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Original Research

Oral Health Related Quality Of Life Among Senior Adults In Saudi: An Original Review

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ABSTRACT:
Introduction: The majority of earlier research in Saudi Arabia that made use of GOHAI were concentrated on the older population from the capital or larger cities, with little attention paid to the OHRQoL of older Saudi citizens residing in smaller cities. The purpose of this study was to assess and update on the "*Oral Health-Related Quality Of Life* (OHRQoL)" in senior Saudi adults by using the local language version of the "*Geriatric Oral Health Assessment Index*- Arabic (GOHAI-Ar)". **Materials and methods**: Current study was designed to be cross-sectional and was conducted from April- December of 2022. In five separate regions of Hafar Al-Batin, Saudi Arabia, senior patients 65 years and older who were attending dental clinics of primary healthcare facilities were chosen using a convenience sampling process. Using the GOHAI-Ar, the subjects' OHRQoL was evaluated. Dental examinations to count the amount of natural teeth still present, as well as full and removable partial dentures and fixed partial dentures was done. Data collected was and to determine the relationship between the variables, chi-square and logistic regression analyses were utilized. 95% confidence intervals were used to establish significance, and P 0.05 was used to infer statistical significance. **Results**: 315 elderly adults in total with 4:1 ratio of male and female participants. The mean age observed was 68.25±0.33years. GOHAI Ar's mean observed was 26.67±0.53; its physical function score was 9.11±0.25; its pain and discomfort score was 6.86±0.17; and its psychological discomfort score was 11.68±0.24. Pain and discomfort were substantially related with remaining natural teeth and prosthodontic treatment. It was discovered that prosthesis had an impact on psychological function. It was discovered that there was a strong association between OHRQoL and gender and prosthodontic status. **Conclusion**: The study found that the participants' oral health-related quality of life is highly influenced by sociodemographic factors as well as subjective and clinical oral assessments. The study shows that while formulating an older oral health intervention program, these aspects should be taken into account. Hafar Al-Batin city's senior residents had poor OHRQoL, and those having dental prosthetics had a favorable effect.
Keywords: Psychological Discomfort, Oral Health-Related Quality Of Life, Pain And Discomfort, Elderly, Geriatric Oral Health.

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INTRODUCTION

The number of people 60 and older is predicted to triple globally. It is anticipated that this population, which has a variety of educational, social, cultural, and psychological experiences, will grow from 810 million in 2012 to 2.03 billion by the year 2050. [2] The increase in the population has sparked research interest in this population to make sure they age healthfully and have a positive impact on oral health. [3] Poor dental health has a significant impact on overall health and can have a negative impact on people's daily lives and well-being. [4] It reduces quality of life and causes discomfort, suffering, and feeding difficulties. Recent studies have shown social humiliation as well as chewing, speaking, and aesthetic issues. [4-6]A multidimensional concept called oral health-related quality of life (OHRQoL) is used to measure how comfortable people are while they are eating, sleeping, and interacting with others, as well as how confident they feel about their dental

health.[7,8] OHRQoL is consequently linked to functional, psychological, social, and pain or discomfort experiences. [3] The most popular technique for evaluating OHRQoL is to employ multiple-item surveys like the Oral Health Impact Profile-14 (OHIP-14). [9] The OHIP-14 is a useful tool for gauging patients' expectations for and perceptions of their dental health care. [10] It was created to measure self-reported functional limitation, discomfort, impairment, and psychosocial consequences related to oral problems. It is valid, reliable, and the most widely accepted OHRQoL indicator. Subjective oral health measures have also been employed to accomplish the same goal, even though clinical oral health measures have been primarily utilized to assess oral health needs and design public health interventions. There is evidence, though, that objective and clinical indices of dental health differ from one another. [12] The data suggests that the disparities may be caused by the fact that clinical measures evaluate morbidity [13] whereas subjective measures reflect one's perceptions and judgments of one's own and other people's health, which are both personal and social. [14] Therefore, in order to assess how oral health influences functional and psychosocial well-being [16] as well as how people perceive their dental health, subjective measures are recommended to supplement clinical assessments [15]. [12] Additionally, sociodemographic factors may affect how one perceives oral health through influencing oral morbidities and the usage of medical services. [17] As a result, the current study was created to look into the relationship between OHRQoL and sociodemographic characteristics, subjective oral measurements, and clinical oral measures.There have been reports that quality of life is impacted by factors such as gender[20], educational level[19], and number of teeth[12], as well as dental caries, periodontal disease, and use of dental prostheses[11,18].The Geriatric Oral Health Assessment Index was developed as a result of the high prevalence of oral diseases in older people and the lack of relevant and trustworthy instruments to measure the effects of oral diseases on older populations (GOHAI). It was created as a self-reported tool to assess oral health issues among elderly people. [11] 12 negatively and favorably phrased items measuring three OHRQoL categories made up the original GOHAI. Physical function (PF), discomfort and pain, and psychosocial function were all included. [12] It has been translated into a number of languages, including Hindi[16], French[13], Arabic[12], German[14], Persian[15], and Arabic[13]. There are disparities in oral health treatment between urban and rural communities. The distribution of health services, accessibility to and utilization of dental care, treatment outcomes, OHRQoL, and the prevalence of oral illnesses all showed these discrepancies. [17] Compared to urban areas, rural areas had a significantly greater frequency of poor oral health-related quality of life. The prevalence of negative daily living effects such as pain, psychological discomfort, and social impairment was also significantly greater among rural dwellers. [18] The majority of earlier research in Saudi Arabia that made use of GOHAI were concentrated on the older population from the capital or larger cities, with little attention paid to the OHRQoL of older Saudi citizens residing in smaller cities. As a result, the objective of this study was to assess OHRQoL among seniors aged 65 and above from the Hafar Al Batin area of Saudi Arabia using the Arabic version of GOHAI (GOHAI Ar).

MATERIAL AND METHODS

The study was piloted as a cross-sectional study with convenience sampling. The ethical approval was obtained by the ethics committee. The study was conducted for a period of 8 months and the data was collected for the first six months and the last two months was utilised for the statistical analysis, from a April- December of 2022. The study took into account the senior patients 65 years of age and older who visited dental offices at primary healthcare facilities in five distinct areas of Hafar Al Batin, Saudi Arabia.Based on the previous studies the sample was calculated to be 200, with precision (d) 5%, and confidence interval of 95%. The number of the participants in the study were however 315.

INCLUSION CRITERIONS

Saudi nationals who are ambulatory patients, at least 65 years old, and fluent in Arabic. Patients who were recalcitrant, foreigners, and unwilling to engage in the study were among the exclusion criteria. Additionally, incomplete surveys were not included in the analysis.

CONTENT OF THE QUESTIONNAIRE

The “Arabic-language version of GOHAI Ar” was used to gauge OHRQoL. Based on the responses to 12 questions pertaining to the following three OHRQoL domains, the GOHAI Ar calculated a composite score:

- “Psychosocial function (PsF), which includes anxiety or concern about oral health, dissatisfaction with appearance, self-consciousness about oral health, and avoiding social contact due to oral problems;
- Pain or discomfort (PD), including the use of medication to relieve PD in the mouth.
- Physical Function (PF), which includes eating, speaking, and swallowing”.

Every question on the survey received a score on a 6-point Likert scale “0 being never, 1 being seldom, 2 being occasionally, 3 being frequently, 4 being quite frequently, and 5 being constantly”. The 12 questions' combined scores were added to determine the final GOHAI Ar, which had a range of 0 to 60. Three items—"able to swallow easily," "able to eat without pain," and "pleased with the appearance of teeth"—

had their scores remained constant, but the scores for the other nine items were flipped to show that a higher score is linked to better dental health. The patients were given a total of 315 questionnaires, and each one of them completed it. The questionnaire was completed by each patient in around 5 minutes. Oral examinations were done on each of these patients.

The questionnaire had four sections:

1. "Age, gender, education, occupation, and living situation were sociodemographic factors in the first part of the study.
2. The second part of the study focused on self-perceived oral health and dental care (self-perceived oral health, self-perceived dental care needs, visit to dentist, payment for dental care, and preferred dental clinics).
3. The third part of the study focused on prosthodontics and dentition status (absence of dental prosthesis, full mouth complete denture, single complete denture
4. OHRQoL using GOHAI-Ar."

ORAL INTERVIEW

One experienced examiner (the author), an expert in advanced general dentistry conducted the oral examinations. In a dental chair with the participant seated upright and using a mouth mirror and WHO probe, all oral examinations are performed. The calculation of intraexaminer reliability revealed good results. It was counted how many people still had their natural teeth, various types of dentures.

ANALYSIS OF STATISTICS

The statistical analysis program SPSS version 25.0 ("Armonk, NY: IBM Corp., USA") was used to enter all the data while taking the significance level of 5% into account. The continuous variables were reported as mean and standard error, whereas the categorical variables were calculated in terms of numbers and percentages. Sociodemographic characteristics, dental care, self-perceived oral health and prosthodontics, and dentition status were compared with a total GOHAI Ar and individual domain scores. The distribution of GOHAI Ar scores in respect to categorical variables was assessed using an independent t test and ANOVA. To evaluate the correlation between the variables, Pearson's test was also applied.

RESULTS

The study participants' characteristics are represented in the table 1. It was seen that distribution of the sexes was 4:1. The schooling was none for 61% while 39% were educated. 82% had their jobs while 18% had no jobs. 91% were living with family while 9% were alone. Good and very good general health was reported by 88% while 12% were bad at health. Oral health was positive in 78% while dental health was positive in 83%. Majority 70% visited dentists only in pain. 91% had government's payments for the dental care and the same percent visited the dental clinics of the govt. 75% participants wore the prosthesis of any variety. **Table 1.** Table 2 presents mean GOHAI-Ar ratings for PF,PD, PsF, and overall for different aspects of older people. The mean GOHAI-Ar, PF,PD, PsF ratings all rose along with the subjects' aging. When compared to the elderly aged 65–69 years (8.63± 0.27), the elderly aged 75 years (10.44± 0.84) had a substantially higher mean PF score (P = 0.042). Similar to this, the mean GOHAI-Ar score was considerably higher among seniors aged 75 and older (30.64± 1.70 vs. 26.66 ±0.58; P = 0.035). On the other hand, there was no statistically significant difference (P>0.05) between the mean scores of PF PF,PD, PsF and GOHAI-Ar for the various groups of education, occupation, and dental care payment.

Similar to this, males scored substantially higher on the GOHAI-Ar overall scale (28.28± 0.58) and the pain and discomfort scale (7.12± 0.19) than females (5.90± 0.38; 25.44± 1.28; P<0.05).Elderly who visited the dentist in pain or an emergency had substantially higher mean PF scores (9.71±0.29) than those who frequently visited the dentist (7.68± 0.43), (P<0.05). However, there was no discernible difference between senior clinic preferences in terms of PF, PD, PsF, or overall GOHAI-Ar scores. According to prosthodontic status, as shown in Table 2, older adults with full-mouth complete dentures (10.16±9.44) had substantially higher mean PD scores than those without dentures (9.44± 0.50) and those with FPD (8.54±0.40) (P< 0.05).Elderly persons experiencing issues with artificial teeth had significantly different mean ratings for PF, pain and discomfort, psychological function, and total GOHAI-Ar, as indicated in Table 3.The psychological function was discovered to be affected by prosthesis presence. It was discovered that there was a strong association between OHRQoL and gender and prosthodontic status. As indicated in Table 4, there were significant negative relationships between OHRQoL and prosthetic teeth that caused pain (r = 0.215, P = 0.007), ulcers (r = 0.226, P = 0.004), and foul breath (r = 0.257, P = 0.001). PF was discovered to be strongly connected with a visit to the dentist (r = 0.310, P = 0.000) and considerably adversely correlated with gender (0.244, P = 0.001) and the number of teeth still present. The percentage of natural teeth still present and the presence of prosthetic teeth were both significantly positively connected with pain and discomfort (r = 0.325, P = 0.000) and respectively. Similar findings were observed regarding the relationship between psychological function and prosthodontic status (r = 0.197, P = 0.014). GOHAI-Ar demonstrated a significantly negative connection with gender (r = 0.188, P = 0.019) and a significantly positive correlation with prosthodontic status (r = 0.182, P = 0.023). **TABLE 4**

Table 1: Characteristics of the included participants.

PARAMETERS	*Percent*
• **"Sex** – Male:Female	80:20
• **Schooling**	
○ Nil	61
○ Primary	35
○ Secondary	4
• **Occupation**	
○ No job	18
○ Government	61
○ Private	21
• Living	
○ Alone	9
○ Family	91
• Self-reported general health	
○ Very good	27
○ Good	61
○ Bad	12
• Self-perceived oral health and dental care	
• Self-perceived oral health	25
○ Very good	53
○ Good	22
○ Bad	
• Self-perceived dental care needs	
○ Very good	32
○ Good	51
○ Bad	17
• Visit to dentist	
○ Regularly	30
○ Pain/emergency	70
• Payment for dental care	
○ Government	91
○ Insurance	3
○ Out of pocket	6
• Preferred dental clinics	
○ Government	91
○ Private	9
• Prosthodontic and dentition status	
○ No dental prosthesis	25
○ Full-mouth CD	15
○ Single CD only	10
○ Single partial denture	17
○ Full-mouth partial denture	11
○ Fixed partial denture	22
Remaining natural teeth Mean±SE (range)	13.46±0.63"

Table 2: Comparison of the groups and the GOHAI Ar using ANOVA.

PARAMETERS	Mean±SE			
	PF	**PD**	**PsF**	**GOHAI+Ar**
"Age(years)				
65-70	8.63±0.27	6.57±0.20	11.44±0.28	26.66±0.58
70-74	9.60±0.58	7.44±0.43	11.48±0.57	28.55±1.35
≥75	10.43±0.83*	7.28±0.53	12.89±0.74	30.64±1.70*
Education				
Noeducation	9.13±0.31	6.80±0.22	11.49±0.32	27.46±0.79
Primary	9.23±0.42	6.85±0.31	11.95±0.38	28.05±0.90
Secondary	7.27±0.95	8.01±0.43	12.28±1.48	27.58±1.87

Occupation				
No job	8.77±0.70	6.38±0.43	11.57±0.55	26.75±1.34
Government	9.01±0.28	7.11±0.23	11.72±0.32	27.87±0.69
Private	9.67±0.47	6.59±0.37	11.65±0.52	27.92±1.11
Payment for dental care				
Government	9.26±0.26	6.82±0.19	11.72±0.26	27.83±0.59
Insurance	7.12±0.72	7.56±0.52	11.85±1.00	26.56±1.61
Out of pocket	8.00±0.52	7.01±0.38	10.91±0.57	25.91±1.18
Gender				
Male	9.34±0.21	7.12±0.19	11.78±0.27	28.28±0.598
Female	8.21±0.58	5.90±0.38	11.29±0.54	25.43±1.28
Living status				
Alone	9.16±0.65	6.81±0.64	11.52±0.82	27.52±1.59
Family	9.11±0.25	6.86±0.18	11.60±0.25	27.68±0.57
Visit to dentist				
Regularly	7.67±0.42	6.75±0.36	12.02±0.44	26.48±0.98
Pain/emergency	9.70±0.28*	6.90±0.20	11.53±0.29	28.16±0.64
Clinic preferences				
Government	9.19±0.26	6.81±0.19	11.57±0.26	27.60±0.58
Private	8.28±0.53	7.34±0.32	12.64±0.57	28.38±1.16
Prosthodontic status				
No denture	9.43±0.49	7.28±0.38	11.42±0.55	28.13±1.08
Full-mouth CD	10.15±0.66	5.16±0.37	10.79±0.64	26.12±1.35
Single CD only	7.73±0.61	6.54±0.52	10.49±0.58	24.79±1.51
Single partial denture	9.46±0.75	7.05±0.45	12.72±0.62	29.26±1.58
Full-mouth partial denture	8.81±0.82	6.16±0.51	11.24±0.67	26.24±1.65
Fixed partial denture	8.53±0.39	7.97±0.33	12.56±0.46	29.08±1.01”

Table 3: Comparison of the prosthesis and OHRQOL

PARAMETERS	Mean±SE			
	PF	PD	PsF	GOHAI
“Pain				
Yes	10.31±0.55*	7.06±0.35	12.53±0.51*	29.92±1.17*
No	8.64±0.26	6.78±0.20	11.34±0.27	26.79±0.58
Ulcer				
Yes	10.44±0.59*	7.09±0.37	12.75±0.51*	30.30±1.29*
No	8.65±0.26	6.78±0.20	11.31±0.27	26.76±0.58
Wideteeth				
Yes	10.37±0.46*	6.93±0.31	12.10±0.45	29.42±1.01*
No	8.40±0.27	6.82±0.21	11.45±0.28	26.68±0.61
Bad breath				
Yes	10.09±0.46*	7.35±0.28*	12.34±0.43*	29.80±1.02*
No	8.56±0.28	6.58±0.22	11.30±0.29	26.47±0.61
Drynessofmouth				
Yes	10.11±0.58*	7.03±0.31	12.41±0.51	29.57±1.21*
No	8.71±0.25	6.79±0.20	11.38±0.27	26.91±0.57”

*P<0.05. GOHAI=Geriatric Oral Health Assessment Index, SE=Standard error

Table 4: Comparison of the variables using the Pearson’s correlation

PARAMETERS	PF	PD	PsF	GOHAI-Ar
“Gender				
Correlation coefficient	−0.244**	−0.144	−0.039	−0.188*
Significant(two-tailed)	0.001	0.074	0.628	0.019
Visit to dentist				
Correlation coefficient	0.310**	0.106	−0.042	0.134
Significant(two-tailed)	0.001	0.189	0.597	0.097
Remaining natural teeth				
Correlation coefficient	−0.276**	0.324**	0.130	0.077

Significant(two-tailed)	0.000	0.001	0.107	0.343
Prosthodontic status				
Correlation coefficient	−0.104	0.337**	0.197	0.182*
Significant(two-tailed)	0.196	0.001	0.014	0.023
Artificial teeth cause pain				
Correlation coefficient	−0.204*	−0.066	−0.185*	−0.215**
Significant(two-tailed)	0.010	0.411	0.021	0.007
Artificial teeth cause ulcer				
Correlation coefficient	−0.241**	−0.058	−0.172*	−0.226**
Significant(two-tailed)	0.002	0.474	0.032	0.004
Artificial teeth wide				
Correlation coefficient	−0.229**	−0.039	−0.088	−0.151
Significant(two-tailed)	0.004	0.625	0.277	0.062
Artificial teeth cause bad breath				
Correlation coefficient	−0.221**	−0.223**	−0.159*	−0.257**
Significant(two-tailed)	0.005	0.005	0.049	0.000”

*P<0.05. GOHAI=Geriatric Oral Health Assessment Index, SE=Standard error

DISCUSSION

It is crucial to comprehend the factors that affect elderly people's OHRQoL in order to expand the oral health of the older patients through coordinated efforts of the healthcare system. Access to care for the elderly can be hampered by a number of factors, especially in smaller cities where facilities and resources are constrained. As a result, the current study focused on the variables that influence OHRQoL in elderly Saudi Arabians from the Hafral Al Batin region. On a scale of 0 to 1, the study's overall (mean SE) GOHAI Ar score was (27.67±0.53). (0–60). This outcome is remarkably similar to that of elderly participants from the Riyadh region of Saudi Arabia who were both hospitalized and non-hospitalized in similar statistics. [19] On the other hand, Rekhi et al. found that institutionalized elderly people in India had a higher mean GOHAI score, at 41.57 6.07. Similarly, Yen et al. reported that Taiwanese elderly patients wearing removable dentures had a mean GOHAI score of 47.8.[20] The older population from the Hafar Al Batin region appears to have poor OHRQoL, as indicated by their inferior GOHAI Ar score. Their underlying malnutrition,[21] diabetes,[22] and any other medical condition that has a direct impact on OHRQoL could all be directly related to this. Another factor that contributes to the poor OHRQoL among the elderly is the obvious socioeconomic disparity in oral health. [23]In this study it was discovered lower GOHAI Ar values in the current study associated to previous studies on OHRQoL among the elderly. The fact that older people who were wearing artificial teeth made up three-fourths of the participants in this study, which could be one explanation. According to earlier research, those who wear RPD suffer more detrimental effects on their social and emotional lives than those who have their natural teeth. [24] Another explanation might be that the study's participants were patients at primary healthcare facilities in the Hafar Al Batin area. Additionally, approximately 17% of the elderly participants in this study felt they needed poor dental care. In the current study, the mean GOHAI Ar score increased along with the mean age, indicating less impact and better OHRQoL. This outcome could be elucidated by the fact that more than 3/4th of participants wore dentures, and having dentures has been linked to better OHRQoL in elderly people. [25-29] The severity of the impairment is influenced by the tooth loss, which has been shown to be fairly strongly correlated with OHRQoL impairment. [28] Additionally, studies have linked a decline in the number of natural teeth still present with poor OHRQoL. [29] Male participants in our study had a higher percentage of natural hair than female participants, indicating that men had better OHRQoL than women. Complete denture wearers and those wearing just one had lower GOHAI Ar scores. On the other hand, people who wore fixed partial dentures and just one partial denture had higher GOHAI Ar scores. In our study, prosthesis-related factors, including pain, ulcer, wide tooth, bad breath, and dry mouth, were found to significantly affect GOHAI Ar score, suggesting that participants wearing different types of prostheses experience different levels of OHRQoL. This result is comparable to that of Yen et al., study which found that the robust predictor of OHRQoL among elderly people was denture satisfaction. Prosthodontic status was discovered to have a significant positive association with OHRQoL among all the study's factors. This outcome is consistent with a study that was published and found that providing geriatric patients with dental rehabilitation increased their GOHAI score, indicating an improved OHRQoL. [30] In contrast to other studies, ours also had a number of limitations that should be carefully considered when interpreting the results. First off, only a small portion of the entire population was represented by the study's participants, who were chosen from the primary healthcare facilities in the Hafar Al Batin region rather than being drawn from a population-based sample. This

limits the generalizability of the study's findings. The generalizability of the findings to the elderly population should be considered in future research. Second, because the current study falls under the category of a cross sectional design, we are unable to interpret the observed association.

CONCLUSION

Given the limitations of the study, it may be concluded that the elderly patients who sought primary healthcare in the Hafar Al Batin region had poor OHRQoL as measured by the Saudi Arabian GOHAI. The participants' OHRQoL is considerably impacted by factors such as gender, age, retirement grade level, self-perception of oral and general health, dental caries, and periodontitis. This shows that all these aspects should be taken into account when examining the quality of life and oral health of all population groups, as well as when designing oral health intervention programs for the elderly. The study also discovered that a dental prosthesis can enhance OHRQoL in elderly adults.

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