

The Relationship Between Conventional Prosthesis Wearing and Geriatric Oral Health Assessment Index in Garhwa Town, Jharkhand

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ABSTRACT

AIM: The aim of this study was to determine the relation between conventional prosthetic status and quality of life of a 60-75 year old patients by using the GHAI.

MATERIALS AND METHODS: One seventy six old patients who reported in VDCH Garhwa for their prosthetic treatment includes in the study. They were divided in three groups according to the type of prostheses: Group 1=people with complete dentures, Group 2=people with removable partial dentures, and Group 3=people with fixed or no prostheses. The subjects were clinically examined according to World Health Organization 1997 criteria and their oral health-related quality of life was assessed using the Geriatric Oral Health Assessment Index (GOHAI) questionnaire. The resulting data were entered in to a statistical software program, for a statistical significance threshold at $P < 0.05$. Analysis was performed using the Kruskal-Wallis test and Spearman's rank correlation coefficient.

RESULTS: The three prosthetic cohort were established according to types of rehabilitation performed. Kruskal – Wallis and Spearman correlation analysis were used to analyze the study. The most affected quality of life dimension was discomfort when eating any kind of food reported by 120 (68%) of subjects among them most of them for Group 1 ($n=68$) . medication for oral pain 2 % and problem with swallowing comfort fully was least affected. By comparing the three groups of subjects with the Kruskal-Wallis test, the results, the differences were statistically significant only for the questions, ($P < 0.05$) like limit the kind of food, trouble in chewing, discomfort when eating any kind of food, limit contact with people, unsatisfied with look of teeth, medication for oral pain, uncomfortable eating in front of others and sensitivity to hot, cold or sweet foods. Spearman correlation analysis showed Social indicators such as gender and age had a moderate correlation with GOHAI 1, which relates to physical dimension. For social (GOHAI 6) and psychological dimensions (GOHAI 9), there was only a significant correlation with social indicator age ($r=0.389$).

CONCLUSION: In the subjects studied, wearing complete or partial removable dentures was a better predictor

KEYWORDS: Oral Health, Geriatric, Prosthesis, Garhwa

INTRODUCTION

The average life expectancy of an Indian has increased from 32 years in 1951 to around 60 years in 1993. It is expected that nearly 177

million elderly people above with the age of 60 years will live in the country which is around 14% of Indian population by the year.¹ The key

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and improvement in standard of living.² According to World Health Organization (WHO) “Health is a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity”.³ The social life, alimentary function and word pronunciation all are regulated by oral health status because it plays a major role in patient quality of life, affecting mental, physical and psychological well being and complete social development.⁴

In expectation of an increase in the elderly population a special guidelines are required for the evaluation of the quality of life. These guidelines suggest use of a measure to assess the impact of oral conditions on quality of life (QoL) of individuals. One of these, the Geriatric Oral Health Assessment Index (GOHAI) has been validated and widely used in North America.⁵ It is satisfactory, and its contemporaneously validity have been confirmed by the Germany⁶ Swedish⁷ Malay⁸ Chinese⁹ and French¹⁰ versions which showed acceptable reliability and validity. The GOHAI questionnaire (Atchison & Dolan, 1990) is made up of 12 questions. It is a series of questions which reflect an impact on the dimensions of life quality of the elderly population, such as functional limitation, lack of aesthetic satisfaction, chewing discomfort and avoidance of certain foods, avoidance of social contact, and selfmedication for dental pain. Answers are graded using the scale 0=never, 1=seldom, 2=sometimes, 3=often, 4=very often.¹¹ The Hindi (GOHAIRo) version was validated by the Deshmukh S P and Radke U M at VSPM’s Dental College and Hospital, Nagpur, India.¹²

PURPOSE OF THE STUDY

The aim of this study was to determine the relation between type of prostheses they used and quality of life of a group of people of 60-75

years old and who resides in the Garhwa town using the GOHAI Hindi version.

MATERIAL AND METHODS

A total of 182 consecutive people aged 60-75 years, conversant in the Hindi language, who had attended VDCH Dental College and Hospital over a period of 12 months were invited to participate in this study. Approval from the Institution Review Board was obtained prior to the study. After providing written consent after verbal explanation about the study, to participate, 176 (96.66%) people were clinically examined. Detail of each subject’s age and gender were recorded. Five subjects were excluded from the study because of their terminal illness. The sample of 176 was divided into three groups according to the type of prostheses they wore: Group 1 consisted of people with no natural teeth and complete dentures-60 (34%), Group 2 of people with some natural teeth and removable partial dentures—95 (54%), and Group 3 of people with fixed or no prosthesis—21 (12%).

After the clinical examination, they were asked to complete the GOHAI questionnaire. The data were entered into a statistical software program (SPSS 17; SPSS Inc, Chicago, USA). The association between life quality, evaluated through the GOHAI-Ro questions, and oral status was assessed using the Spearman correlation analysis concerning, on one side, the physical dimension, pain and discomfort dimension and psycho- social dimension of the quality of life and, on the other side, the clinical and socio-demographic indicators. Statistical significance was set at the level $P > 0.05$ using the Kruskal-Wallis test.

RESULTS

Table 1 shows demographic and clinical characteristics of 60-75 years old patients

including gender distribution, age and prosthesis status of the 176 peoples.

Table 2 depicts negative item response to the GOHAI items by the participants and the most serious problems (responses with *often* and *very often*) were reported as follows:

- 114 (65%) of the reported limitations in eating hard foods (GOHAI 1): Among them half were from Group 1 (58; 33%), followed by Group 2 (42; 24%), and, finally, Group 3 (14; 8%).
- 118 (67%) reported chewing problems with hard foods (GOHAI 2). The highest number (56; 32%) was from Group 1, people with no natural teeth, followed by subjects from Group 2 (49; 28%).
- 1 (1%) reported problems I swallowing (GOHAI 3) only Group 1, people with no natural teeth.
- 26 (15%) reported problem in speaking clearly (GOHAI 4). The highest number in Group 1 (16;9%) followed by Group 2 (10;6%)
- 120 (68%) reported that they felt discomfort when eating certain foods (GOHAI 5); people from Group 1 had the most frequently negative answers (60; 34%).
- 16 (9%) reported limit with contact people (GOHAI 6). The highest number (11; 6%) was from Group 1, people with no natural teeth, followed by subjects from Group 2 (5; 3%).
- 84 (67%) were unsatisfied with look of teeth (GOHAI 7). The highest number (47; 28%) was from Group 3 followed by subjects from Group 2 (25; 14%) and then Group 1 with no natural teeth (12;7%)
- Only 4 (2%) reported for the medication to relieve pain (GOHAI 8) in Group 3.

- 81 (46%) worried about teeth, gums or denture (GOHAI 9). The highest number (33; 19%) was from Group 1, people with no natural teeth, followed by subjects from Group 2 (26; 15%) and Group 3 (22;12%)
- 67 (38%) reported self conscious of teeth, gums or dentures (GOHAI 10): Among them Group 1 (25; 14%) and Group 2 (25; 14%) are equal but more than Group 3 (17; 10%).
- 25 (614%) were not comfortable eating in front of others (GOHAI 11): Among them Group 1 (14; 8%), followed by Group 2 (7; 44%), and, finally, Group 3 (4; 2%).
- 37 (21%) were sensitive to hot cold or sweet foods (GOHAI 12): Among them more than half were from Group 3 (25; 14%), followed by Group 2 (12; 7%).

Variables	Numbers	%
Gender		
Male	110	68
female	56	32
Age		
60-68 Years	118	67
69-75 Years	58	33
Group 1	60	54
Complete dentures		
Group 2	55	54
Partial Removable Denture		
Group 3		
Fixed Prosthesis	21	12

Table No.1: Distribution of the Samples

As far as the quality of life dimensions were concerned, the most affected dimensions (responses with *often* and *very often*) were physical dimension (GOHAI 1, 2), followed by pain and discomfort (GOHAI 5, 8, 12). The least affected related to psychological and social limitation (GOHAI 6, 8, 11) (Table 2).

The answers given by the subjects from the three study groups were compared using the Kruskal-Wallis test. The results were not statistically significant for questions 3, 4, 9 and

10 ($P>0.05$). The differences were statistically significant for the other questions, $P<0.05$ (Table 2).

GOHAI – Hindi	Number (Nr)		Group 1		Group 2		Group 3		P Value
	Nr	%	Nr	%	Nr	%	Nr	%	
Limit the kinds of food.	114	65	58	33	42	24	14	8	0.02
Trouble biting or chewing	118	67	56	32	45	28	13	7	0.02
Problems swallowing comfortably	1	1	1	1	0	0	0	0	0.54
Problems speaking clearly	26	15	16	9	10	6	0	0	0.57
Discomfort when eating any kinds of food	120	68	60	34	44	25	16	9	0.02
Limit contact with people	16	9	11	6	5	3	0	0	0.03
Unsatisfied with look of teeth	84	48	12	7	25	14	47	28	0.05
Used medication to relieve pain	4	2	0	0	0	0	4	2	0.03
Worried about teeth, gums or dentures	81	46	33	19	26	15	22	12	0.77
Self conscious of teeth, gums or dentures	67	38	25	14	25	14	17	10	0.58
Uncomfortable eating in front of others	25	14	14	8	7	4	4	2	0.03
Sensitive to hot, cold or sweet foods	37	21	0	0	12	7	25	14	0.05

Table 2: Negative item responses and their p values in Kruskal –Wallis analysis

To analyze a possible relationships between GOHAI dimensions and the clinical and the socio-demographic variables : *groups, age* and *gender distribution* the Spearman correlation was used (Tables 3, 4, and 5).

Among the clinical indicator The highest values of association were encountered for the GOHAI 1 (limit the kinds of food), $r=0.587$, and GOHAI 5 (discomfort eating hard foods), $r=0.580$ Group 1 (people with no natural teeth and wear total dentures) all at the $P=0.001$ level (Tables 3 and 5).

The social indicator *gender* had a statistically significant association only with the GOHAI 1, $r=0.360$ ($P=0.001$) and GOHAI 5 $r=0.317$ ($P=0.006$) (Tables 4 and 5). The social indicator *age* only showed a statistically significant

association for the GOHAI 9 question (worried about teeth, gums or dentures) as this was with the psychological dimension of quality of life, $r=0.393$ ($P=0.004$) (Table 5).

In Group 3 (control group) no significant correlation was found between physical, oral pain, and socio-psychological dimensions.

GOHAI - Hindi	Clinical indicators			Social Indicator	
	Group 1	Group 2	Group 3	Age	Gender
Physical Dimension Limit Kinds Of Food (GOHAI 1)	$r=0.587$ $p=0.002$	$R=0.459$ $P=0.002$	$R=0.016$ $P=0.452$	$R=0.244$ $P=0.003$	$R=0.360$ $P=0.002$

TABLE 3: Spearman correlation between physical dimension and clinical and social indicators

GOHAI - Hindi	Clinical indicators			Social Indicator	
	Group 1	Group 2	Group 3	Age	Gender
Pain and discomfort when eating any kind of food (GOHAI 5)	$r=0.580$ $p=0.002$	$R=0.420$ $P=0.002$	$R=0.0345$ $P=0.268$	$R=0.124$ $P=0.454$	$R=0.317$ $P=0.007$

TABLE 4: Spearman correlation between pain and discomfort dimension and clinical and social indicators

GOHAI - Hindi	Clinical indicators			Social Indicator	
	Group 1	Group 2	Group 3	Age	Gender
Psychological Dimension Worried About Teeth, Gums Or Denture (Gohai 9)	$r=0.710$ $p=0.234$	$R=0.182$ $P=0.588$	$R=0.227$ $P=0.029$	$R=0.331$ $P=0.005$	$R=0.237$ $P=0.246$
Social Dimension Limit Contact With People (Goahi 6)	$r=0.120$ $p=0.322$	$R=0.117$ $P=0.022$	$R=0.282$ $P=0.032$	$R=0.346$ $P=0.068$	$R=0.042$ $P=0.739$

TABLE 5: Spearman correlation between psychosocial dimension and clinical and social indicators

DISCUSSION

The outcomes of dental prosthetic therapy are so variable that they cannot be reliably assessed only by clinical measurements. In India, data on assessment of relation between type of prosthesis and quality of life in geriatric patients

is very limited. Therefore, the present study was designed to assess the opinion of the prostheses worn by patients reporting to the VDCH Gahwa. This would enable patients to indicate their opinion regarding the prostheses and perhaps serve as a guideline for the Prosthodontist to pay increased attention to the factors of patient concern. By using the analysis of the answers to the questionnaires, it was seen that most of the functional problems associated with by reduced or even no consumption of hard foods (GOHAI 1). It is explained by the high percentage of edentulous patients around 65% were not treated, or with inadequate prosthetic treatment, as the absence of adequate treatment causes negative effects on chewing. The percentage (65%) found in the present study is higher than one found by a study in Saudi Arabia (43%)¹³ and much higher than the one from the study for the validation of the GOHAI questionnaire in Malaysia (13%)⁸ and France (9.4%).¹⁰

This study estimates the impact of conventional prosthodontic treatments by means of a validated questionnaire (OHIP) that have proven adequacy and effectiveness in a socio-demographically comparable population. Impaired dentition imposes dietary restriction and affects food taste, food selection, food preparation and food eating patterns. 68% reported discomfort on consumption of such food which is related to question no 5, which is higher than the Saudi Arabia 42%¹⁴ and in Germany only 12%⁶. The most negative answers was given by the totally edentulous ones from Group 1 followed by partially edentulous Group 2 which is similar with Shgliand and Hebbal (2010)¹⁵ in India and by Veyrune *et al.* (2005)¹⁶ in France.

One of the main finding in this study was that there was no statistically significant difference ($P>0.05$) was found those related to the ability

to swallow comfortably (GOHAI 3, $P=0.536$) and to speak clearly (GOHAI 4, $P=0.569$) and those were related to being worried about the oral health status (GOHAI 9, $P=0.771$) or to feeling self-conscious about oral health status (GOHAI 10, $P=0.583$), and this is not affected by the prosthetic treatment type. A weaker correlation was found between functional limitation (GOHAI 1, GOHAI 5) and social indicators, such as *gender distribution* ($r=0.360$, $r=0.317$, respectively). The similar trend was seen for the social indicator *age*, which correlated positively but more weakly with questions GOHAI 1 ($r=0.244$) and GOHAI 9 ($r=0.393$). This leads to the hypothesis, underlined by other studies, that clinical indicators are better predictors of the quality of life than demographical ones.^{7,18}

CONCLUSIONS

Within the limitation of the study it may be concluded that the most patients after receiving prosthetic treatment were satisfied and it is an important predictor in the assessment of quality of life. The quality of life improved after wearing the conventional prosthesis. However it was seen that fixed prosthesis seem to be least affected and the patients with complete removable dentures were most affected. The dimensions associated with this study had higher association with the clinical indicators than with the social and demographic ones.

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