

Dental Caries Experience, and Oral Health Attitude and Behaviors among Undergraduate Dental Students at Umm Al Qura University

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Abstract: Background: Dental students are generally motivated to maintain good oral health. Their behavior and attitudes towards their own oral health reflect their understanding of the importance of preventive dental procedures and improving the oral health of their patients. **Aim:** this study was done to investigate dental caries experience and oral health attitudes and behaviors among undergraduate dental students in faculty of dentistry, Umm Al-Qura University (UQU) at different years of study. **Materials and Methods:** This study included 50 undergraduate dental students, in the Faculty of Dentistry, Umm Al Qura University, Makkah, KSA. Dental caries experience was measured through clinical examination using (DMFT) index according to the WHO standard criteria for dental caries experience assessment. Examination was done in the male clinics at the faculty. Quantitative data of Oral health attitude and behavior among the students were collected through a questioner including questions about general information, personal experience and habits of dental care, oral hygiene behavior such as frequency of brushing, use of dental floss and mouthwashes, dietary habits, smoking and dental visiting habits. **Results:** A total of 50 students (males) were included and all of them completed the study. The prevalence of dental caries was 88%. Most of students were brushing their teeth at least twice daily, while approximately 64 % of the subjects reported using a toothbrush and toothpaste to clean their teeth. 56 % reported using dental floss. About 34 % of the subjects took at least two minutes to brush, while 32% took one minute. Most of the subjects were aware that sweets (96%) and soft drinks (98%) have a negative impact on dental health. Almost 62% of study sample were non-smoking. **Conclusion:** Oral health attitudes and behavior of the dental students and also their knowledge about oral and dental health care improved with increasing the year of dental faculty education.

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Key Words: Dental Caries, Oral Health Attitude and Behaviors, Undergraduate Dental Students, DMFT

1. Introduction:

As future leaders in oral health care, dental students have a major role in patient education and oral health promotion. It is expected that dental students will become exemplars in their own oral health attitudes and behaviors, and these may reflect the manner in which their future roles in oral health promotion and education are fulfilled *Barrieshi-Nusair et al., 2006; Khami et al., 2007; Messer and Calache, 2012.*

Dental students are generally motivated to maintain good oral health. Their behavior and attitudes towards their own oral health reflect their understanding of the importance of preventive dental procedures and improving the oral health of their patients. *Al-Wahadni et al., 2004.* The increment of dental caries among the dental students was found to be much smaller than that observed earlier among other university students. *Kolehmainen and Rytömaa, 1977.*

At present, it is assumed that the decrease in the

prevalence of dental caries in many population groups is related to a reduction in the activity and the speed of progression of the carious lesions. This has led to a change in the dentists' approach to dental care, which is more oriented toward prevention rather than restoration in order to avoid or postpone invasive treatment. The process of adopting this change in dental care attitudes regarding their own dental care must be learned and practiced throughout the dentists' learning process, especially during their undergraduate training in dental school. *Nyvad and Fejerskov, 1997; Anusavice, 1998 and Yorty et al., 2011.*

The oral health attitudes and behavior of dental students differed in the pre-clinical and clinical years. The attitudes and behavior toward oral health were found to vary between countries and cultures. *Cortes et al., 2002.*

This study was conducted to investigate dental caries experience and oral health attitudes and behaviors among undergraduate dental students in

faculty of dentistry, Umm Al-Qura University (UQU) at different years of study.

2. Materials and methods:

This study included 50 under graduate dental students, in the Faculty of Dentistry, Umm Al Qura University, Makkah, KSA. after approval by the institutional research and ethics committee and all participants signed an informed consent.

Dental caries experience was measured through clinical examination using (DMFT) index (see the attached appendix) according to the WHO standard criteria for dental caries experience assessment. Examination will be done in the male clinics at the faculty.

Quantitative data of Oral health attitude and behavior among the students were collected through a questioner including questions about general information, personal experience and habits of dental care, oral hygiene behavior such as frequency of brushing, use of dental floss and mouthwashes, dietary habits, smoking and dental visiting habits (see the attached appendix).

Analyses of the data was compiled by a descriptive method, and the statistical analysis was performed by the computer program SPSS (Statistical Package for Social Sciences, version 20.0).

3. Results:

A total of 50 students (males) were included and all of them completed the study. In regard to the caries experience of the participants, the results of DMFT

index are presented in table (1) and figure (1). The prevalence of dental caries was 88% among the students as 6 of them were caries free figure (2).

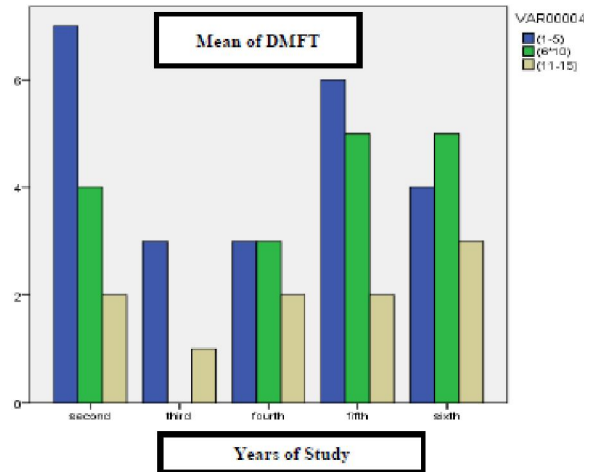
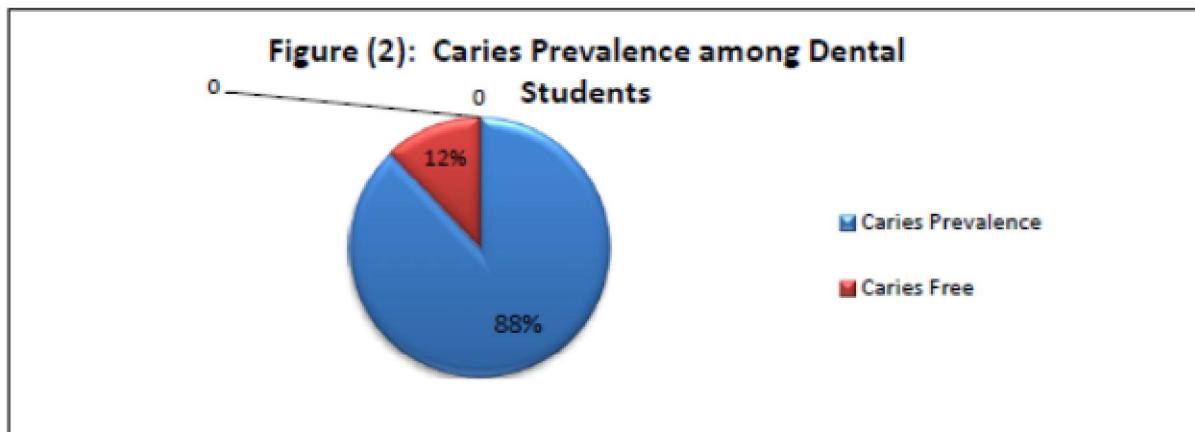


Figure (1): DMFT Index

Table (1): DMFT Index

Years of study	DMFT index			Total
	(1-5)	(6-10)	(11-15)	
Second	7	4	2	13
Third	3	0	1	4
Fourth	3	3	2	8
Fifth	6	5	2	13
Sixth	4	5	3	12
Total	23	17	10	50



Most of students were brushing their teeth at least twice daily, while approximately 64 % of the subjects reported using a toothbrush and toothpaste to clean their teeth. 56 % reported using dental floss. 56 % reported using mouthwash, and 14 % reported using toothpicks as extra aids for oral hygiene (Table 2).

Furthermost subjects brushed their teeth before going to bed and/or in the morning. About 34 % of the subjects took at least two minutes to brush, while 32% took one minute. Almost 50% frequently drank fizzy drinks. 36% 2-4 per day frequently eaten snacking. Almost 62% of study samples are non-smoking (Table 2).

Table (2): oral hygiene habits among the study population:

Item	Response	Frequency	(Percent)
Which of oral hygiene method (s) do you use for cleaning:	Toothbrush and paste	32	64%
	Dental floss	4	8%
	Mouthwash	7	14%
	toothpicks	7	14%
How often do you brush your teeth?	Never	2	4%
	Once or twice per week	3	6%
	Once per day	13	26%
	Twice per day	25	50%
	More than twice per day	7	14%
Brushing intervals:	At morning	10	20%
	Before bed	7	14%
	Before bed and at morning	29	58%
	Other times	4	8%
For how long do you have to brush your teeth?	Less than one minute.	2	4%
	One minute	16	32%
	Two minutes	17	34%
	More than two minutes	15	30%
Do you often check your teeth in mirror after brushing?	Yes	40	80%
	No	9	18%
Do you have to use fluoridated toothpaste?	Yes	40	80%
	No	10	20%
Your learn to floss your teeth by:	Dentist	21	42%
	Dental hygienist/Assistant	6	12%
	relatives	23	46%
Do you floss your teeth?	Yes	28	56%
	No	22	44%
How often do you floss your teeth?	Once or twice per week	17	61%
	Once or twice per day	11	39%
Your learn to floss your teeth by:	Dentist	16	58%
	Dental hygienist / Assistant	5	16%
	Relatives	7	26%
Do you use a mouthwash?	Yes	28	56%
	No	22	44%
Mouthwash Frequency:	Once or twice per week	15	54%
	Once or twice per day	13	46%
Snacking frequency:	Never	5	10%
	Once per day	24	48%
	2-4 per day	18	36%
	5 snacks per day	3	6%
Fizzy drinks frequency:	Never	20	40%
	Once per day	25	50%
	2-4 per day	5	10%
	5 snacks per day		
Do you smoke?	Never	31	62%
	Occasionally	9	18%
	Daily	10	20%
How will you rate your oral hygiene?	Good	31	62%
	Fair	18	36%
	poor	1	2%

Approximately 80% of the subjects were care about their teeth as much as any part of their body. 90% of them were aware of the impact of the mouth and dental structures on the general health of the

body. Around 94% were aware that dental caries affects dental aesthetics. Most of the subjects were aware that sweets (96%) and soft drinks (98%) have a negative impact on dental health (Table3).

Table (3): Knowledge and awareness of dental and general among the study population:

Item	Response	Frequency	Percent
Do you care about your teeth as much as any part of your body	Yes	40	80%
	No	7	14%
	Don't Know	3	6%
Does the health of mouth and dentition impact the health of the body	Yes	45	90%
	No	3	6%
	Don't Know	2	4%
Does caries affect dental aesthetics	Yes	47	94%
	No	3	6%
	Don't Know	50	100%
Do sweets affect dental health	Yes	48	96%
	No	1	2%
	Don't Know	1	2%
Do soft drinks affect dental health	Yes	49	98%
	No	0	0
	Don't Know	1	2%
What does dental plaque mean	Soft debris on the teeth	39	78%
	Hard debris on the teeth	8	16%
	Don't Know	3	6%

Around 48% of the study sample had visited the dentist during last 6 months, most of them 42% reported that dental pain was the driving factor for their last visit. Approximately 26% of the subjects their last visit to a dentist was because they need filling. The majority of the study sample reported 76% of the dentist explained dental procedures before treatment and 82% provide proper care. Other student's attitudes towards professional dental care are presented in (Table 4).

4. Discussion:

A dental health questionnaire focused on knowledge, attitude, and behavior concerning oral health status was conducted among undergraduate dental students, Faculty of Dentistry, Umm Al Qura University (UQU). The limitation of this research is being assessed on the basis of self-reported data. Measurement error due to misinterpretation of questionnaire's questions and memory errors are subjected to occur (Schwarz, 1990). To overwhelm this problem the questions were expressed simply and a pilot study was performed.

Oral health is considered as a part of human general health and therefore affects the total well-being and various aspects of quality of life. As the

dental caries has been the most commonly investigated oral disease, most studies have focused on dental caries. Hence the present study investigates the dental caries experience as a part of oral health among UQU dental students.

Results of the present study showed that the prevalence of dental caries was high (88%) among the students. Furthermore, means of DMFT were 5, 2.5, 7.3, 6.9 and 7.3 for 2nd, 3rd, 4th, 5th and 6th years' students respectively. This indicates that there are still inadequacies in the areas of both preventive and restorative dental care. For pre-university education, more oral health education programs must be organized in an attempt to control oral diseases and school-based approaches should be combined with community-directed preventive programs.

Oral health behavior of a person is very important for oral disease prevention and is determined by the tooth brushing habits, cleaning of interdental spaces and regular dental visits (Syrjala et al., 2001). The majority of participant students (50%) are brushing their teeth twice a day using fluoridated toothpaste (80%), which was lower than that reported in Nigerian dental students (95%) (Folayan et al., 2013). Two students never brush their teeth and three reported to brush once or twice per week. Those

students were in the earlier years 2nd and 3rd years. One of the reasons behind this finding could be lack of awareness regarding the oral hygiene measures.

The frequency of twice daily brushing among dental students in UQUDENT is very low (50%)

compared to their counterparts in Mongolia (81%) (Tseveenjav et al., 2004), Australia (80%) (Messer and Calache, 2012), France (78%) (Cavaillon et al., 1982) and Iran (57%) (Khami et al., 2007).

Table (4): Attitudes towards professional dental care among the study population:

Item	Response	Frequency	Percent
Are you regular visits to the dentist necessary?	Yes	12	24%
	No	17	34%
	Don't Know	19	38%
Last time you visited a dentist was:	Six months ago	24	48%
	Last 6-12 months	13	26%
	Last 1-2 years.	6	12%
	Last 1-5years	1	2%
The reason for my last visit to the dentist was:	Dental pain	21	42%
	Family and friend advice	6	12%
	Adentist and advised me	7	14%
	Another reason (specify)	16	32%
The treatment I sought during my last visit to dentist was:	Examination and checkup	11	22%
	Scaling and gum treatment	8	16%
	Fluoride application	3	6%
	Treat mt gums	3	6%
	Fillings	13	26%
	Crown or bridge	1	2%
	Orthodontic treatment.	3	6%
	Tooth extraction	5	10%
	Others (specify)	3	6%
Dentist always explain the dental problem and solve it:	Yes	39	78%
	No	6	12%
	Don't Know	4	8%
Dentist explains procedures before treatment:	Yes	38	76%
	No	8	16%
	Don't Know	4	8%
Dentist cares properly about the patient:	Yes	41	82%
	No	6	12%
	Don't Know	3	6%
Dentist cares about treatment but not prevention:	Yes	28	56%
	No	19	38%
	Don't Know	3	6%
Is it necessary for patients to decide their dental treatment needs?	Yes	45	90%
	No	2	4%
	Don't Know	3	6%
Do you think you can decide the treatment you need?	Yes	40	80%
	No	8	16%
	Don't Know	2	4%

The subjects also reported irregular times of tooth brushing. Most subjects brushed their teeth before going to bed and/or in the morning. About 34 % of the subjects took at least two minutes to brush, while 32% took one minute. Approximately 64 % of students were checked their teeth in a mirror after brushing. The use of other recommended oral hygiene

methods other than tooth brushing such as dental floss (46%), toothpicks (14%), and mouthwash (56%) was found to be infrequent; this also could be attributed to the lack of oral health education.

Most of participants demonstrated positive attitudes toward their dentists, 80% were care about their teeth as much as any part of their body.

Approximately 90% of the subjects were aware of the impact of the mouth and dental structures on the general health of the body.

Around 94% were aware that carious teeth and dental caries affect dental aesthetics. Most of the subjects were aware that sweets (96%) and soft drinks (98%) have a negative impact on dental health. Almost 78% were known what is the dental plaque.

This might be explained by the fact that students in the last years are affected by the knowledge and skills they attain during their studies. Students in the early years of studies were less aware with these items and this may be attributed to educational oral health programs for pre-university students have been mainly conveyed to them on a narrow scale by certain formal medical/dental centers. Unfortunately, these efforts are limited and insufficient; hence, there is a need for comprehensive educational programs to improve the oral health practice, knowledge, and attitudes of pre-university students and the general population.

Most of the study subjects reported irregular dental visits, where 48% of the study sample had visited the dentist during last 6 months and this finding is consistent with the findings of Taani, 2002. Approximately 38% of the subjects don't know if visiting dentist necessary, most of them 42% reported that dental pain was the driving factor for their last visit. Approximately 26% of the subject their last visit to a dentist was because they need filling. A high proportion of the subjects reported that they did not attend due to lack of dental pain. Lack of parental encouragement and advice to visit the dentist might also contribute to the irregular dental visits. Lack of parents' routine dental visits might be reflected in their sons. Dental attitudes displayed by parents might also offer an explanation of the lack of regular dental visits.

The majority of the study sample reported 78% of the dentist explained dental problem and solve it. The majority of the study sample reported 76% of the dentist explained dental procedures before treatment and 82% provide proper care. Approximately 56 % of the subject said that their dentist care about the treatment more than prevention. 90% of the subjects said that its necessary for the patient to decide their treatment need. Approximately 80 % of the subjects think that he can decide the treatment he needs.

Conclusion and Recommendations:

Oral health attitudes and behavior of the dental students and also their knowledge about oral and dental health care improved with increasing the level of education. As a health care provider dental students are a good model to their family members, friends and especially patients for oral health behavior. Further studies are needed to monitor the changes in the

values of the component of DMFT among those students in the next years.

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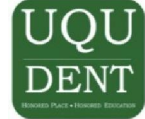
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Appendix



We would first like to thank you for your participation in our study which aimed to investigate dental caries experience and oral health attitudes and behaviors among undergraduate dental students in Faculty of Dentistry, Umm Al-Qura University (UQU DENT).

- Please answer the following questions truthfully. If necessary, please do not hesitate to ask for assistance in completing this form.

Name:..... *Date:*.....

Year of study:

- Second
- Third
- Fourth
- Fifth
- Sixth

Knowledge and awareness of dental and general health among the study population:-

Do you care about your teeth as much as any part of your body?

- Yes
- No
- Don't know

Does the health of mouth and dentition impact the health of the body?

- Yes
- No
- Don't know

Does caries affect dental aesthetics?

- Yes
- No
- Don't know

Do sweets affect dental health?

- Yes
- No
- Don't know

Do soft drinks affect dental health?

- Yes

- No
- Don't know

What does dental plaque mean?

- Soft debris on the teeth.
- Staining of the teeth.
- Hard debris on the teeth.
- I do not know.

What does gum bleeding mean?

- Healthy gum.
- Inflamed gum.
- Gum recession.
- I do not know.

Have you ever complain of:

- Bad breath Yes No
- Bleeding gums Yes No
- Ulcers in mouth Yes No
- Decayed teeth Yes No
- Stains Yes No
- Chalky deposits on teeth Yes No
- Pain and sensitivity in any tooth Yes No

Attitudes towards professional dental care among the study population:-**Are regular visits to the dentist necessary?**

- Yes
- No
- Don't know

How often do you visit your dentist?

- Every 6-12 months.
- Occasionally.
- When I have dental pain.
- I never visited a dentist.

If you not visiting/dislike visiting the dentist, Reason (s) behind that was (were):

- Fear of:
 - Drilling.
 - Dental needle.
 - Extraction.
- Treatment cost was high.
- No Dental clinic nearby.
- No time.
- No specific reason.
- Others.....

Last time you visited a dentist was:

- Six months ago.
- Last 6-12 months.
- Last 1-2 years.
- Last 2-5 years.
- More than 5 years.

The reason for my last visit to the dentist was:

- Dental pain.
- Family and friend advice.
- A dentist advised me.
- Another reason (specify)... ..

The treatment (s) I sought during my last visit to the dentist was (were):

- Examination and checkup.
- Scaling and gum treatment.
- Fluoride application.
- Treat my gums.
- Fillings.
- Crown or bridge.
- Orthodontic treatment.
- Tooth extraction.
- Others (specify)..... ..

When I first visited the dentist:

- I was scared and reluctant.
- Slightly afraid.
- Very slightly afraid.
- I was never afraid.

Dentists always explain the dental problem and solve it.

- Yes
- No
- Don't know

Dentist explains procedures before treatment:

- Yes
- No
- Don't know

Dentist cares properly about the patient:

- Yes
- No
- Don't know

Dentist cares about treatment but not prevention:

- Yes
- No
- Don't know

Is it necessary for patients to decide their dental treatment needs?

- Yes
- No
- Don't know

Do you think you can decide the treatment you need?

- Yes
- No
- Don't know

Oral hygiene habits among the study population:-

Which of oral hygiene method (s) do you use for cleaning your teeth?

- Toothbrush and paste
- Dental floss
- Mouthwash
- Toothpicks
- Others (specify).....

How often do you brush your teeth?

- Never.
- Once or twice per week.
- Once per day.
- Twice per day.
- More than twice per day.

Brushing intervals:

- At morning.
- Before bed.
- Before bed and at morning.
- Other times.....

For how long do you have to brush your teeth?

- Less than one minute.
- One minute.
- Two minutes.
- More than two minutes.

Do you often check your teeth in mirror after brushing?

- Yes
- No

Do you have to use fluoridated toothpaste?

- Yes
- No

Your learn to brush your teeth by:

- Dentist.
- Dental hygienist/Assistant.
- Relatives.

Do you floss your teeth?

- Yes
- No

How often do you floss your teeth?

- Once or twice per week.
- Once or twice per day.

Your learn to floss your teeth by:

- Dentist.
- Dental hygienist/Assistant.
- Relatives.

Do you use a mouthwash?

- Yes
- No

Mouthwash Frequency:

- Once or twice per week.
- Once or twice per day.

Snacking frequency:

- Never.
- Once per day.
- 2-4 snacks per day
- ≥ 5 snacks per day.

Fizzy drinks frequency:

- Never
- Once per day.
- 2-4 per day
- ≥ 5 per day.

Do you smoke?

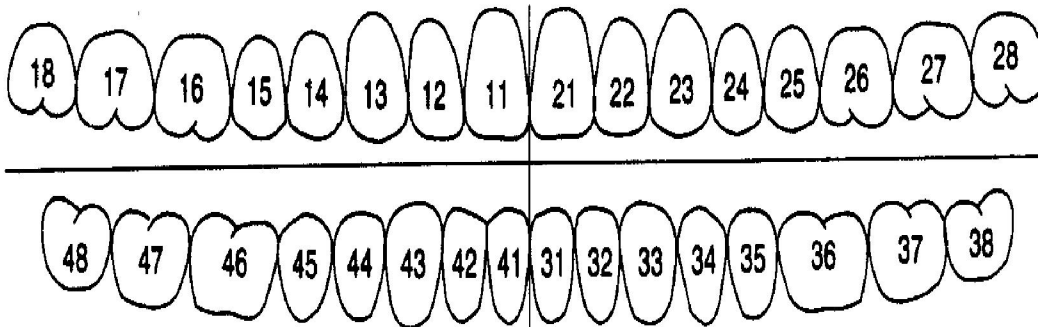
- Never.
- Occasionally.
- Daily.

How will you rate your oral hygiene?

- Good.
- Fair.
- Poor.

Thank you for carefully completing this questionnaire.

DMFT index



DT =

MT =

FT =

DMFT (Caries experience) =

Supervisor

5/23/2017