

Testing of Lithuanian version of the Oral Health Impact Profile-14 among older adults. A Pilot study

Mantė Kireilytė*, Viltė Masiliūnaitė*, Vilma Belickienė*, Juozas Žilinskas*, Žana Sakalauskienė*

SUMMARY

Objectives. To test reliability of the Oral Health Impact Profile-14 (OHIP-14) questionnaire translated into Lithuanian, and to evaluate impacts of dental health status as well as factors related to it on daily wellbeing among older adults attending Lithuanian University of Health Sciences (LUHS) dental clinic.

Material and methods. The permission to conduct the present study was granted by Center of Bioethics at LUHS. OHIP-14 was translated into Lithuanian and applied on adults aged 50 and more years (n=52) who received dental treatment at university clinic in March 2015. Data about dental health status of the subjects was collected from patients' records. Gender, marital status, education and income served as background information.

The data were analysed by ANOVA and Chi-square test, taking the cut-off level for statistical significance at 0.05. Reliability analysis was performed by Cronbach's alpha.

Results. The standardized Cronbach's alpha value of the Lithuanian version of the OHIP-14 was 0.924, considered as excellent. The mean total score of the OHIP-14 was 18.17 with the most commonly reported subscale of Psychological Discomfort. Just 8% of all respondents did not experience any impact from the dental health status on their daily wellbeing. There were significant differences in OHIP-14 items scores by gender, with women having higher scores for feeling tensed, self-conscious and having the unsatisfactory diet.

Conclusion. The present findings indicate that the Lithuanian version of the OHIP-14 is reliable measure to be used in further studies. The majority of the study participants reported experiencing impacts from the dental health status on their daily wellbeing, with the psychological discomfort being the most common. Female gender was associated with reporting significantly higher impacts.

Key words: oral health impact profile, reliability, questionnaire survey, older adults.

INTRODUCTION

The link between quality of life and health has been recognized for many years. In 1946 WHO defined health as "a state of complete physical, mental and social daily wellbeing and not merely the absence of disease". Pain and discomfort from oral diseases can be more intrusive and preoccupying than pain elsewhere in the body because the oral cavity is central to many everyday functions (1). Teeth have a symbolic value in the emotional life of a human being. The mouth is the main organ of ability to

express psycho-emotional experience (2). Older adults are often vulnerable, and may require help in maintaining their independence and preserving their confidence in oral health functioning, including daily life activities such as eating, talking and smiling. The combination of being edentate and having poor oral health functioning could result in increased social isolation and loneliness in later life (3).

Oral Health-Related Quality of Life (OHRQoL) measures have been widely used in the evaluation of oral health needs and ability to perform their daily activities (4). The Oral Health Impact Profile-49 (OHIP-49) is a questionnaire with established validity and reliability and has been used in a wide range of OHRQoL studies. The short version of the instrument consists of 14 items (OHIP-14), which is derived from the original 49-item version developed

*Department of Dental and Maxillofacial Orthopedics, Lithuanian University of Health Sciences, Kaunas, Lithuania

Address correspondence to Mantė Kireilytė, Dental and Maxillofacial Orthopedics, Lithuanian University of Health Sciences, Algirdo 20, Marijampole, Lithuania.
E-mail: kireilyte.mante@gmail.com

by Slade and Spenser (5). It is a scaled index of the social impact of oral disorders which draws on a theoretical hierarchy of oral health outcomes (5). The OHIP-14, in spite of being a short-questionnaire, has been shown to be reliable, sensitive to changes and to have adequate cross-cultural consistency (6). OHIP-14 questionnaire has been translated and validated in many languages and countries. Translation and validation of OHIP-14 questionnaire would help to measure impacts of dental health status on daily wellbeing among Lithuanian adults.

The aim of this study was to test reliability of OHIP-14 questionnaire translated into Lithuanian and evaluate impacts of dental health status on daily living as well as factors related to it among adults aged 50 and more years attending the LUHS dental clinic.

MATERIAL AND METHODS

Study Design

The Centre for Bioethics at LUHS granted the permission to conduct this research (No. BEC-OF-538; 26.02.2015).

Study Population

The interview survey was conducted among adults who were visiting the Department of Dental and Maxillofacial Orthopedics (LUHS, Kaunas) for dental check-up or treatment in March 2015. The exclusion criteria comprised patients with communication or cooperation difficulties and younger than 50 years of age (7). Subjects were acquainted with the purpose of the research and the informed consent was obtained (4, 6-7). The Lithuanian version of OHIP-14 was applied for 52 patients aged above 50 years to check its reliability as well as to evaluate the impact of oral health status on daily living of study subjects and factors related to it. A self-administrated questionnaire was filled out during face-to-face interviews conducted by one researcher in the waiting room (4).

Additional information about the removable or fixed dentures as well as number of remaining teeth was collected from patients' records. Gender, marital status, education and income served as background information.

OHIP-14

Translations of the original English version of the OHIP-14 questionnaire were

independently made by two bilingual dentists, who were fluent in English and Lithuanian. Following comparison of these two forward translations, to ensure the best interpretation of the original version, the preliminary Lithuanian version of the OHIP-14 was discussed by a professional English speaker, who had background knowledge of dentistry. A preliminary Lithuanian OHIP-14 was then produced and pilot-

Table 1. Background information about adults aged 50 years and above who received dental treatment at the Department of Dental and Maxillofacial Orthopedics (LUHS, Kaunas) in March 2015 (n=52), by wearing dentures

n (%)	Wearing dentures*	
	Yes (n=27)	No (n=25)
Age (mean) ± SD	72±9.7	67±9.8
Gender		
Female	17 (32.7%)	19 (36.5%)
Male	10 (19.2%)	6 (11.5%)
Income category		
Below average	7 (13.5%)	7 (13.5%)
Average	18 (34.6%)	16 (30.8%)
High	2 (3.8%)	2 (3.8%)
Education		
University	6 (11.5%)	7 (13.5%)
Less than university	21 (40.4%)	18 (34.6%)
Marital status		
Married/ cohabiting	9 (17.3%)	10 (19.2%)
Single/ divorced/ widowed	18 (34.6%)	15 (28.8%)

SD – standard deviation

* – all correlations are not significant at the 0.05 level

Table 2. Internal consistency reliability analysis based on the corrected item-total correlations and Cronbach's alpha coefficient if item deleted of OHIP-14 (Lithuanian version) as reported by adults aged 50 years and above who received dental treatment at the Department of Dental and Maxillofacial Orthopedics (LUHS, Kaunas) in March 2015 (n=52).

OHIP-14 item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Had trouble pronouncing words	0.522	0.924
Felt that sense of taste had worsened	0.460	0.926
Had painful aching in mouth	0.302	0.929
Was uncomfortable eating foods	0.661	0.919
Has been feeling self-conscious	0.701	0.918
Has felt tense	0.804	0.914
Diet has been unsatisfactory	0.750	0.916
Has had to interrupt meals	0.709	0.917
Finds it difficult to relax	0.785	0.915
Has been a bit embarrassed	0.805	0.914
Has been irritable with other people	0.880	0.912
Has had difficulty doing usual jobs	0.582	0.922
Has found life less satisfying	0.709	0.917
Has been totally unable to function	0.506	0.924

tested on a convenience sample of 20 people in order its reliability to be tested. The final Lithuanian version of the OHIP-14 was developed after minor modifications according to the results in a small sample.

In current study questions were assessed on a five-point Likert scale, as follows: ‘never’, ‘hardly ever’, ‘occasionally’, ‘fairly often’ and ‘very often’, for analysis scored from 0 to 4 respectively. Oral health status impacts were analyzed on the following subscales: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, handicap. Each item asks about the presence of functional or psychosocial impact associated with problems involving teeth, mouth and dentures.

Statistical Analysis

Statistical analysis was performed using statistical software “IBM SPSS Statistics 23” taking the cut-off level for statistical significance at 0.05.

Lithuanian version of OHIP-14 reliability was assessed using Cronbach’s alpha coefficient. In addition, the impact on the alpha value by the removal of OHIP-14 items (alpha if item deleted) was evaluated, as well as item-total correlations (4, 6, 9). Item-

total correlations of >0.2 and Cronbach’s alpha of >0.70 were considered acceptable for comparisons (7). Associations between OHIP-14 impacts and independent variables were tested using ANOVA and χ^2 tests (6, 8).

RESULTS

Respondents’ Characteristics

In total, 52 individuals who ranged in age from 50 to 90 years (mean age 68.7 ± 9.7 years; no significant differences between groups by gender) were included in the analyses: 36 (69%) were women, 19 (37%) married/cohabiting, 13 (25%) had university degree, 14 (27%) reported household income below average, 34 (65%) – average income, and 4 (8%) – above it. Almost all (92%) were dentate, 40% had up to 10 teeth in both jaws, 14% had edentulous upper, and 10% edentulous lower jaw, 52% of all had removable, and 39% – fixed partial dentures with no significant differences by background characteristics (Table 1).

Reliability

The standardized Cronbach’s alpha value of the Lithuanian OHIP-14 was 0.924, considered as ex-

Table 3. Prevalence of reporting OHIP-14 items fairly often or often and mean score of OHIP-14 items among adults aged 50 years and above who received dental treatment at the Department of Dental and Maxillofacial Orthopedics (LUHS, Kaunas) in March 2015 (n=52), by gender

OHIP-14 subscale and item	Prevalence (%)	Mean item score (SE)			p-value*
		All	Female	Male	
Functional Limitation					
Had trouble pronouncing words (n=9)	17.3	0.94 (0.19)	1.14 (0.24)	0.50 (0.30)	0.128
Felt that sense of taste had worsened (n=10)	19.2	1.10 (0.19)	1.08 (0.25)	1.13 (0.31)	0.922
Physical Pain					
Had painful aching in mouth (n=7)	13.5	1.02 (0.17)	1.06 (0.19)	0.94 (0.32)	0.746
Was uncomfortable eating foods (n=27)	51.9	2.17 (0.20)	2.31 (0.27)	1.88 (0.36)	0.324
Psychological Discomfort					
Has been feeling self-conscious (n=22)	42.3	2.02 (0.22)	2.31 (0.27)	1.38 (0.33)	0.049
Has felt tense (n=21)	40.4	1.75 (0.22)	2.06 (0.25)	1.06 (0.35)	0.038
Physical Disability					
Diet has been unsatisfactory (n=19)	36.5	1.75 (0.21)	2.06 (0.25)	1.06 (0.37)	0.030
Has had to interrupt meals (n=13)	25.0	1.25 (0.20)	1.22 (0.24)	1.31 (0.38)	0.840
Psychological Disability					
Finds it difficult to relax (n=11)	21.2	1.31 (0.20)	1.39 (0.26)	1.13 (0.30)	0.546
Has been a bit embarrassed (n=8)	15.4	1.12 (0.19)	1.25 (0.24)	0.81 (0.29)	0.286
Social Disability					
Has been irritable with other people (n=9)	17.3	1.27 (0.18)	1.39 (0.22)	1.00 (0.32)	0.324
Has had difficulty doing usual jobs (n=4)	7.7	0.52 (0.14)	0.56 (0.18)	0.44 (0.20)	0.698
Handicap					
Has found life less satisfying (n=10)	19.2	1.37 (0.18)	1.50 (0.21)	1.06 (0.31)	0.255
Has been totally unable to function (n=3)	5.8	0.60 (0.14)	0.56 (0.16)	0.69 (0.27)	0.657

SE – standard error;

* – the strength of evidence in the data by gender.

cellent (Table 2). All items exceeded the minimum reliability standard of 0.70, which is recommended as the minimum value for including an item in a scale.

The item-total correlation analysis (correlation between an item and the rest of the scale) showed that all items coefficients were above 0.20, which is also recommended as the minimum value for including an item in a scale. The item-total correlation coefficients ranged from 0.302 (item – No. 3 ('painful aching in mouth')) to 0.880 (item – No. 11 ('irritable with other people')) (Table 2).

Prevalence of oral impacts

In this study, only 4 (8%) of all the respondents did not experience any impact from the dental health status on their daily wellbeing during the last 3 months. The mean total score of the OHIP-14 was 18.17 (SD=13.58, SE=1.88), with the most commonly reported subscales being those of Physical Pain (mean 1.60, SE=0.20) and Psychological Discomfort (mean 1.88, SE=0.22). Physical Disability subscale was also highly rated (mean 1.50, SE=0.21), followed by the Psychological Disability subscale (mean 1.21, SE=0.19). Finally, the least affected subscales were Functional Limitation, Handicap and Social Disability with mean values 1.02 (SE=0.19), 0.98 (SE=0.17) and 0.89 (SE=0.17) respectively.

The individual OHIP-14 items most commonly reported involved the Physical Pain and Psychological Discomfort subscales of the measure, with feeling self-conscious, tensed and uncomfortable while eating foods being reported by more than 40% of the sample (Table 3). More severe impacts such as difficulty doing usual jobs and total inability to function were reported by about 8% of the sample. In terms of mean item scores, discomfort while eating foods was the most frequently reported by half of the subjects (n=27 (52%).

Moreover, there were significant differences in OHIP-

14 items scores by gender, with women having higher scores for feeling tensed, self-conscious and having the unsatisfactory diet (Table 3). Between other items the difference by gender was not statistically significant.

More often impacts of dental health status were experienced by subjects with removable denture in one (upper or lower) jaw in those subscales: Psychological Discomfort (3.10 and 3.50 vs 1.71), Physical Disability (2.70 and 2.75 vs 1.44), and Psychological Disability (2.50 and 2.75 vs 1.10) (Table 4).

DISCUSSION

This survey was the first reliable study among Lithuanian older adults to document subjective oral health impacts on their daily wellbeing using a standardized measure, in this case, Lithuanian version of the OHIP-14. It is important that an adopted instrument should be culturally relevant and valid for the local population while demonstrating acceptable psychometric properties. Thus, it provides the theoretical evidence for further use by researchers in oral health related quality of life studies in Lithuanian adults.

Same study was also held in many other countries, such as Greece, Spain, Canada, Nepal (4, 6, 8, 10). All of the countries considered the OHIP-14 as a precise, valid and reliable instrument. The standardized Cronbach's alpha value of the Lithuanian OHIP-14 was 0.924, considered as excellent (greatly exceeding the minimum recommended value of 0.7). It is slightly better than those reported in Greece (0.90), Spain (0.89), Nepal (0.83) (4, 6, 10).

Table 4. Impacts of dental health status on functional daily wellbeing among adults aged 50 years and above who received dental treatment at the Department of Dental and Maxillofacial Orthopedics (LUHS, Kaunas) in March 2015 (n=52), by presence of removable denture

OHIP-14 subscale	Mean subscale score (SE)				
	Removable denture (n=28)				No removable denture (n=24)
	Upper jaw (n=5)	Lower jaw (n=2)	Upper and lower jaw (n=21)	Upper or/and lower jaw (n=28)	
Functional Limitation	1.80 (0.78)	0.25 (0.35)	0.86 (0.28)	0.98 (0.24)	1.06 (0.29)
Physical Pain	1.50 (0.71)	2.00 (1.00)	1.48 (0.33)	1.52 (0.21)	1.69 (0.28)
Psychological Discomfort	3.10(0.74)*	3.50 (0.41)*	1.64 (0.35)	2.04 (0.30)	1.71 (0.29)*
Physical Disability	2.70 (0.73)*	2.75 (0.35)*	1.17 (0.31)	1.55 (0.28)	1.44 (0.30)*
Psychological Disability	2.50 (0.77)*	2.75 (1.06)*	0.88 (0.23)	1.30 (0.25)	1.10 (0.28)*
Social Disability	1.50 (0.71)	2.25 (1.21)	0.62 (0.23)	0.89 (0.19)	0.90 (0.24)
Handicap	1.60 (0.71)	2.00 (1.00)	0.79 (0.23)	1.02 (0.19)	0.94 (0.23)

SE – standard error;

* – correlations are significant at the 0.05 level.

The mean total score of the OHIP-14 in Lithuania was 18.17 with the most commonly reported subscales being those of Physical Pain and Psychological Discomfort. While Greek score was 14.9 with the most affected subscales being those of Functional Limitation and Psychological Discomfort (4). These results can be caused by 4 times bigger sample size or more than 10 years lower individuals' mean age in Greek.

However, this study covers a limited age group of adults aged 50 years and above. Only 52 patients were selected to participate in this research, so further researches are needed to make conclusions about all Lithuanian's population.

To the best of the authors' knowledge and according to the literature search, no previous study exists in Lithuania validating the OHIP-14 instrument and this is the first of its kind. There was a dissertation published by dr. Zaliuniene in 2016, evaluating oral health and quality of life for patients with hemophilia. Authors examined patients' oral health, periodontium, necessity of orthodontic treatment, prevalence of caries and their quality of life. Authors used OHIP -14 and COHQoL questionnaires. It is difficult to compare study mentioned above with the present study because it included very specific group with wide age range both children and adults

(age range from 18 to 60 years), and only patients with hemophilia (11).

The findings of our study confirm that the OHIP-14 is a reliable instrument for the measurement of OHRQoL among adults in Lithuania. Further research is needed to evaluate impacts of oral health status on daily wellbeing and factor related to it among Lithuanian adults.

CONCLUSIONS

The present findings indicate that the Lithuanian version of the OHIP-14 is reliable measure to be used in further studies. The majority of the study participants reported experiencing impacts from the dental health status on their daily wellbeing, with the psychological discomfort being the most common. Female gender was associated with reporting significantly higher impacts.

Broader study involving representative sample is needed to make conclusions on population level about dental health status impact on daily living of individuals.

STATEMENT OF CONFLICTS OF INTEREST

The authors state no conflict of interest.

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