

## Translation and Validation of Marathi Version of Oral Health Impact Profile-14, a Measure of Oral Health-Related Quality of Life

Pradyumna Doibale<sup>1</sup>, Suryakant Deogade<sup>2</sup>, Arun Khalikar<sup>3</sup>, Sattyam Wankhede<sup>4</sup>, Archit Kapadia<sup>5</sup>, Vinay Dutta<sup>6</sup>

<sup>1</sup>Post Graduate Student, Department of Prosthodontics, Government Dental College & Hospital, Nagpur, Maharashtra; <sup>2</sup>Associate Professor, Department of Prosthodontics, Government Dental College & Hospital, Nagpur, Maharashtra; <sup>3</sup>Professor & Head, Department of Prosthodontics, Government Dental College & Hospital, Nagpur, Maharashtra; <sup>4</sup>Associate Professor, Department of Prosthodontics, Government Dental College & Hospital, Nagpur, Maharashtra; <sup>5</sup>Post Graduate Student, Department of Prosthodontics, Government Dental College & Hospital, Nagpur, Maharashtra; <sup>6</sup>Post Graduate Student, Department of Prosthodontics, Government Dental College & Hospital, Nagpur, Maharashtra.

<a href="#">Abstract</a>	<a href="#">Introduction</a>	<a href="#">Methodology</a>	<a href="#">Results</a>	<a href="#">Conclusion</a>	<a href="#">References</a>	<a href="#">Citation</a>	<a href="#">Tables / Figures</a>
--------------------------	------------------------------	-----------------------------	-------------------------	----------------------------	----------------------------	--------------------------	----------------------------------

### Corresponding Author

Dr. Pradyumna Doibale, Post Graduate Student, Department of Prosthodontics, Government Dental College & Hospital, Medical Square, Nagpur, Maharashtra, India- 440003  
E Mail ID: [pdoibale@gmail.com](mailto:pdoibale@gmail.com)



### Citation

Doibale P, Deogade S, Khalikar A, Wankhede S, Kapadia A, Dutta V. Translation and Validation of Marathi Version of Oral Health Impact Profile-14, a Measure of Oral Health-Related Quality of Life. Indian J Comm Health. 2022;34(1):101-105. <https://doi.org/10.47203/IJCH.2022.v34i01.019>

Source of Funding: Nil Conflict of Interest: None declared

### Article Cycle

Received: 25/11/2021; Revision: 17/01/2022; Accepted: 15/02/2022; Published: 31/03/2022

This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/). ©The Author(s). 2022 Open Access

### Abstract

**Background:** A quality of life (QoL) assessment tool needs to be translated and validated in the language of the participants to whom it is administered. Therefore, the oral health impact profile-14 (OHIP-14) scale, developed originally in English, has been translated into different languages like Hindi, Gujrati, etc. The Marathi version of OHIP-14 will be useful to assess in regions where the Marathi language is prominently spoken. Thus, the present study was carried out to translate and validate the Marathi version of the OHIP-14 instrument to measure the oral health-related quality of life. **Aims & Objectives:** To translate and validate the English Version of the OHIP-14 instrument in the Marathi Language. **Materials and Methods:** This was a descriptive cross-sectional study in which 128 participants were selected through a convenient sampling method. The English version of the OHIP-14 was translated using the forward-backward translation technique, and participants were given English and the Marathi versions of the OHIP-14 questionnaire. The filled questionnaires were subjected to statistical analysis. **Result:** The difference in mean scores was not statistically significant ( $p=0.828$ ). Pearson's correlation coefficient test was 0.999, suggesting that the translated Marathi version is highly correlated with the original English version. **Conclusion:** The Marathi version of OHIP-14 is a valid, and reliable instrument for assessing QoL among the population who speak Marathi.

### Keywords

Marathi; Quality of Life; Oral health impact profile-14; questionnaire; reliability and validity.

### Introduction

Quality of life (QoL) is a concept that is closely linked to two important aspects of life, that is, disease and health. (1)

The QoL in relation to oral health focuses on the importance of oral health with the satisfaction or dissatisfaction of his or her interest areas of life. (2)

Socio-dental indicators measure the extent to which oral and dental conditions hamper social life. This has raised

the need to develop a regionally accepted index to assess an individual's health-related QoL. (3)

As the OHIP-14 was developed originally in English (4), it became difficult to administer this questionnaire in places where the local language was different from English. (5) Therefore, many translated versions of OHIP-14 were developed, such as Romanian (6), Hindi (7,8), Gujrati (9), German, (10) Swedish. All these translated versions contain a validated and accurate instrument to check the OHR QoL.

Till now, few studies have been conducted for the evaluation of oral health effects on QoL, and those conducted used the English version of OHIP-14 as the Marathi version (local language version) of OHIP-14 was not available.

Therefore, the present study was conducted to translate and validate a Marathi version of the OHIP-14 scale for accurate results.

### Aims & Objectives

1. To translate accurately the English Version of the Oral Health Impact Profile (OHIP-14) instrument in the Marathi Language.
2. To validate the English Version of the Oral Health Impact Profile (OHIP-14) instrument in the Marathi Language.

### Material & Methods

This was a descriptive cross-sectional study, which included 128 participants from the Vidarbha region of Central India. Participants were selected through a convenient sampling method. The study was conducted after obtaining approval from the Institutional Ethics Committee. The sample size for the study was calculated based rule of thumb suggesting four to ten participants per variable (11) and as per a previous study. (9)

A minimum of 128 participants was required for the proposed study to get 0.8 reliability compared with 0.9 population reliability at 1% risk and 90% power.

**Inclusion criteria:** Participants aged 20 years or more and who know to read and understand Marathi and English.

**Exclusion Criteria:** Individuals who were not willing to take part in the study.

**Translation procedure:** The World Health Organization method (12) of translation was used to translate the English OHIP-14 questionnaire into Marathi which involves the following steps:

- A bilingual translator translated the OHIP-14 questionnaire from English into the Marathi language. (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 who are skilled in instrument development and translation. The forward-translated questionnaire has been discussed by the panel and suggested recommendations have been incorporated into the questionnaire.
- The modified questionnaire after the panel discussion has been again translated into English by another bilingual independent translator.

The English version of the questionnaire was validated again with the expert's opinion. Hence, content validity was done with the subject expert's opinion (back-translation). (Figure 1)

**Validation procedure:** 128 participants were selected from the institutional OPD according to the inclusion

criteria. The participants were informed about the nature of the study and an assigned informed consent form was obtained along with a participant information sheet. The participants received both English as well as Marathi questionnaires for 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, a validated Marathi OHIP-14 questionnaire was administered to twenty respondents and their responses were collected two times. The first time, the 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:** For the age of the participant, descriptive statistics such as mean, standard deviation, and range were obtained, while for gender and educational levels of the individuals, frequencies and percentages were obtained. Further, the frequencies and percentages were obtained for each question in English and Marathi languages. The comparison of the mean total score of individuals in English and Marathi was done using Wilcoxon signed-rank test. Pearson's correlation coefficient was obtained to determine the relationship between total scores in two languages. The analysis was done in SPSS version 20.0 (IBM Corp) software and statistical significance was tested at a 5% level.

### Results

There were 128 individuals included in the study and the mean age of individuals was  $46.74 \pm 13.73$  years, minimum being 20 years and a maximum being 90 years [Table 1]. The number of males was 78 (60.9%), which was greater than the number of females, which was 50 (39.1%). With regards to education level, 78 (60.9%) individuals were graduate, followed by 33 (25.8%) with post-graduate, 11 (8.6%) with higher secondary level, and 6 (4.7%) with the secondary level.

The frequency distribution of responses to the different questions in English and the Marathi language was analyzed. All questions had 128 responses each, both in Marathi as well as in English. There was a total of 14 mismatched responses across all the questions.

**Validation:**

[Table 2] shows the average total score obtained across all the questions by individuals in English as well as Marathi. The mean total score for individuals in English was  $32.39 \pm 9.06$ , while that in Marathi was  $32.38 \pm 9.07$ . The difference between the total scores obtained in English and Marathi was statistically not significant ( $p=0.828$ ) using Wilcoxon signed-rank test.

Also, a scatter plot showing the correlation between the total scores in English and Marathi was obtained (Figure 2). There was a significantly strong positive correlation

between the two versions with a coefficient of 0.999 and with a p-value < 0.0001.

## Discussion

Any QoL evaluation tool needs to be validated in the language of the participants for whom it is being used. To evaluate the OHR QoL of Marathi people, preferably a culturally sensitive instrument, has to be established.

In this study, the proper translation was achieved by forward and backward translation which was verified to be a genuine and appropriate translation of the Marathi version of OHIP-14 by two experts in the field of public health dentistry well versed in both English and Marathi language.

In the present study, the data obtained from each individual were age, gender, and educational level of the patient along with the responses to each question. Also, the frequencies and percentages were obtained for the questions in both English and Marathi language.

The frequency distribution of responses to the different questions in English and Marathi revealed a total of 14 mis-matched responses across all the questions. There was one mismatch for questions related to pronunciation, while three mismatches for questions related to the pain or aching in the mouth. There was one mis-matched response related to discomfort during eating, while one mis-matched response for stress because of the denture. There were two mis-matched responses to questions related to interruption while eating because of the teeth problem. There was one mis-matched response related to relaxation due to a problem in teeth. Two responses were mis-matched while answering the question related to embarrassment due to teeth problems or dentures, while one individual showed a mismatch for questions related to difficulty in doing the routine jobs. There were two mis-matched responses to questions related to satisfaction level about the teeth or denture, while one mis-matched on the complete functionality aspect.

As per gender, most of the mismatched responses were from males and there was only one mis-matched response amongst females. [Table 3]

As per educational level, no mismatches were seen in responses from 10th & 12th passed individuals but were seen in responses from graduates & post-graduates. Graduates had more mismatched responses (12) than post-graduates (3). [Table 4]

The mean total score for individuals in English was  $32.39 \pm 9.06$ , while that in Marathi was  $32.38 \pm 9.07$ . Using the Wilcoxon signed-rank test, the difference between the total scores obtained in English and Marathi was found to be statistically not significant ( $p=0.828$ ).

For the validation of any newer translated version, a minimum of 80% correlation is required between the original version and translated version. (7,8,9) In the present study, Pearson's correlation coefficient between the original English and translated Marathi versions of

OHIP-14 was high (0.999). Hence, the correlation between the English and Marathi versions of OHIP-14 was calculated to be 99%, which indicates a high correlation between the English and Marathi versions.

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

## Conclusion

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

## Recommendation

An instrument such as OHIP-14 forms an essential tool when the Quality of Life is assessed. Owing to the variation in the language in different regions, a translated and validated OHIP tool in a local language can provide a more accurate indicator of the quality of life of a patient or a participant who can understand the local language better.

## Limitation of the study

In the present study male and female participants were 78 (72%) and 50 (28%) respectively. Thus, the proportion does not represent the actual ratio between males and females. For proper representation/depiction of gender, a more robust sampling technique is advocated.

## Relevance of the study

There are currently no translated and validated versions of OHIP-14 in the Marathi language. This study contains a validated questionnaire that can help to obtain more accurate responses from patients who speak and understand only Marathi.

## Authors Contribution

The study's concept and design were developed by PD. AK and VD collaborated on the collection of data and its subsequent analysis. SD and SW together have assisted in the preparation, editing, and reviewing of the manuscript. AK has helped in overall supervision and has reviewed & approved the final manuscript. All the authors participated in the revising and finalizing of the draft.

## References

1. Hodacová L, Smejkalová J, Cermáková E, Slezák R, Jacob V, Hlaváčková E. Oral health-related quality of life in Czech population. *Cent Eur J Public Health* 2010;18(2): 76-80.
2. Sanders AE, Slade GD, Lim S, Reisine ST. Impact of oral disease on quality of life in the US and Australian populations. *Community Dent Oral Epidemiol* 2009;37(2): 171-81.
3. Atchison KA, Dolan TA. Development of the geriatric oral health assessment index. *J Dent Educ* 1990;54(11):680-7.
4. Batra M, Aggarwal VP, Shah AF, Gupta M. Validation of Hindi version of oral health impact profile-14 for adults. *J Indian Assoc Public Health Dent* 2015;13(4): 469.
5. Vikram M, Singh VP. Translation and validation of the Nepalese version of oral health impact profile (OHIP-14) questionnaire. *Oral Biol Dent* 2014;2: 3.
6. Slusanschi O, Moraru R, Garneata L, Mircescu G, Cuculescu M, Preoteasa E. Validation of a Romanian version of the short form of

the oral health impact profile(OHIP-14)for use in an urban adult population.Oral Health Prev Dent 2013;11(3): 235-42.

7. Deshpande NC, Nawathe AA. Translation and validation of Hindi version of oral health impact profile-14.J Indian Soc Periodontol 2015;19(2): 208-10.
8. Verma S, Sharma H.Translation and validation of Hindi version of oral health impact profile-14, a measure of oral health-related quality of life of geriatrics.Indian J Dent Res. 2019;30(2):180-4.
9. Goje SK, Patel J, Kalyan P, Kulkarni N, Shah R, Modi B. Translation of English version of oral health impact profile-14 into Gujarati. J Int Oral Health 2017;9(1): 16-9.
10. John MT, Patrick DL, Slade GD.The German version of the Oral Health Impact Profile--translation and psychometric properties.Eur J Oral Sci. 2002;110(6):425-33.
11. Terwee CB, Bot SDM, de Boer MR, van der Windt DA, Knol DL, Dekker J, et al. Quality criteria were proposed for measurement properties of health status questionnaires. J Clin Epidemiol. 2007;60(1): 34-42.
12. World Health Organization.Process of translation and adaptation of instruments. 2007.

**Tables**

**TABLE 1 DESCRIPTIVE STATISTICS FOR DEMOGRAPHIC PARAMETERS OF INDIVIDUALS**

Parameter	N (%)
Total responses	128 (100)
<b>Age in years</b>	
Mean ± SD	46.74
Minimum age	20
Maximum age	90
<b>Sex</b>	
Male	78 (60.9)
Female	50 (39.1)
<b>Education</b>	
10th pass	6 (4.7)
12th pass	11 (8.6)
Graduate	78 (60.9)
Post-graduate	33 (25.8)

**TABLE 2 DESCRIPTIVE STATISTICS FOR TOTAL SCORES OBTAINED IN ENGLISH AND MARATHI**

Total score					
English			Marathi		
Mean	SD	Median	Mean	SD	Median
<b>32.39</b>	9.06	34	32.38	9.07	34

**TABLE 3 MISMATCH OF RESPONSES TO EACH QUESTION ACCORDING TO GENDER**

Questions		Male	Female
<b>Q1</b>	Match	77 (98.7)	50 (100)
	Mismatch	1 (1.3)	0
<b>Q2</b>	Match	78 (100)	50 (100)
<b>Q3</b>	Match	75 (96.2)	50 (100)
	Mismatch	3 (3.8)	0
<b>Q4</b>	Match	77 (98.7)	50 (100)
	Mismatch	1 (1.3)	0
<b>Q5</b>	Match	78 (100)	50 (100)
	Mismatch	0	0
<b>Q6</b>	Match	78 (100)	49 (98)
	Mismatch	0	1 (2)
<b>Q7</b>	Match	78 (100)	50 (100)
<b>Q8</b>	Match	76 (97.4)	50 (100)
	Mismatch	2 (2.6)	0
<b>Q9</b>	Match	77 (98.7)	50 (100)
	Mismatch	1 (1.3)	0
<b>Q10</b>	Match	76 (97.4)	50 (100)
	Mismatch	2 (2.6)	0
<b>Q11</b>	Match	78 (100)	50 (100)

Questions		Male	Female
Q12	Match	77 (98.7)	50 (100)
	Mismatch	1 (1.3)	0
Q13	Match	76 (97.4)	50 (100)
	Mismatch	2 (2.6)	0
Q14	Match	77 (98.7)	50 (100)
	Mismatch	1 (1.3)	0

TABLE 4 RESPONSES TO QUESTIONS ACCORDING TO EDUCATIONAL LEVEL

Questions		Education [No. (%)]			
		10th passed	12th passed	Graduation	Post-graduation
Q1	Match	6 (100)	11(100)	77 (98.7)	33 (100)
	Mismatch	0	0	1 (1.3)	0
Q2	Match	6 (100)	11 (100)	78 (100)	33(100)
Q3	Match	6 (100)	11 (100)	75 (96.2)	33 (100)
	Mismatch	0	0	3 (3.8)	0
Q4	Match	6 (100)	11 (100)	77 (98.7)	33 (100)
	Mismatch	0	0	1 (1.3)	0
Q5	Match	6 (100)	11 (100)	78 (100)	33 (100)
Q6	Match	6 (100)	11 (100)	77 (98.7)	33 (100)
	Mismatch	0	0	1 (1.3)	0
Q7	Match	6 (100)	11 (100)	78 (100)	33 (100)
Q8	Match	6 (100)	11 (100)	77 (98.7)	32 (97)
	Mismatch	0	0	1 (1.3)	1 (3)
Q9	Match	6 (100)	11 (100)	77 (98.7)	33 (100)
	Mismatch	0	0	1 (1.3)	0
Q10	Match	6 (100)	11 (100)	76 (97.4)	33 (100)
	Mismatch	0	0	2 (2.6)	0
Q11	Match	6 (100)	11 (100)	78 (100)	33 (100)
Q12	Match	6 (100)	11 (100)	78 (100)	32 (97)
	Mismatch	0	0	0	1 (3)
Q13	Match	6 (100)	11 (100)	77 (98.7)	32 (97)
	Mismatch	0	0	1 (1.3)	1 (3)
Q14	Match	6 (100)	11 (100)	77 (98.7)	33 (100)
	Mismatch	0	0	1 (1.3)	0

Figures

FIGURE 1 TRANSLATED THE MARATHI VERSION OF THE OHIP-14 INSTRUMENT

तांठी प्रकृती प्रभाव प्रॉफॉरल

क्र.	विवरण	1	2	3	4	5
1	तुमच्या दात, तोंड किंवा कानांनी पुढे काढू शकण्यात तुम्हाला अडथळ येते का?					
2	तुमच्या दात, तोंड किंवा कानांनी च्या समस्येमुळे तुम्ही घर अंतर्भूतवाची क्षमता कमी झाली आहे वाटते का?					
3	तुम्हाला कधी सोडत तोंड दुखणे जाणवते आहे का?					
4	दात, तोंड किंवा कानांनी च्या समस्येमुळे तुम्हाला 'जेवण करण्यास काही अडथळ झाली का?					
5	तुम्ही तुमच्या दात, तोंड किंवा कानांनी पुढे आम जागरूक/ भिडला (पुढे पुढे न करताना) होत का?					
6	तुमच्या दात, तोंड किंवा कानांनीच्या समस्यांमुळे तुम्हाला राग जाणवते का ?					
7	तुमच्या दात, तोंड किंवा कानांनी च्या समस्यांमुळे आपण अक्षर अभ्यासानकारक आहे का?					
8	दात, तोंड किंवा कानांनी च्या समस्येमुळे तुम्हाला जेवण्यात व्यत्यय आला आहे का?					
9	तुमच्या दात, तोंड किंवा कानांनी च्या समस्यांमुळे आपल्याला आराम करणे कठीण झाले आहे का?					
10	तुमच्या दात, तोंड किंवा कानांनी च्या समस्येमुळे तुम्हाला काही प्रमाणात वाज वाटते का ?					
11	आपल्या दात तोंड किंवा कानांनी च्या समस्यांमुळे हार लोकांवर तुम्ही घेते प्रमाणात विकसितच करीत का?					
12	दात किंवा कानांनी च्या समस्येमुळे तुम्हाला तुमचे दैनंदिन / वैयक्तिक काम करण्यात अडथळ येते का?					
13	दात, तोंड किंवा कानांनी च्या समस्येमुळे तुमचे सामान्य जीवन कमी सामाधानकारक झाले आहे वाटत आहे का?					
14	दात तोंड किंवा कानांनीच्या समस्यांमुळे पूर्ण रत्याने कार्य करताना तुम्हाला अवघडपण जाणवते का?					

अनुक्रमणिका: 1- कधीही नाही, 2- क्वचितच, 3- कधीकधी, 4- अनेकदा, 5- नेहमी

FIGURE 2 SCATTER PLOT SHOWING THE RELATIONSHIP OF TOTAL SCORES IN ENGLISH AND MARATHI

