

Socioeconomic factors and complete edentulism for female patients at King Saud University, Riyadh, Saudi Arabia

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Abstract

Introduction: Edentulism is the loss of all permanent teeth due to different biological and non-biological factors. Prevalence of edentulism varies considerably between countries, geographic regions and different patients' backgrounds.

Purpose of the study: To assess the relationship between socio-demographic factors and edentulism in a sample of patients in Riyadh.

Materials and methods: The sample comprised of 279 female patients, edentulous in either arches who attended King Saud University dental institution in the Riyadh region, patients filled out a questionnaire which covered their age, area of living, education level, monthly income, dental preventive attitudes and the reason of attendance.

Results: Majority of patients (44%) were uneducated, almost 60% of subjects had a monthly income of less than 3000 SR living mainly in south and east of Riyadh, 71.3% of subjects were considered to have a negative attitude. Increase in the dental preventive attitude was noticed as the degree of education increases.

Conclusion: The study revealed a relationship between sociodemographic variables and complete edentulism with age, educational level and socioeconomic status playing a vital role in edentulism and denture demand.

More emphasis should be given on improving educational and the socioeconomic status among citizens in south and east of the capital.

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1. Introduction

Edentulism is defined as the loss of all permanent teeth [1] and is the terminal outcome of a multifactorial process involving biologic processes (caries, periodontal disease, pulpal pathology, trauma, oral cancer) as well as non-biologic factors related to dental procedures (access to care, patient's preferences, treatment options etc.) Poor oral health has been shown to have a

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negative effect on peoples overall health and quality of life [2,3].

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 reported that the incidence of edentulism correlated with educational levels and income status with those in the lower levels exhibiting higher risks of becoming totally edentulous [4,5] on the other hand, reported increase in the number of elderly dentate individuals pose the challenge of higher demands for dental care.

Epidemiological data on health and its related issues are very important in order to plan for future care [6] Nevertheless; the prosthodontics field has not gained the same epidemiological interest, as caries and periodontitis and the data obtained are often difficult to interpret. Prosthodontics has a very important role in restorative dentistry as the primary objective of dental care is maintaining a natural functional dentition for life.

There are no available studies that have investigated the prevalence of complete edentulism or the association between complete edentulism and socioeconomic factors in Riyadh. In order to plan for future oral health care provisions for the society, collecting epidemiological data on oral health particularly related to prosthodontics and its related issues are very important.

The purpose of this study was to assess the relationship between socio-demographic factors and edentulism in Riyadh.

2. Materials and methods

The study group comprised 279 patients who attended King Saud University dental institution (female section) in the Riyadh region for complete denture treatment for the academic year 2011–2013. Only patients who were completely edentulous in both or either arch were selected. A prepared questionnaire that contains eight questions was developed, all subjects were interviewed and the study purpose was explained, questions were personally filled after the subjects signed a consent form.

The questionnaire included:

- Age
- Need of complete denture (whether in one or both arches).
- Reason for attendance: new complete denture or a replacement of existing dentures.

- Problems with existing dentures: esthetics, broken, loss of retention and instability, occlusal relationship, or need a spare set of dentures.
- Period of edentulousness: less than 1 year, from 1 to 5 years, or longer than 5 years.
- Education: uneducated, primary school, secondary, high or university.
- Monthly income: Less than 3000 SR, 3000 SR – 10,000 SR, 10,000 SR – 15,000 SR, more than 15,000 SR.
- Region of accommodation: north, south, east, west or center of Riyadh.
- Dental preventive attitude: positive (seeks dental advice and treatment regularly) or negative (seeks dental treatment only when in pain).

Data were analyzed using frequency distribution tables. In this study the *t*-test was used to evaluate two sample means, and chi-square tests were used to evaluate the relationship between two classified variables.

3. Results

Majority of subjects were between the ages of 50–59 years, Table 1 shows the age distribution among subjects. Two hundred thirty-one subjects (82.8%) needed both maxillary and mandibular dentures, while 48 needed complete denture for one arch. Eighty-four subjects (30.1%) were referred for fabrication of their first set of complete dentures, while 195 patients (70%) needed replacement of their existing dentures.

Majority of subjects who required dentures replacement was because of loss of retention, and the least required a spare set of dentures (Table 2).

Majority of subjects (62.3%) were edentulous for longer periods (over 5 years) while 10.75% were edentulous for less than one year, the rest of the subjects' period of edentulousness was between 1 and 5 years (26.95%).

One hundred twenty-three subjects (44.1%) were uneducated, 96 of them referred for both maxillary and mandibular complete dentures, 24 (8.6%) patients had

Table 1
Age distribution among subjects.

Age groups (years)	Frequency (percent)
30–39	9 (3.2%)
40–49	27 (9.7%)
50–59	123 (44.1%)
60–69	81 (29%)
Above 70	39 (14%)
Total	279 (100%)

Table 2
Reported problems with existing denture.

Problems with existing denture	Frequency (percent)
Esthetics	15 (7.7%)
Broken	36 (18.5%)
Loss of retention	102 (52.3%)
Pain or discomfort	33 (16.9%)
Spare set	9 (4.6%)
Total	195 (100%)

a university degree with 18 of them referred for both complete dentures (Fig. 1).

There were 165 subjects (59.1%) with a low monthly income of less than 3000 SR with 32.7% in the south region and 27.3% in the east, 132 (80.0%) of these patients need maxillary and mandibular complete dentures. 84 of 279 subjects (30.1%) with a monthly income of 3000–10,000 SR, 92.9% needed both dentures as well. The least number of patients according to monthly income was those earning more than 10,000 SR (4.3%) (Fig. 2).

Almost 30% of subjects were considered to have a positive dental attitude, around 70% of subjects were considered to have a negative attitude with increase in the dental preventive attitude as the degree of education increase except in the secondary level group were subjects with positive attitude (3.8%) were less compared to uneducated subjects (18.8%) and subjects with primary education (22.5%) (Fig. 3).

4. Discussion

Tooth loss is the dental equivalent of mortality. It is the end product of oral disease and it also reflects the attitude of patient's availability and accessibility of dental care and socioeconomic status. One of the major handicaps in the elderly of our population is loss of

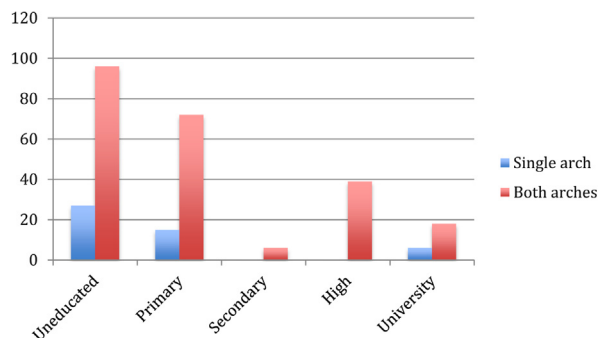


Fig. 1. Relationship between education level and edentulous arch.

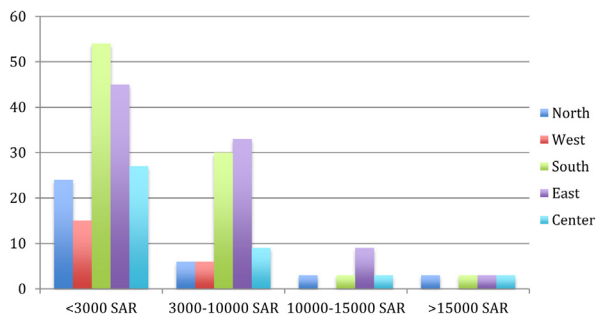


Fig. 2. The relationship between monthly income and area of accommodation.

tooth, affecting the mastication, dietary intake and nutritional status. Many studies have consistently shown the role of specific diseases like dental diseases and periodontal disease as a major cause of tooth loss [7,8].

Approximately, 52.3% (102 out of 195) of subjects required dentures replacement for loss of retention, while 4.6% of those who required a spare set of dentures. It can be noticed that the need for better prosthodontics care is recommended especially among geriatrics.

This study observed that edentulousness is due to a combination of various factors, with non-disease items such as education and socioeconomic status playing an important role. One hundred twenty-three subjects (44.1%) of our study population were uneducated. The need for complete dentures decrease with increasing levels of education, as those people are more keen about their health needs and may seek dental treatments earlier than others. Also those of a higher education status are more able to afford regular dental care than those of a lower education status.

Majority of our study population belong to lower socioeconomic status (59.1%) that demands more

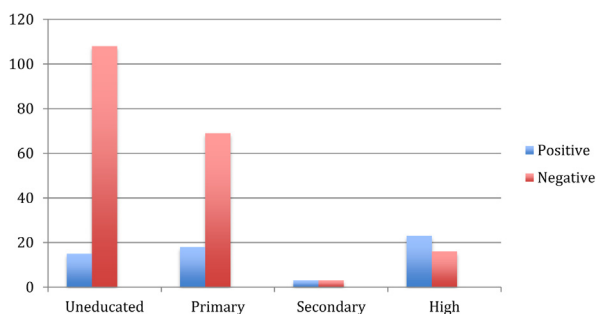


Fig. 3. The relationship between education level and dental preventive attitude.

dentures than the high socioeconomic group. Studies have long established a close relationship between socioeconomic status and health [9].

The least number of patients (4.3%) according to monthly income earned more than 10,000 SR were equally distributed throughout Riyadh except in the western region. While the majority of patients (59.1%) earned less than 3000 SR are living in the south and east of the country. This finding may be due to families living in these regions suffering a reduced income in conjunction with other problems.

A Survey that was undertaken by “The High Commission for the Development of Riyadh (HCDR) showed that slum neighborhoods are located within the sub-municipality of al-Bat·h·ā (southern of Riyadh). The survey discovered that 54.5% of the Saudi residents affiliated with al-Bat·h·ā had incomes of less than SR47,999 per annum [10], where 53.2% of houses are old, rundown mud structures [11].

Thompson and Kreisel in 1998 [12] stated that subjects with least education and lowest income are most likely to be edentulous. Individuals of a low socioeconomic status are not seeking dental care on regular basis leading to more edentulous cases.

In the present study, 71.3% of the study population had a negative attitude toward preventive dental health care in agreement with others [13,14].

It was also observed in this study the increase in dental preventive attitude as the degree of education increases except in the secondary level group were subjects with positive attitude (3.8%) were less compared to uneducated subjects (18.8%) and subjects with primary education (22.5%) and this may be due to the small number of subjects in the secondary education level (6) which represents only 2% of the sample and this was not enough to give a satisfactory result, therefore was not considered in result interpretation.

In other words, education and income as well as dental care behavior and lifestyle can be confounding variables that are difficult to control [15]. Among the 42 countries reviewed in a study by Polzer et al., 2010 [16], the percentage of edentulism ranged from 1.3 to 78.0% for the 65 + age group. The eight industrialized nations organized as G8 in the world (Canada, France, Germany, Italy, Japan, Russia, the United Kingdom and the United States) experienced considerable differences in prevalence of edentulism from 16.3% in France [17] to 58% in Canada [3] among people aged 65 years. Among the developing countries this range was even wider, with the lowest prevalence being 1.3% in Nigeria [17] and the highest being 78% in Bosnia-

Herzegovina [18]. Within the more developed nations, the lowest prevalence of edentulism among the adult population aged 65–74 years was 13.8% in Switzerland [19].

From the present study it can be attributed that there is a great need to focus on improving the educational and socioeconomic status of our citizens, which will aid in controlling the disease factors causing edentulism. Dental education should be targeted to non-educated and low-income groups to reduce the rate of total edentulism.

Our study has certain limitations that emphasize a cautious interpretation of results. This study population was an all-inclusive institutional based sample; the results may not be representative of whole kingdom population, beside the relatively limited sample size and gender.

A nationwide evaluation of health services should carry out further epidemiological surveys on a larger scale related to wealth, education and caste on individual basis. This helps us to estimate the prevalence and associated factors of edentulism among non-institutionalized population.

5. Conclusion

- Edentulism continues to represent an enormous global health care burden that is often neglected in both developed and developing countries.
- It can be stated that the need for prosthodontics care is expected to increase in average life span among Saudi subjects.
- This study revealed a relationship between socio-demographic variables and edentulism with age, educational level and socioeconomic status playing vital role in edentulism and denture demand.
- Dental education and motivation are important tools to identify the availability of prosthetic services and to correct the misconception that tooth loss is unavoidable.
- Hence more emphasis should be given on improving educational and the socioeconomic status among citizens in south and east of the capital.

6. Recommendation

Further comparative studies and evaluation of long-term dental care outcomes with a larger sample size representing the whole kingdom population are recommended.

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