear-by-linear association test were used. The results of the tests found no statistically significant difference between the English and Gujarati questions. This indicates the validity of individual question of Gujarati version of OHIP-14.

Results of comparison of OHIP-14 were evaluated using unpaired *t*-test which was not statistically significant. ($P = 0.103$). Pearson's correlation coefficient between the original English and translated Gujarati versions of OHIP-14 was high (0.990), indicating a high correlation between English and Gujarati versions of OHIP-14 questionnaires. For validation of any newer translated version, a minimum of 80% of correlation is required among the original version and translated version. In the present study, the correlation between the English and Gujarati versions of OHIP-14 was 99%, which indicates a high correlation between English and Gujarati versions.

No consensus exists about which criteria should be used to evaluate the reliability, validity, and responsiveness. However, the unpaired *t*-test and correlation coefficient used in the present study sufficiently show the validity, and Cronbach's alpha shows the reliability of Gujarati version of OHIP-14.

The present study found that physical disabilities, functional limitations, and physiological discomfort have highest correlation with oral health and its impact on QoL. This shows similarity with the results of a previous study.^[17-19]

Table 3: Pearson's correlation coefficient of English and Gujarati questionnaires

	Statistical test	Total_English	Total_Gujarati
Total English	Pearson correlation	1	0.990
	P		P<0.001
	n	109	109

The strength of the present study is 100% response rate, which made sure that all the participants understood the questions.

Limitation

In the present study male and female participants were 79 (72%) and 30(28%) respectively. Thus, the proportion not represents the actual ratio between the males and females. For proper representation/depiction of gender, more robust sampling technique is advocated.

CONCLUSIONS

The findings of the present study indicate that the Gujarati version of OHIP-14 is a reliable and valid measure/tool to evaluate the effect of oral health on QoL of respondents who speak and understand only Gujarati.

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Conflicts of interest

There are no conflicts of interest.

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