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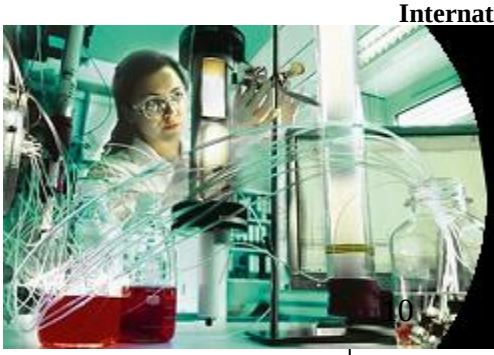

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Assessment of geriatric oral health quality as related to conventional prosthesis wearing in institutionalized subjects in Jharkhand

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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 60-74 year old patients by using the Geriatric Oral Health Assessment Index (GOHAI).
Materials and Methods: One eighty eight old patients were divided in three groups according to the type of prostheses: Group 1 included people with complete dentures, Group 2 included people with removable partial dentures, and Group 3 included people with fixed or no prostheses. 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 most affected quality of life dimension was discomfort when eating any kind of food reported by 127 (68%) of subjects among them most of them for Group 1 (n=31%). 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.
Conclusions: In the subjects studied, wearing complete or partial removable dentures was a better predictor and treatment alternative.

Keywords: Complete denture, Oral, Geriatric, Kruskal-Wallis test.

Introduction
The average life expectancy of an Indian was 32 years and in 1993 it was increased up to 60 years in 1993. According to Population Census 2011 there are nearly 104 million elderly persons (aged 60 years or above) in India; 53 million females and 51 million males. Both the share and size of elderly population is increasing over time, which is around 14% of Indian population by the year [1]. The key factors which is responsible for the increase in life expectancy are better health care facilities and improvement in standard of living [2]. The widely recognized definition of health is that given by the World Health Organization (WHO) in the preamble to its constitution, which is: ''Health is a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity'' [3] oral health status plays a major role in social life, alimentary function and word pronunciation. These all are regulated patient quality of life, affecting mental, physical and psychological well-being and complete social development [4] in probability of an increase in the elderly population a special kind of 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, 6]. It is satisfactory, and it's contemporaneously validity have been confirmed by the Germany [6] Swedish [7] Malay [8] Chinese [9] and French [10] versions which showed acceptable reliability and validity. The GOHAI questionnaire (Atchison & Dolan, 1990) is consisting of 12 questions. It is a sequential 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 self-medication 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 and Radke [12]. The aim of this

study was to determine the relation between type of prosthesis they used and quality of life of a group of people of 60-74 years old using the GOHAI Hindi version.

Material and Methods

A total of 204 consecutive people aged 60-74 years, conversant in the Hindi language, who had attended Vananchal Dental College and Hospital over a period of 12 months were invited to participate in this study. Approval from the Institution ethical committee was obtained prior to the study. After providing written consent after verbal explanation about the study, 94.12% people were clinically examined for participation. Detail of each subject's age and gender were recorded. Four subjects were excluded from the study because of their terminal illness. The sample of 188 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- 58 (30.85%), Group 2 of people with some natural teeth and removable partial dentures-108 (57.44%), and Group 3 of people with fixed or no prosthesis- 22 (11.70%). 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 60-74 years old patients including gender distribution, age and prosthesis status of the 188 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: 122 (64.89%) of the reported limitations in eating hard foods (GOHAI 1): Among them half were from Group 1 (57; 30%), followed by Group 2 (42; 24%), and, finally, Group 3 (17; 9%). 127 (68%) reported chewing problems with hard foods (GOHAI 2). The highest number (58; 31%) was from Group 1, people with no natural teeth, followed by subjects from Group 2 (54; 29%). 1 (1%) reported problems in swallowing (GOHAI 3) only Group 1, people with no natural teeth. 30 (15.95%) reported problem in speaking clearly (GOHAI 4). The highest number in Group 1 (9.57%) followed by Group 2 (7.44%). 132 (70.21%) reported that they felt discomfort when eating certain foods (GOHAI 5); people from Group 1 had the most frequently negative answers (64; 34.04%). 21 (11.17%) reported limit with contact people (GOHAI 6). The highest number (12; 6.38%) was from Group 1, people with no natural teeth, followed by subjects from Group 2 (8; 4.25%). 94 (50%) were unsatisfied with look of teeth (GOHAI 7). The highest number (44; 23.04%) was from Group 3 followed by subjects from Group 2 (35; 18.61%) and then Group 1 with no natural teeth (15; 7.97%) Only 6 (3.19%) reported for the medication to relieve pain (GOHAI 8). The highest number (5; 2.65%) was from Group 3 followed by subjects from Group 2 (1; 0.53%). 93 (49.46%) worried about teeth, gums or denture (GOHAI 9). The highest number (38; 20.21%) was from Group 1, people with no natural teeth, followed by subjects from Group 2 (32; 17.02%) and Group 3 (12;6.38%). 75 (39.49%) reported self-conscious of teeth, gums or dentures (GOHAI 10): Among them Group 1 (29; 15.42%) and Group 2 (24; 12.67%) are equal but more than Group 3 (22; 11.70%). 38 (20.21%) were not comfortable eating in front of others (GOHAI 11): Among them Group 1 (18; 9.57%), followed by Group 2 (12; 6.38%), and, finally, Group 3 (8; 4.25%). 46 (24.46%) were sensitive to hot cold or sweet foods (GOHAI 12): Among them more than half were from Group 3 (28; 14.89%), followed by Group 2 (17; 9.04%). 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). To analyze a possible relationship 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=0.576, and GOHAI 5 (discomfort eating hard foods), r=0.590 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=0.350 (P=0.001) and GOHAI 5 r=0.316 (P=0.007) (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=0.333 (P=0.004) (Table 5).In Group 3 (control group) no significant correlation was found between physical, oral pain, and socio-psychological dimensions.

Table 1: Distribution of the samples

Variables	Numbers	%
Gender		
Male	122	65
female	66	35
Age		
60-67 Years	128	68
69-74 Years	60	32
Group 1		
Complete dentures	85	45
Group 2		
Partial Removable Denture	72	38
Group 3		
Fixed Prosthesis	31	17

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

GOHAI – Hindi	Number (Nr)		Group 1		Group 2		Group 3		P Value
	Nr	%	Nr	%	Nr	%	Nr	%	%
Limit the kinds of food.	122	65	57	30	48	25	17	9	0.02
Trouble biting or chewing	127	68	58	31	54	29	15	8	0.02
Problems swallowing comfortably	1	1	1	1	0	0	0	0	0.54
Problems speaking clearly	30	16	18	10	14	7	0	0	0.57
Discomfort when eating any kinds of food	132	70	64	34	44	23	24	13	0.02
Limit contact with people	21	11	12	6	8	4	1	1	0.03
Unsatisfied with look of teeth	94	50	15	8	35	14	44	23	0.05
Used medication to relieve pain	6	3	0	0	1	1	5	3	0.03
Worried about teeth, gums or dentures	93	49	38	20	32	17	12	12	0.77
Self-conscious of teeth, gums or dentures	75	40	29	15	24	13	22	12	0.58
Uncomfortable eating in front of others	38	14	18	9	12	6	8	4	0.03
Sensitive to hot, cold or sweet foods	46	24	0	0	17	9	28	15	0.05

Table 3: Speraman correlation between physical dimension and clinical and social indicators

GHOAI - Hindi	Clinical Indicators			Social Indicator	
	Group1	Group2	Group3	Age	Gender
PHYSICAL DIMENSION Limit kinds of food (GOHAI 1)	r=0.576	R=0.458	R=0.018	R=0.243	R=0.350
	p=0.002	P=0.002	P=0.453	P=0.004	P=0.003

Table 4: Speraman correlation between pain and discomfort dimension and clinical and social indicators

GHOAI - Hindi	Clinical indicators			Social Indicator	
	Group 1	Group 2	Group 3	Age	Gender
Pain and discomfort when	r=0.590	R=0.430	R=0.0345	R=0.126	R=0.316
eating any kind of food (GOHAI5)	p=0.002	P=0.002	P= 0.268	P=0.454	P=0.007

Table 5: Speraman correlation between psychosocial dimension and clinical and social indicators

GHOAI - Hindi	Clinical indicators			Social Indicator	
	Group 1	Group 2	Group 3	Age	Gender
Psychological dimension worried about teeth, gums or denture (GOHAI 9)	r=0.711	R=0.184	R=0.228	R=0.333	R=0.239
	p=0.236	P=0.589	P=0.027	P=0.004	P=0.248
Social dimension Limit contact with People (GOAHI 6)	r=0.124	R=0.119	R=0.286	R=0.345	R=0.043
	p=0.326	P=0.024	P=0.033	P=0.069	P=0.749

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 (Jharkhand). 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. 70% reported discomfort on consumption of such food which is related to question no 5, which is higher than the Saudi Arabia 42% and in Germany only 12%. [6,14] 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. [17-20]

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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