

Dental Status and Prosthodontic Treatment Need and Demand among University Students in Some Iraqi Colleges

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Abstract

This cross-sectional investigation was designed to establish the prevalence of caries and edentulous areas as well as the need and demand for prosthodontic treatment among the 4th year students in Dentistry, Education and Engineering colleges.

A sample composed of 237 subjects, (82) students from Dentistry college, 75 students from Education college and 80 students from Engineering college.

The result showed a high percentage of students with carious teeth reported in Education group, the majority of missing teeth ranged between 1-3 teeth among students in 3 college groups, a higher percentage of students in 3 colleges did not consider that replacement of teeth was aesthetically and functionally important.

CI III represented most frequent condition in both upper and lower arches in all college groups and in both sexes. CI I and CI II were rare and found only in Education group.

Introduction

Prosthodontic treatment need is usually prescribed for functional as well as cosmetic purposes, although the patients motivating force in seeking treatment is most often cosmetic, ⁽¹⁾, ⁽²⁾, ⁽³⁾

It is difficult for a prosthodontist in practice to assess the current needs of the public, because the practitioner only sees those patients who seek treatment and is unable to evaluate the total range of needs and demands in a given population. This type of evaluation can be done only by a population survey, ⁽⁴⁾ ⁽⁵⁾. Assessment of the need for prosthodontic treatment may also serve as a measure of the effect of changes in dental treatment and its consumption, ⁽⁶⁾

In this study a cross - sectional epidemiological survey among a sample of Iraqi students at 4th year stage from Dentistry (Baghdad

University), Education (Baghdad University / chemistry department and Engineering (AL-Mustansiria University) colleges will be conducted.

Materials and methods

The present study was carried out during the period from January 1999 to 25 April for the same year. It covered a sample of 4th year students of colleges, Dentistry, Education / Department of chemistry and Engineering. The sample was predetermined to represent 1 in 5 of the total number of the 4th year student in each colleges so the sample were 82,75 and 80 for

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Dentistry , Education and Engineering college respectively.

The data was recorded on a pre-typed form from Figure (1). Questions were formulated as far as possible to be answerable without help however, help was available in case any question appeared to be vague.

A short medical history was obtained including presence of any chronic disease, medical compliance or drug intake, Oral examination was carried out using a mouth mirror and dental probe. Natural or artificial light was used throughout the survey.

Recording of missing teeth.

Missing teeth already replaced with a bridge were regarded as missing , while those teeth with only the root remaining or with advanced periodontal disease , which in the clinical judgment of the examiner could not be restored to a firm and functional state by periodontal therapy were regarded as ‘

Impacted teeth and congenitally missing teeth (other than third molars) were all regarded as missing.

Recording of partially edentulous areas

The classification adapted for this study was based on the Kennedy classification which has been recognized for several years, ⁽²⁾

Prosthodontic treatment needs index

Application of Eichner's index for estimation of the prosthodontic treatment need used by Mohlin et al in 1979 ⁽⁶⁾ was undertaken including

A - The need for prosthodontic treatment for occlusion rehabilitation - OR index includes the following:

Grade 4; very urgent, Grade 3: A great need, Grade 2: A moderate need Grade 1: little need, Grade 0: No need for treatment.

B - The need for prosthodontic treatment for aesthetic rehabilitation - ER -index includes five scales:

Grade 4: That 11/ and 21 are missing with remaining spacing exists in one or both jaws.

Grade 3: That 12 and / or 22 are missing or all mandibular front teeth are missing.

Grade 2: That the crowns of maxillary front teeth have an oblique fracture or atypical shape or lower incisor crowns are missing

Grade 1: That one mandibular incisor crown is missing or the first upper premolar is missing.

Grade 0: No need for prosthodontic treatment for rehabilitation

C - The overall need for prosthodontic treatment PT index: These include the following scales:

Grade 4: An urgent Need, Grade 3: A pronounced need, Grade 2:

A moderate need, Grade 1: Little need, Grade 0: No overall need for prosthodontic treatment.

Replacement care for missing teeth:

This criterion was based on the guidelines the Californian Dental Association C D A ⁽⁷⁾ , W H O ⁽⁸⁾ , These were recorded as

Follows:

A. Needs for fixed bridge.

If the edentulous span is short and bounded by abutment teeth with good periodontal support and good occlusion.

B. Need for partial denture.

If the patient had conditions revealed during the clinical examination which contraindicated

replacement of missing teeth with fixed prosthetic appliances.

Statistical analysis:

The differences between variable were analyzed using the chi square test (X^2) then correlation was studied. The level of significance used was at 0.05.

RESULT

As previously stated, 237 subjects were included in this study, from Dentistry college (82) student (37) males and (45) females, from Education college (75) student (37) males and (38) females while from Engineering college (80) students (39) males and (41) females.

Statistical analysis of the results of missing teeth

X^2 test showed no significant differences between men and women in all colleges [$X^2 = 2.6956$ d.f = 2 $P < 0.25$] as well as there was no significant different between Engineering and Education groups [$X^2 = 2.0824$ d.f = 2 $P < 0.35$] and no significant differences was found between Dentistry and Engineering groups [$X^2 = 13.429$ d.f = 2 $P < 0.001$] as Shown in Table 1 .when compared together

Attitudes towards teeth replacement (Questionnaire)

The result showed that majority of participants from both sexes in three colleges appeared to prefer fixed bridge replacement rather than removable appliances. In Table-2- a significant difference was found between men and women. X test illustrated that there was a non significant different between college groups.

Reason of no dental replacement (Questionnaire)

Table (3) shows that a higher percentage of student in three colleges did not consider that replacement of teeth to be aesthetically and functionally important. This Table also presented that there was no significant different between each of two college groups.

Prevalence of partially edentulous area

Cl III represented most frequent condition in both upper and lower arches in all college groups and in both sexes. cl II and cl I were rare and found only in Education group in both upper and lower arches . No one student in these groups presented with cl IV. X test for upper and lower Kennedy classification presented a significant different between men and women for Cl III Kennedy classification, for upper Kennedy classification $X^2 = 54.0795$ d.f=2 $p < 0.0001$ and for lower arch $X^2 = 38.908$ d.f=2 $P < 0.0001$.

Relation ship between upper and lower Kennedy classes

This relation was calculated in Table (5) for students with no missing teeth, student with Cl III and students with Cl II. There was a statistically significant difference between upper and lower arches (When comparing the differences between different college groups in prevalence of partial edentulous areas , a significant difference between each of two college groups was found when compared separately

Occlusal supporting zones:

Results in table (6) showed that in Dentistry and Engineering colleges all men and women 100% had occlusal

contacts in all four supporting zones (Eichner index category A). In education college, 100% men and 94.8% women had occlusal in all four supporting zone, the remaining percentage of 5.2 % women had occlusal contact in three supporting zone and less (category B of Eichners index). None was found to fill category C of Eichners index. In statistical analysis there was a high significant different between Dentistry and Education groups ($\chi^2 = 32.95$ d.f=5 $P < 0.00004$). As well as there was a significant different between Education and Engineering groups ($\chi^2 = 4.6645$ d.f = 5 $P < 0.02$) while no significant different was found between dental and Engineering groups ($\chi^2 = 13.39$ d.f =5 $P < 0.45$).

Replacement care for missing teeth:

In Table (7) it appeared that in the upper and lower jaws the higher percentage of total number of subject having missing teeth in the three colleges needed fixed bridges. Where in the lower jaw a higher percentage than in upper jaw. The need for removable partial denture in upper and lower jaws were rare and it was recorded as four cases in Education college group, (one case in the upper jaw, and three cases in lower jaw)

DISCUSSION

The sample of present study composed of student of three colleges (Dentistry, Engineering and Education). The selection of students based on that every fifth student examined, in alphabetical order (this participation rate is comparable with other epidemiological studies).⁽⁹⁾

In the present investigation a questionnaire was used which has the advantage of reducing the influence of

interviewer,⁽¹⁰⁾ In order to ensure more reliable comparisons of the clinical observations within the sample where only one examiner conducted the examination.

Attitudes towards teeth replacement Questionnaire

The questionnaire study indicated that the majority of participant from both sexes in the three different colleges appeared to prefer fixed bridge replacement this is in agreement with other result AL-Rawi⁽¹¹⁾, Hugoson⁽¹²⁾ ⁽¹³⁾ this might be due to that properly constructed fixed restoration are usually more physiologically and psychologically acceptable to the patient⁽⁷⁾

Reason of no dental treatment (Questionnaire)

A higher percentage of students in the three different colleges did not consider that replacement of teeth was aesthetically and functionally important this was in disagreement with result of AL-Rawi (1993)⁽¹¹⁾ this might be due to those missing teeth were mainly posterior cl III.

Prevalence of partial edentulous area

A fairly high prevalence of Kennedy cl III was found in maxillary and mandibular arch in both sex as the 3 different colleges which is probably due to the relative early disappearance of molars and premolars this in agreement with other studies AL-Rawi (1993)⁽¹¹⁾ Bjorn et al (1979)⁽¹⁴⁾, Luan et al (1989)⁽¹⁵⁾ Spartley (1978)⁽¹⁶⁾, Widstorm (1982).⁽¹⁷⁾

No Kennedy class IV classification recorded in this study while for CI I and CI II only few cases in Education group, having very low numbers as compared with AL-Rawi results (1993)

(11), Bjom (1979) ⁽¹⁴⁾ this is probably because their sample was composed of older age group where cl I and cl II seemed to be more frequent and more extensive.

In testing the differences between sexes in the Kennedy classification, A statistically significant difference was found between men and women for the upper jaw this was in agreement with AL-Rawi (1993) ⁽¹¹⁾ while for the lower jaw the results were in disagreement with AL-Rawi (1993) ⁽¹¹⁾ this may be due to the fact that our sample consists of young age group only and the missing teeth were not replaced by bridges.

Relationship between upper and lower Kennedy classes

Statistically significant difference between upper and lower Kennedy classes and for the 3 different colleges. A high percentage of classification in lower and this was in agreement with the result of AL-Rawi (1993) ⁽¹⁶⁾. And Widstorm (1982) ⁽¹⁶⁾.

College of Education showed a higher percentage when comparison between different colleges groups was estimated this might be due to that attitude of students of Education of college directed toward extraction of teeth rather than treat them.

Occlusal supporting zones

In Dentistry college group men and women 100% Engineering college group men and women 100% and Education men 100% and women 94.8% having occlusal contact in all four supporting zone Eichners index (category A) this result was similar to the result obtained by Zimmerman et al (1990) ⁽¹⁷⁾.

Also for this index it was appeared that three colleges don't show a category C of Eichners index this was

in disagreement with result obtained by AL-Rawi (1993) ⁽¹¹⁾, Hellden et al (1989) ⁽¹⁷⁾ this might be due to the fact that the sample used in this study of young age group.

For the education college of it appeared that the group of women 5.2% had occlusal contact in three supporting zone and less (category B of Eichner index), this result appeared significantly different from Dentistry and Engineering college groups this may be due to- the high number of teeth extracted in education college group due to less care.

Replacement care for missing teeth

The result showed that there was a significant difference between upper and lower jaws also there was a significant difference between Dentistry and Education college group as well as between Dentistry and Engineering. The higher percentage of total number of subjects who had missing teeth in the three different colleges needed fixed bridges. In the lower jaw the percentage was higher than that in upper jaw this was in agreement with result obtained by AL-Rawi (1993) ⁽¹¹⁾ while for Widstorm (1982) ⁽¹⁶⁾ a low percentage of fixed bridge this could be explained by the lower rate of use of dental services which was due to lack of interest, low social status of subjects as well as high costs. The latter reason was also mentioned by Tervomen (1988) ⁽¹⁸⁾.

Conclusion

- 1- a. The frequency of carious and missing teeth was high in Education college group followed by engineering group while the number of filled teeth was relatively high in Dentistry group.

- b. Most common partially edentulous area (Kennedy classification) was the C1 III and only four cases of C1 II and C1 I were recorded that was in the education college.
- 2- A High percentage of students all of the different college in three groups needed fixed bridge replacement sex seemed to have no direct effect on the results.
- 3- The causes of absence of dental treatment in spite of need were due to poor dental education, as well as low use of dental services which was in turn related to lack of interest, low social status of subjects and high cost.
- 4- More educational programs of improvement of dental health care are needed to increase the level of awareness for all students in Iraq and at different educational levels.
- 5- There was a significant difference in CIII Kennedy classification

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Table 1 Differences between sex group of all colleges and among colleges (Dentistry , Education , and Engineering

Groups	X ²	D. f	P. Value	Sig
M& W all college	2.6956	2	P <0.25	N.S
En & Ed	2.0824	2	P <0.35	N.S
Dent & En	13.429	2	P <0.001	N.S

Table (2) percentage of subjects according to preferable prosthodontic replacement for Dentistry , Education and Engineering colleges

Preferable Prosthodontic Replacement	Men			Women			Total		
	D %	Ed %	Eng %	D %	Ed %	Eng %	D %	Ed %	Eng %
Fixed bridge	45.9	45.9	53.8	44.4	34.2	53.7	45.1	40	53.7
Removable denture	21.6	13.6	10.2	15.6	7.9	7.3	18.3	10.7	8.7
No differences Fixed or removable	0	0	2.6	0	2.6	0	0	1.3	1.3
Don't Know	32.5	40.5	33.4	40	55.3	39	36.6	48	36.3
Total	100	100	100	100	100	100	100	100	100

X²(MxW) =4.53 d.f=3 P<0.2 SX²(DxEd) =10.05 d.f=3 P<0.01 N.SX² (DxEn) =13.27 d.f=3 P < 0.004 N.SX² (Ed x En) = 7.72 d.f=3 P < 0.05 N.S

Table (3) Frequency and relative distribution of the factors affecting teeth replacement according to type of college

Reasons of dental replacement	Total No.237	D No. 82	Ed No.75	Eng No. 80
	%	%	%	%
Financial	8	9.8	8	11.3
Not affected	19.4	23.3	20.3	25.0
Has no idea about replacement	6.3	7.4	8.3	10.0
unwillingness	10.6	12.8	14.7	18.8
Total	44.3	53.3	51.3	65.1

X²(D,Ed)=7.67 d.f=4 P<0.1 N.SX²(D, En) =6.516 d.f=4 P<0.01 N.SX² (Ed , En) = 12.27 d.f=4 P<0.01 N.S

Table 4 Differences between man & women for cl III Kennedy classification presented a significant different between men and women Kennedy classification

Group	X ²	D.f	P . value
(M&W) upper	54.07	2	P <0.0001
(M&W) lower	38.90	2	P <0.0001

Table (5) Frequency and relative distribution of upper and lower Kennedy classification for Dentistry, Education and Engineering colleges . (cl IV excluded from Table because no one has cl IV Kennedy classification).

Kennedy classification	Lower NO. Eng=80	D=82 Ed =75	No missing	C1III	C1 II	CII	Total
Upper No. D=82,Ed=75,Eng=80			%	%	%	%	%
No Missing area	D Ed. Eng	(87,0)(88,8) (77,3)	(70,9) (100) (100)			(100)	(79,3) (81,3) (92,0)
C1III	D	(22,7)					(20,7)
	Ed.	((11,6	(20,7)	(100)			(17,3)
	Eng	(12,0)					(7,0)
C1 II	D						
	Ed		(3,8)				(1,8)
	Eng						
CII	D						
	Ed						
	Eng						
Total	D	(91,0)	(8,0)				(100)
	Ed	(07,3)	(38,7)	(7,7)	(1,3)		(100)
	Eng	(60)	(80)				(100)

No missing $X^2 = 29.28$ d.f=3 p<0.0001 S
 X^2 C1 III = 55.75 d.f=3 p<0.0001 S
 X^2 C1II = 0.625 d.f=3 p<0.7 S.
 X^2 CII = 0 d.f=2 p<1
 X^2 (D x Ed) = 232.92 d.f=3 p0.0001 S.
 X^2 (Dx Eng) = 1.651 d.f=3 p<0.7 S.
 X^2 (EdxEn) = 2247 d.f=3 p<0.0000.5 S.

Table (6) Relative distribution of Eichner's Index according to sex and type of college

	A1	A2	A3	B1	B2	B3	Total
DM	78	20	2	0	0	0	100
DW	73	25	2	0	0	0	100
En M	43	50	2	0	0	0	100
EnW	67	30	3	0	0	0	100
EdM	70	27	3	0	0	0	100
EdW	71	19	4	3	2	0	100

Table (7) Frequency and relative distribution of replacement care for missing teeth according to type of college.

Replacement care for missing teeth					
Dental arch	College	No need	Need fixed	Need removable	total
Maxilla	D	79,3	20,7		34,6
	Ed	88	18,7	1,3	31,6
	Eng	92,0	7,0		33,8
	Total	80,2	18,8	0,8	100
Mandible	D	91,0	8,0		34,6
	Ed.	08,7	37,3	8	31,6
	Eng	60	80	33,8	
	Total	70,8	28,3	1,3	100

X^2 =(maxilla , mandible) 10.58971 d.f=2p<0.05022 S

X^2 (D , Ed) = 10.415 df= 2 P < 0.0548 S
 X^2 (D , En) = 4.623 df= 2 P < 0.09912 S
 X^2 (Ed, En) = 0.528 df=2 P<0.7679 NS

1-No. of student Name:----- Sex : Age in year

2-College name -----Date of examination -----

3- Address -----.

4- General medical history ----- .

5- What kind of replacement do you prefer if you have loss teeth?

A- Fixed bridge. B- Removable denture.

C- No difference fixed or removable. D-Do not knows.

6-Missing tooth (teeth) not replaced by artificial ones what are the reasons (more than one reason can be chosen).

A-Financial reasons. B- Not affected aesthetically or functionally by tooth (teeth) loss.

C- No information about obtaining dental treatment .D-Un willingness or other reasons.

11 - Are you wearing any dental prosthesis? A-yes. B-No.

12- If you have been supplied with prosthesis, what kind is it?

A-Fixed. B- Removable. C- Fixed and Removable.

Clinical Examination

Dentition status

17	16	15	14	13	12	11	21	22	23	24	25	26	27

Eichner Index - OR Index -ER Index -PT Index

- Kennedy classification
- Presence of fixed prosthesis
- Presence of removable prosthesis
- Kennedy classification of RPDs
- Replacement care for missing teeth

(Figure -1- Pre typed from)