

Complete Edentulism and Socioeconomic Factors in a Jordanian Population

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This study considered the need and demand for complete dentures in a select group of 600 Jordanian adults and the relationship between complete edentulism and sociodemographic variables by means of a pilot-tested questionnaire. Both maxillary and mandibular dentures were fabricated for 505 subjects, while 95 needed complete dentures in only one arch. Significantly more men than women requested complete dentures. Approximately 80% (28 of 35) of subjects who required replacement dentures for esthetic reasons were women, while over 85% (18 of 21) of subjects who required a spare set of dentures were men. The findings suggest a significant relationship between sociodemographic variables and edentulism, with age, education level, and socioeconomic status playing vital roles in edentulism and denture demand. *Int J Prosthodont* 2010;23:541–543.

Edentulism is regarded widely as a poor health outcome since it may compromise an individual's quality of life.¹ It is an important but often overlooked public health issue, especially for those over 65 years of age, and has been associated with changes in food taste, food preferences, and nutritional deficiency.²

Epidemiologic studies on edentulism and tooth loss vary considerably, with great differences evident in prevalence between countries, between geographic regions within countries, and between patient groups with various backgrounds. Some studies have reported that the incidence of edentulism correlates with education level and income status, with those in the lower levels of both sociodemographic factors exhibiting higher risks of becoming completely edentulous. On the other hand, reported increases in the number of elderly dentate individuals pose the challenge of higher demands for dental care. This new reality will impact the use of dental professional services and the burden of oral health problems in the future.

There are no available studies that have investigated the prevalence of complete edentulism or the association between complete edentulism and socioeconomic factors in Jordan. Therefore, the aims of this study were twofold: to address this concern in a select group of Jordanian adults, and to determine

the relationship between sociodemographic variables and complete edentulism. Furthermore, the relationship between sex and edentulism was investigated in an effort to provide baseline information for one of the priority World Health Organization oral health problems.

Materials and Methods

The study group comprised 600 patients who were selected from patients referred to the Faculty of Dentistry, Jordan University of Science and Technology, Irbid, Jordan, for removable partial or complete denture treatment between September 2005 and June 2007 ($n = 2,358$). Only patients who were completely edentulous in one or both arches and who attended the institution for construction or replacement of complete dentures were included. The 600 patients (26%) comprised 428 men and 172 women, with an age range of 31 to 80 years (mean age: 55.5 years). Table 1 shows the distribution of patients according to different age groups, sex, and demand for complete dentures.

A pilot-tested questionnaire was designed from an analysis of the literature detailing variables associated with complete edentulism and was presented to the participants. Pilot testing was carried out by presenting the questionnaire to 30 completely edentulous patients, not including those participating in the study, to assess the feasibility of sufficient data collection and statistical analysis. The questionnaires were conducted face-to-face between the author and patients. The variables studied included:

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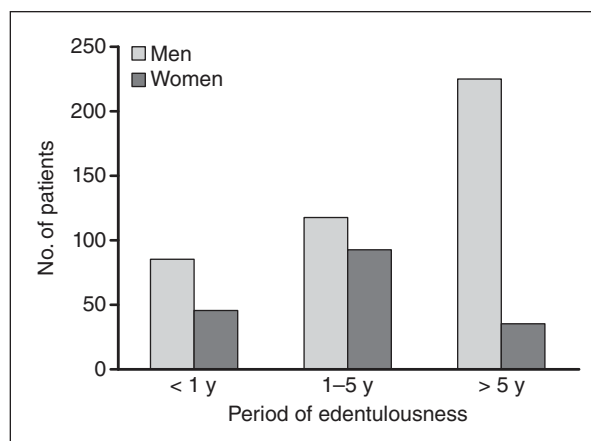
Table 1 Patient Demographics According to Age Group and Sex

Age group (y)/sex	Complete dentures in both arches	Complete dentures in one arch	Total
31 to 40			
Male	36	10	46
Female	15	7	22
41 to 50			
Male	95	30	125
Female	18	12	30
51 to 60			
Male	91	17	108
Female	56	9	65
61 to 70			
Male	74	7	81
Female	22	3	25
> 70			
Male	68	0	68
Female	30	0	30
Total	505	95	600

Table 2 Complete Denture Problems in Relation to Sex

Denture problems	Sex		Total
	Male	Female	
Esthetics	7	28	35
Broken	30	12	42
Loss of retention	55	65	120
Occlusal problems	35	27	62
Spare set	18	3	21
Total	145	135	280

- Age
- Sex: male or female
- Education: none (no education), primary school, secondary, or university
- Monthly income: low, Class I (< 150 Jordanian dollars [JD]); medium, Class II (150 to 300 JD); high, Class III (300 to 500 JD); or very high, Class IV (> 500 JD)
- Smoking status: current everyday cigarette smoker or had never smoked
- Dental preventive attitude: positive (seeks dental advice and treatment regularly) or negative (seeks dental treatment only when in pain)

**Fig 1** Distribution of men and women according to period of complete edentulism.

- Period of edentulousness: less than 1 year, from 1 to 5 years, or longer than 5 years
- Reason for attendance: new complete denture or a replacement denture
- Problems with existing dentures: esthetics, broken, loss of retention and instability, occlusal relationship, or need a spare set of dentures

Data were analyzed using frequency distribution tables and figures. Responses were evaluated with different statistical methods according to the type of question. In this study, the *z* test was used to evaluate two-sample proportions, the *t* test was used to evaluate two-sample means, and chi-square tests were used to evaluate the relationship between two classified variables.

Results

Five hundred five subjects (84%) needed both maxillary and mandibular sets of dentures, while 95 needed complete dentures in only one arch. Significantly more men requested complete dentures compared to women ($P < .01$). Only 68 subjects were in the 31 to 40 age group, compared to 173 subjects who were in the 51 to 60 age group. Single complete dentures were not fabricated for any patient in the > 70 age group. Three hundred twenty subjects (197 men, 123 women) were referred for fabrication of their first set of complete dentures, while 280 patients needed replacement of their existing dentures. Approximately 80% (28 of 35) of subjects who required replacement dentures for esthetic reasons were women, while over 85% (18 of 21) of those who required a spare set of dentures were men (Table 2).

Figure 1 shows the distribution of men and women according to the duration of their edentulous state. Men were edentulous for significantly longer periods (over 5 years) compared to women or men with other periods of edentulousness (less than 1 year or 1 to 5 years).

One hundred fifty of 600 subjects (25%) were uneducated, with 130 of them referred for both maxillary and mandibular complete dentures; 116 (19%) patients had a university degree (Table 3).

Among the 259 subjects with a low monthly income of less than 150 JD, 229 (88%) needed maxillary and mandibular complete dentures; 41 of 49 (84%) subjects with a monthly income of > 500 JD needed complete dentures in both arches as well. The smallest number of patients according to monthly income were those earning > 500 JD, and there was a gradual increase in the number of patients as income decreased (Table 3).

Only 120 subjects were considered to have a positive dental attitude; 80% of subjects (480 of 600) were considered to have a negative attitude. The majority of subjects (478 of 600) who received complete dentures were smokers (Table 3).

Discussion

This study observed that edentulousness is due to a combination of various factors, with nondisease items such as education and socioeconomic status playing major roles. The need for complete dentures decreased with increasing levels of education ($P < .05$). Hence, the likelihood of tooth retention is higher as the education level increases. This might be because those with a higher level of education are more informed about their health needs and may seek dental treatment earlier and more often than those of a lower education status, whose dental visits may be restricted to the occurrence of acute events. Moreover, those of a higher education status are more likely to be able to afford regular dental care than those of a lower education status.³

Individuals of a low socioeconomic status share a greater burden of oral diseases and are less likely to seek dental care on a regular basis, leading to more tooth loss and an accelerated transition to a completely edentulous state. In the present study, 80% of the patient population had a negative attitude toward preventive dental health care.^{4,5}

While it is conceded that this study lacks external validity, it underscores the likelihood that the population at large needs strong educational and socioeconomic initiatives that emphasize the importance of disease control as an integral part of oral health care delivery.

Table 3 Distribution of Subjects Needing Complete Dentures in Relation to Education Level, Monthly Income, Preventive Dental Attitude, and Smoking Status

Prosthesis	Both arches	Single arch
Education level		
Primary	162	17
Secondary	125	30
University	88	28
Uneducated	130	20
Monthly income		
< 150 JD	229	30
150–300 JD	145	42
300–500 JD	90	15
> 500 JD	41	8
Preventive attitude		
Positive	90	30
Negative	415	65
Smoker		
Yes	393	85
No	112	10

Conclusion

Edentulism in the studied population group appears to depend on a combination of various factors, including sociodemographic status, education level, and income. The resulting data should be employed for further comparative studies and the evaluation of long-term dental care outcomes.

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