# **Relationship Between Quality of Life Related to Voice and Oral Health in Elderly People**

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This preliminary study investigated the influence of different oral prosthodontic interventions on quality of life related to voice and oral health in elderly people and the relation between these conditions. Forty-five elderly people who had completed prosthodontic rehabilitation treatments were divided into three groups according to dental conditions and answered two protocols: voice-related quality of life and oral health impact profile. Despite the small sample size, the elderly people in this study presented no differences between the groups and showed a relationship between oral and vocal health aspects. *Int J Prosthodont 2015;28:399–401. doi: 10.11607/ijp.4051* 

t is important to consider the role of dental conditions and their treatment interventions on oral and vocal aspects of elderly people. This is because of the anatomical synergy of speech and orofacial involvement of common structures on voice and speech production and on the performance of orofacial functions, as well as the effects of aging.<sup>1</sup> No studies were found that analyzed the impact of vocal conditions alongside oral conditions on the quality of life of elderly people. Knowing the effects of these factors on the quality of life of elderly people will contribute to a wider comprehension of the problem and more effective interventions.

This study investigated the influence of different oral prosthetic strategies on quality of life related to voice and oral health in elderly people and the relation between these conditions.

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## Materials and Methods

This study was approved by the Ethics Committee of the Bauru School of Dentistry, University of São Paulo (no. 138/2008), and all subjects signed an informed consent form.

Forty-five elderly people (26 women and 19 men), with an average age of 68.23 years, were divided into three groups: Group 1 was elderly people with natural teeth and a fixed partial denture or removable partial denture in one or both arches. Group 2 was elderly people treated with maxillary and mandibular complete dentures. Group 3 consisted of elderly people with mandibular fixed implant-supported prostheses.

The elderly people answered two protocols: the voice-related quality of life (V-RQOL) protocol in the Brazilian version,<sup>2</sup> which analyzes the impact of dysphonia on quality of life, and the oral health impact profile (OHIP-14) in the Brazilian version,<sup>3</sup> which aims to measure the subjects' perception regarding the impact of oral conditions on their quality of life in the past six months.

The Kruskal-Wallis test was used to compare the domains of the V-RQOL and OHIP-14 questionnaires among the groups. The correlation between protocols was performed using Spearman's correlation.

#### Results

The data of the quality of life protocols from the three groups can be seen in Table 1. According to the results, there is a negative correlation between several domains of the protocols V-RQOL and OHIP-14 for the three groups separately and altogether (Tables 2 and 3). This negative correlation between the protocols

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Table 1	Comparison of the Results of the Protocols Voice-Related Quality of Life (V-RQOL) and
	Oral Health Impact Profile (OHIP-14)

Domain	G1 (n = 16) Mean (± SD)	G2 (n = 20) Mean (± SD)	G3 (n = 9) Mean (± SD)	P*
V-RQOL physical	94.79 (± 9.32)	95.82 (± 7.16)	94.90 (± 10.97)	.8832
V-RQOL social-emotional	96.88 (± 9.41)	96.25 (± 12.73)	99.31 (± 2.08)	.8697
V-RQOL total	95.63 (± 8.59)	96.00 (± 9.16)	96.67 (± 7.40)	.9099
OHIP functional limitation	0.44 (± 0.81)	1.75 (± 2.22)	0.78 (± 1.56)	.1316
OHIP pain	1.31 (± 1.45)	2.60 (± 2.60)	1.78 (± 2.05)	.3372
OHIP psychological discomfort	0.69 (± 1.45)	1.50 (± 1.76)	0.67 (± 1.41)	.0530
OHIP physical disability	0.94 (± 1.65)	0.80 (± 2.12)	0.89 (± 1.54)	.0662
OHIP psychological disability	0.75 (± 1.65)	0.25 (± 1.51)	0.78 (± 1.20)	.9221
OHIP social disability	0.06 (± 0.25)	0.45 (± 0.64)	0.22 (± 0.44)	.5233
OHIP handicap	0.38 (± 1.09)	8.95 (± 0.76)	0.44 (± 1.33)	.4705
OHIP total	4.56 (± 6.37)	4.56 (± 8.39)	5.56 (± 8.72)	.0662

G1: fixed partial denture or removable partial denture on one or two dental arches; G2: complete removable dentures on both arches; G3: complete removable denture on the maxillary arch and complete fixed implant-supported denture on the mandibular arch. \*P < .05.

# Table 2 Correlation Between the Data Obtained from the Protocols Voice-Related Quality of Life (V-RQOL) and Oral Health Impact Profile (OHIP-14)

	(	G1	(	32	G	33
Domain	R	P*	R	P*	R	<i>P</i> *
V-RQOL physical and OHIP functional limitation	0.43	.097	-0.71	.000	-0.38	.314
V-RQOL physical and OHIP psychological discomfort	-0.77	.001	-0.19	.426	-0.38	.314
V-RQOL physical and OHIP physical disability	-0.47	.064	-0.52	.020	-0.61	.084
V-RQOL physical and OHIP psychological disability	-0.52	.040	-0.21	.382	-0.04	.916
V-RQOL physical and OHIP handicap	-0.51	.045	-0.28	.225	-0.65	.058
V-RQOL social-emotional and OHIP functional limitation	-0.27	.305	-0.47	.036	-0.75	.020
V-RQOL social-emotional and OHIP psychological discomfort	-0.57	.020	-0.18	.460	-0.75	.020
V-RQOL social-emotional and OHIP physical disability	-0.51	.042	-0.22	.353	-0.65	.058
V-RQOL social-emotional and OHIP psychological disability	-0.57	.020	-0.41	.071	-0.41	.274
V-RQOL social-emotional and OHIP handicap	-0.82	.000	-0.34	.144	-1.00	.000
V-RQOL total and OHIP functional limitation	-0.43	.096	-0.68	.001	-0.38	.314
V-RQOL total and OHIP psychological discomfort	-0.76	.001	-0.18	.438	-0.38	.314
V-RQOL total and OHIP psychological disability	-0.54	.031	-0.19	.431	-0.04	.916
V-RQOL total and OHIP handicap	-0.53	.034	-0.31	.176	-0.65	.058
V-RQOL total and OHIP total	-0.26	.322	-0.54	.015	-0.42	.266

G1: fixed partial denture or removable partial denture on one or two dental arches; G2: complete removable dentures on both arches; G3: complete removable denture on the maxillary arch and complete fixed implant-supported denture on the manibular arch. \*P < .05.

indicates that worse quality of life related to voice has a greater impact on the oral health of elderly people. The differences are statistically significant and so confirm this correlation, which was moderate to strong.

# Discussion

There were no statistically significant differences among the three groups in which elderly people were

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rehabilitated with different types of prostheses regarding voice- and oral health-related quality of life (Table 1). However, the small sample size might contribute to masking differences because there is an almost significant difference between the OHIP-14 scores for psychological discomfort in G2. However, despite the small sample, the results found in this study can be justified by the adequate stability conditions of the dentures used by the participants without compromising orofacial functions, contributing to the balance of common structures responsible for voice production.

The correlation between the protocols (Tables 2 and 3) can be explained as one human system interfering with the other, as when aging influences orofacial structures and functions and the structures responsible for voice production, causing impairment in those areas. When correlating the protocols, it was also observed that Group 1 presented greater impact on quality of life, with several negative correlations with the V-RQOL and OHIP-14 domains (Table 2). A possible explanation is that this group still presents natural teeth, which would increase perception of changes of oral health on orofacial functions.

The participants presented good voice-related quality of life and little disadvantage regarding oral health-related quality of life (Table 1). The correlations found between oral health and voice related to quality of life (Table 2) can be justified by the fact that dental loss and the use of complete dentures can create difficulties in speech articulation, introducing a communication disorder, with a consequent impairment of quality of life.<sup>1,4</sup> Thus, it is important that, in addition to the phonetic and articulatory aspects, vocal aspects also should be considered in interdisciplinary interventions with elderly people in need of oral rehabilitation.

## Conclusions

There is a correlation between the scores of the two protocols in several domains for the three groups and for the total sample of elderly people. This indicates that as the perception of oral conditions decreases, the perception regarding voice-related quality of life also decreases.

The type of oral rehabilitation had no influence on the protocols' answers because of the small sample size. However, a correlation was observed between the scores of the two protocols and showed a relationship between oral and vocal health aspects in elderly people.

<b>Fable 3</b>	Statistically Significant Correlations Between	
	the Protocols Voice-Related Quality of Life	
	(V-RQOL) and Oral Health Impact Profile	
	(OHIP-14) of the Total Group of Elderly People	

Domain	R	<i>P</i> *
V-RQOL physical and OHIP functional limitation	-0.30	.043
V-RQOL physical and OHIP psychological discomfort	-0.43	.003
V-RQOL physical and OHIP physical disability	-0.51	.000
V-RQOL physical and OHIP handicap	-0.43	.003
V-RQOL physical and OHIP total	-0.47	.001
V-RQOL social-emotional and OHIP psychological discomfort	-0.38	.009
V-RQOL social-emotional and OHIP physical disability	-0.37	.012
V-RQOL social-emotional and OHIP psychological disability	-0.48	.001
V-RQOL social-emotional and OHIP handicap	-0.58	.000
V-RQOL social-emotional and OHIP total	-0.40	.006
V-RQOL total and OHIP psychological discomfort	-0.42	.004
V-RQOL total and OHIP physical disability	-0.49	.001
V-RQOL total and OHIP psychological disability	-0.30	.043
V-RQOL total and OHIP handicap	-0.46	.002
V-RQOL total and OHIP total	-0.44	.002

\*P < .05

# Acknowledgments

This research was supported by FAPESP (São Paulo Research Foundation), process 2009/10649-9. The authors reported no conflicts of interest related to this study.

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