

A Comparative Study of Oral Health Knowledge, Attitude and Behavior of First and Final Year Dental Students of Udaipur City, Rajasthan.

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ABSTRACT

OBJECTIVE : To assess and compare differences in oral health knowledge, attitudes and behavior among first and final year dental students in Udaipur city, Rajasthan, India.

MATERIAL AND METHODS : In a cross-sectional study, 182 first year students (59 males and 123 females) and 157 final year students (75 males and 82 females) of the two dental colleges in Udaipur city; Rajasthan, were surveyed using a self administered structured questionnaire including 37 multiple choice questions pre-tested through a pilot survey. The data was analyzed using the SPSS version 10.0. The mean percentage scores, standard deviation, and frequency distribution were calculated. The Student's T-test and ANOVA test were used as test of significance. The linear regression analysis were used to assess the relation of knowledge, attitude and behavior.

RESULTS : The mean % score for oral health knowledge, attitude and behavior were significantly higher in final year students compared to first year students. ($p < 0.001$). The linear regression analysis showed a statistically significant linear relationship of attitude with the knowledge ($p < 0.001$) and behavior with the attitude ($p < 0.001$) of the students.

CONCLUSION : Besides the positive changes revealed in the oral health knowledge, attitude and behavior, among the students from first to final year of dental studies, preventive behavior among the students could still be improved.

KEY WORDS : Oral health knowledge, Attitude, Oral health behavior.

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Knowledge as defined by 'Oxford dictionary' is the 'expertise and skills acquired by a person through experience or education'. Knowledge acquisition involves complex cognitive processes: perception, learning, communication, association and reasoning. The term knowledge is also used to mean the confident understanding (theoretical or practical) of a subject with the ability to use it for a specific purpose. An attitude is a relatively enduring organization of beliefs around an object, subject or concept

which pre-disposes one to respond in some preferential manner. Attitude is an acquired characteristic of an individual. People demonstrate a wide variety of attitudes towards teeth, dental care and dentists. These Attitudes naturally reflect their own experiences, cultural perceptions, familial beliefs, and other life situations and they strongly influence the oral health behavior(1-4). Attitudes are not learnt from text-books, they are acquired by social interaction. Previous studies have shown that mass media, dental professionals and dental literature are

the main sources of oral health information(5). The attitude towards oral health determines the health status of the oral cavity. Health behavior as defined by Steptoe and colleagues is 'the activities undertaken by people in order to protect, promote or maintain health and to prevent disease'(6). The broad categories of factors that may influence individual and community health behavior include: knowledge, beliefs, values, attitudes, skills, finance, materials, time and the influence of family members, friends, co-workers, opinion leaders and even health workers themselves(7). The people who have assimilated the knowledge and feel a sense of personal control over their oral health are more likely to adopt self-care behavior(8). The health beliefs and attitudes of dental students, as future dental health providers, not only affects their oral-self care habits but also potentially influence their patient's ability to take care of their teeth(9-12) and shape the public's oral health education level (13). Dental health providers need to set an example for their patients, family and friends by maintaining good oral health in their own mouth.

Realizing that positive attitudes toward health promotion need to be developed during student days rather than afterward, the FDI has recommended that substantial change in the dental curriculum be implemented to give dentists, the knowledge, skills and attitudes they will need in future practice (14). Calls for such curricular changes dates back to 1960s, although they have not been well heeded, relatively little curricular change seems to have taken place over the years(15). Comprehensive programs in preventive care, including oral self-care regimens, should be an essential part of undergraduate dental education(16). Professional education of dental students should create stable health behaviors which will overcome differences in personal characteristics(17).

Through their undergraduate study it is logical for students in the field of dentistry to develop and modify their attitude and behavior towards their own oral health. In passing through the undergraduate curriculum, the dental students should be able to be an oral health model. Since today's students of dentistry will provide dental services in the future and will be responsible for public oral health education, it is important to study their oral health knowledge, attitude and behavior and also the change in knowledge, attitude and behavior towards oral health, through the course of study from 1st to the final year of dental graduation. The present study aims at comparison of oral health knowledge, attitude and behavior of first and final year dental students of the dental colleges in Udaipur City, Rajasthan, India.

Materials and methods

All the first and final year B.D.S. students from Pacific dental college and hospital; Debari, and Darshan dental college and hospital; Loyara, in Udaipur city were invited to participate in this survey using a self administered structured questionnaire

written in English and validated through a pilot survey, at the beginning of the academic year 2007-2008. Permission to conduct the survey was obtained from the Principals of both the colleges. Students were requested to remain in the class at the end of a lecture to participate in the survey on a voluntary basis. No attempt was made to follow up with students who were absent on the day of the survey.

The questionnaire included 37 items designed to evaluate the oral health knowledge, attitude and behavior of the students (18, 19).

- **Oral health knowledge:** The assessment of participant's oral health knowledge included 21 questions (items) on the Number of sets of dentition, Number of milk teeth, Number of permanent teeth, Purpose of tooth brushing, Interval of change of tooth brush, Meaning of plaque and it's effect on dentition, Meaning of gum bleeding and it's reasons, Methods to prevent gum bleeding, Effect of soft/fizzy drinks on teeth, Effect of sweet retention, Reasons, effect and methods of prevention of tooth decay, Effect of fluorides on teeth, Causes of oral cancer, Reasons of tooth loss in old age, Impact of oral health on general health, Effect of loss of teeth on speech and Possibility of alignment of teeth.
- **Oral health attitude:** 5 questions on attitude towards Regular dental visits, Replacement of missing natural teeth, Gutkha chewing/smoking habit, Services/care provided by a dentist, Attitude towards dental care and body care in general and Involvement in the dental treatment.
- **Oral health behavior:** The assessment of participant's oral health behavior included 11 questions (items) on frequency and time of tooth brushing, material used for brushing teeth, Reasons for change of tooth brush, Tongue cleaning, Use of other oral hygiene aids, Reason for visiting a dentist, Frequency of sweet consumption and Any bad habits

The students were asked to respond to each item according to the response format provided in the questionnaire. Response format included multiple choice questions in which the students were instructed to choose only one response from provided list of options. The students received a full explanation of how to fill in the questionnaire. Furthermore, the investigator was always available during the completion of the questionnaire and the participants were encouraged to approach the investigator whenever they needed clarification of any point. The students, who were asked to fill in the questionnaire with out discussion with each other, took an average of 20 minutes to complete the procedure. It was later checked by the investigator that none of the questions were left unattempted. Anonymity of the respondents was assured. Total 182 students (59 males and 123 females) from the first year 157 students (75 males and 82 females) from the final year of both the colleges participated in the survey. So the response rate was 91% (182 students) from the first year students and

78.5% (157 students) from the final year students of both the colleges in Udaipur city.

Statistical analysis

For the purpose of analysis each correct answer was given score “one” and wrong and don’t know answer was given score “zero” in the items included in knowledge and attitude questions. In the behavior section, “zero”, “one” and “two” scores were given according to the appropriateness of the option selected by the respondent. The data was analyzed using the Statistical Package for Social Science version 10.0 software. The individual scores were summed up to yield a total score. Descriptive statistics were obtained and mean percentage scores, standard deviation, and frequency distribution were calculated. The difference in the oral health knowledge, attitude and behavior between all 1st and final year students was assessed by Student’s T-test and the difference among the males and females of first and final year was assessed with the ANOVA test and Post hoc test. The linear regression analysis was used to find the relation in oral health behavior with the knowledge and attitude of the students and to find whether the attitude is dependent of the knowledge of the students respectively.

Results

Table 1. Represents the mean percentage scores of the oral health knowledge, attitude and behavior of all the first and

final year students. It indicated that the mean percentage score for oral health knowledge, attitude and behavior increased significantly in the final year of dental studies. ($p < 0.001$ for knowledge and attitude and $P < 0.01$ for behavior). During the years of university study, the score variation and favorable attitudes/ behavior toward oral health appear to reflect the variation in the students’ educational training experience.

Table – 2. Represents that there is statistically significant difference in the mean percentage scores for knowledge, attitude and behavior between different groups (first year males, first year females, final year males and final year females), ($p < 0.001$ for knowledge and attitude and $p < 0.01$ for behavior).

Table – 3. Shows that the mean percentage knowledge scores of the first year females were lowest amongst all (56.56 ± 11.58). There was no statistically significant difference in the knowledge scores of first year males (57.22 ± 10.74) and first year females (56.56 ± 11.58). The mean percentage score for knowledge of first year males and females were significantly lower than the mean percentage knowledge score for the final year male and female students ($p < 0.001$ for both). The mean percentage knowledge scores of the final year males and females did not show any statistically significant difference. The final year females had highest knowledge score (88.97 ± 8.56) amongst all.

Table 1. Student’s T-test for comparison in mean percentage score for knowledge, Attitude and Behavior of all first and final year students

	1 st year (N=182)		4 th year (N=157)		SEd	T	P
	Mean P Score	SD	Mean P Score	SD			
K	56.78	11.29	87.59	8.87	1.096	-28.117	0.000***
A	82.75	20.36	94.01	10.24	1.72	-6.563	0.000***
B	55.33	13.03	59.12	13.06	1.421	-2.668	0.008**

K - Knowledge, A - Attitude, B - behavior. P – Percentage, $P < 0.001 = ***$, $p < 0.01 = **$.

Table 2: ANOVA test for comparison in the mean percentage scores for Knowledge, Attitude and Behavior of males and females in first and final year

	Yr. & Sex	N	Mean	SD	SE	F	Sig
K- P	11	59	57.223	10.739	1.398	256.51	0.000***
	12	123	56.562	11.577	1.044		
	41	75	86.095	9.020	1.042		
	42	82	88.966	8.560	0.9453		
A-P	11	59	78.31	22.37	2.91	15.50	0.000***
	12	123	84.88	19.05	1.72		
	41	75	94.40	9.04	1.04		
	42	82	93.66	11.28	1.25		
B – P	11	59	52.942	13.199	1.955	4.14	0.007**
	12	123	56.481	12.842	1.213		
	41	75	57.490	13.593	1.573		
	42	82	60.618	12.459	1.309		

K – Knowledge, A - Attitude, B - behavior, P – Percentage.
 11-first year males, 12-first year females, 41-final year males, 42-final year females.
 $P < 0.001 = ***$. $P < 0.01 = **$

Table 3: Post Hoc Tests for comparison in each year- sex combination.

			Mean Difference	Std. Error	Sig.
K – P	11	12	0.6614	1.619	0.683
		41	-28.872	1.779	0.000***
		42	-31.743	1.745	0.000***
	12	41	-29.533	1.497	0.000***
		42	-32.404	1.457	0.000***
		41	42	-2.871	1.633
A – P	11	12	-6.57	2.59	0.012*
		41	-16.09	2.85	0.000***
		42	-15.35	2.79	0.000***
	12	41	-9.52	2.40	0.000***
		42	-8.78	2.33	0.000***
		41	42	0.74	2.61
B – P	11	12	-3.539	2.056	0.086
		41	-4.549	2.259	0.045*
		42	-7.676	2.216	0.001**
	12	41	-1.01	1.902	0.596
		42	-4.137	1.851	0.026*
		41	42	-3.127	2.074

11-first year males. 12-first year females.
41-final year males. 42-final year females.
 $P < 0.05 = *$, $p < 0.01 = **$, $p < 0.001 = ***$

More than 50% of the first year students did not give the correct response for the knowledge items regarding the number of sets of dentition, meaning of plaque, reason for gum bleeding, methods of prevention of gum bleeding, reason for tooth decay, method to prevent tooth decay, effect of fluoride on teeth, and reason of tooth loss in old age. The percentage of students giving correct response was significantly higher in the final year of dental studies. 51.6% of the first year students and 98.7% of the final year students had the correct knowledge of the effect of sweet retention on teeth. 40.3% of the first year students and 98.1% of the final year students had the knowledge regarding the effect of fluorides on teeth. 93.9% of the first year students and 98.7% of the final year students new the effect of tobacco chewing/smoking in development of oral cancer.

The mean percentage attitude score of the first year males was lowest amongst all and was significantly lower than the mean percentage attitude scores of the first females ($p=0.012$), final year males and final year females ($p<0.001$ for both). The mean percentage attitude score for first year females was significantly lower than the mean percentage attitude score of the final year male students and female students ($p<0.001$ for both). Though there was no statistically significant difference between mean percentage attitude scores of the final year male and female students, the mean percentage attitude score was highest for the final year males (94.4 ± 9.04) amongst all.

86.3% of the first year students (61.0% females and 25.3% males) and 97.5% of the final year students (49.7% females

Table 4: Regression analysis for behavior on knowledge and attitude in all first and final year students

Coefficients	Value	Std. Error	T	Sig.
Intercept	35.934	3.868	9.290	0.000***
Mean K-P	7.476E-02	0.040	1.890	0.060
Mean A-P	0.180	0.042	4.283	0.000***

$P < 0.001 = ***$

Table 5: Regression analysis for attitude on knowledge in all first and final year students

Coefficients	Value	Std. Error	T	Sig.
Intercept	65.168	3.536	18.432	0.000***
Mean K-P	0.321	0.048	6.661	0.000***

$P < 0.001 = ***$

and 47.8% males) agreed that regular visit to dentist was necessary. 98.4% of the first year students and 100.0% of the final year students agreed that gutkha chewing/smoking is a bad habit.

Though there was no significant difference between the mean percentage behavior scores for the first year males and females, the score for the first year males was lowest (52.94 ± 13.20) amongst all and showed statistically significant difference with the mean percentage behavior score for the final year males ($p < 0.05$) and females ($p = 0.001$). The mean percentage behavior score for the first year females was significantly lower than the mean percentage behavior score for the final year females ($p < 0.001$). Though there was no statistically significant difference between mean percentage behavior scores for final year males and females, the mean percentage behavior score for the final year females was highest (60.62 ± 12.46) amongst all.

Though the mean percentage behavior scores were significantly higher among the final year students compared to the first year students ($p < 0.01$) certain 'preventive behaviors' did not show the expected improvement.

In present study, among the first year students 45.6% of the students brushed their teeth once daily, 51.1% brushed their teeth twice daily and only 3.3% of the students brushed their teeth thrice or more times daily. Whereas among the final year students 49.0% of the students brushed their teeth once daily, 50.3% brushed their teeth twice daily (in the morning and before going to bed) and only 0.6% of the students brushed their teeth thrice or more times daily (in the morning, before going to bed and after meals/sweet eating). 91.8% of the first year students and 95.5% of the final year students used tooth brush and tooth paste for brushing their teeth. Among which 59.3% of the first year students (40.1% females and 19.2% males) and 64.3% of the final year students (35% females and 29.3% males) used fluoridated tooth paste.

73.6% of the first year students (51.1% females and 22.5% males) and 96.2% final year students (50.3% females and 47.8% males) changed their tooth brush after fraying of bristles.

Tongue cleaning was regularly done by 87.4% of the first year students (62.6% females and 24.7% males) and 93.0% of the final year students (47.8% females and 45.2% males). Among the users of other oral hygiene aids, mouthwash was used by 39.6% of the first year students and 40.8% of the final year students, followed by the dental floss which was used by 4.9% of the first year and 12.1% of the final year students.

28.6% of the first year students and 15.3% of the final year students have never visited a dentist. The percentage of students visiting a dentist for routine check up was more in final year students (43.9%) than in first year students (19.8%) and was least among the first year male students i.e. 3.3%. Number getting treatments done for common dental problems was 21.4% among the first year and 17.2% among the final year students. 30.2% of first year students and 23.6% of the final year students put off going to a dentist unless they have pain.

The behavior related to the sweet consumption was better among the first year students, who reported that 38.5% of them do not eat sweet at all compared to the final year students with 16.6% of the students not eating sweet at all. The percentage was highest in the first year females (28.0%). Very few students (14.0% from final year and 7.7% from first year) reported having bad habits like smoking, pan chewing or gutkha chewing and all of them were males. 79.7% of the first year (56.0% females and 23.6% males) students and 93.6% of the final year students (49.0% females and 44.6% males) agreed that they take care of their teeth as much as other parts of body.

Table 4. The regression analysis for behavior on knowledge and attitude in all the students showed that the oral health behavior of the students has a linear relationship with the attitude of the students. ($p < 0.001$) but no significant linear relation with the knowledge ($p > 0.05$).

Table 5. The regression analysis for attitude on knowledge and in all the students showed that the attitude of the students has a statistically significant linear relation with the knowledge ($p < 0.001$)

Discussion

The results of the present study indicated that the mean percentage score for oral health knowledge, attitude and behavior were significantly higher in final year students compared to first year students, ($p < 0.001$ for knowledge and attitude and $P < 0.01$ for behavior) agrees with the results of some previous studies by Kawamura M. (2000)(20), Tseveenjav

B. et al (2003)(21) and W. S. Rong et al (2006)(22). The difference appears to reflect the variation in the student's educational level.

Though it is said that attitudes are caught and not taught, the linear relationship of attitude with knowledge ($p < 0.001$) found in the present study shows that oral health knowledge is a significant factor in forming a positive attitude towards oral health maintenance. The linear relationship of oral health behavior with the attitude ($p < 0.001$) of the students found in the present study depicts the influence of attitude, beliefs in molding the behavior.

Dental health behaviors have been categorized according to 'brushing behavior', 'complex dental behavior' and 'sugar behavior' (23). The effective tooth-cleaning practices are indicative of positive oral health behavior whereas frequent consumption of sugary foods represents negative health behavior (risk behavior)(24).

Though the mean percentage behavior scores were significantly higher among the final year students compared to the first year students ($p < 0.01$) certain 'preventive behaviors' did not show the expected improvement which agrees with the multivariate regression analysis that with the increased level of knowledge there was no significant change in the oral health behavior. This reveals the influence of factors other than knowledge like beliefs, values, attitudes, skills, finance, materials, time, and the influence of family members and friends on the behavior of the students.

In present study, there was no significant difference in brushing behavior of males and females in both the years in agreement with the study by Tseveenjav B. et al. (21) who found no differences in the tooth-brushing frequency between male and female Mongolian dental students. This finding was different from the findings in a study by Khami M R; et al. (25) and Al-Omari et al.(26), where women reported significantly higher frequencies of tooth brushing ($P < 0.001$), compared with men. A study conducted by Kassak KM et al. (27) among new undergraduate students in Lebanon showed females brushed their teeth four times as often as males. The percentage of final year students brushing after having meals/sweet was almost nil (0.6%) which shows that even though they have knowledge about the 'preventive behaviors' all the knowledge is not changed in to a 'positive preventive behavior'. There was no significant difference in the tooth brushing behavior in the first and final year students, which reflects no progress in the 'positive oral health behavior' with the increased level of knowledge unlike the finding of a study by Barrieshi-Nusair K. et al (28), which showed that the percentage of students claiming to brush their teeth twice daily or more often was four times higher amongst clinical students than amongst pre-clinical students. Though the level of knowledge regarding

the effect of fluorides on teeth was seen in 40.3% of the first year and 98.1% of the final year students, 58.8% of the first year students (40.1% females and 18.7% males) and 64.3% of the final year students (35% females and 29.3% males) used fluoridated tooth paste. From this we can say that the knowledge about the role of fluorides in prevention of dental caries has definitely got an impact on the behavior of the students but all the knowledge was not changed in to behavior. Females showed better behavior related to use of fluoridated toothpaste than their male colleagues. This result was similar to the findings in another study by Khami M R; et al. (2007) (25) among the senior Iranian dental students where women reported significantly higher fluoridated toothpaste use ($P = 0.001$) and compared with men.

Health-related behavior change would reduce unhealthy behaviors such as sugar in the diet and smoking and increase healthy behaviors such as flossing and dental attendance (Prochaska 1994) (29). Though in all, the tongue cleaning behavior and the use of mouth wash was better in final year students compared to the first year students; within the groups, tongue cleaning behavior was best among the first year females (62.6% of females) and also the use of mouth wash was found highest among the first year females i.e. 26.9% which portrays the effect of factors other than knowledge, like, beliefs, values, attitudes, influence of family members and friends on the oral health behavior. Regardless of better mean percent behavior scores for final year students, the low percentage of final year students using dental floss (12.1%), shows that the 'preventive behavior' of the final year students was not balancing with the level of knowledge. Despite of the better percentage of knowledge among the final year students regarding effect of sweet retention on teeth, the behavior related to the sweet consumption was better among the first year students, who reported that 38.5% of them do not eat sweet at all compared to the final year students with 16.6% of the students not eating sweet at all. The percentage was highest in the first year females (28.0%). This reflects the disparity between knowledge level and behavior of the students.

Visiting the dentist for routine check up was defined as 'preventive care use'. The final year students visiting a dentist for routine check up was more (43.9%) compared to first year students (19.8%). The preventive care use behavior was better in the females in both the years than in males in both the years and was highest among the final year females (22.3%). This could be explained on the basis that females usually care more about their body and appearance. They would thus be more concerned about visiting the dentist.

Many general health factors are of direct relevance to oral health, e.g. smoking, diabetes, alcohol, stress, medication (Horowitz 1990) (30). In present study, very few students (13.37% from final year and 7.69% from first year) reported having bad habits like smoking, pan chewing or gutkha chewing

and all of them were males which shows that the behavior does not necessarily depend on the knowledge. This finding agrees with the finding of Al-Omari et al (26) who reported that smoking was much more frequent among males than among females (31% Vs 4% with $P < 0.001$) of the dental students in Jordan.

In agreement with the results of Polychronopoulou A. et al(31), in general, females presented better knowledge, attitude and behavior scores compared to the male students. This finding agrees with the results of the study by Al-Omari et al (26), Ostberg AL et al(32) and Fukai K. et al(33) that found that female dental students had better oral health attitudes and take better care of their teeth than their male colleagues. All scores progressed significantly in the fourth year of dental studies as seen in another study by Takashi Komabayashi et al.(34).

Though the progress in all the scores from first to final year was statistically significant it was observed that all the 'oral health knowledge' was not changed in to 'oral health behavior' and preventive behavior among the students has to be improved so that the dental students, as future dental health providers, can set an example for their patients, family and friends by maintaining good oral health in their own mouth and advice the community about good oral health behaviors with conviction.

Conclusion

Attitudes are not learnt from text-books; they are acquired by social interaction, so the responsibility to develop healthy attitudes depends upon parents, teachers, religious leaders and elders in the society. A substantial change in the dental curriculum should be implemented to give dentists, the knowledge, skills, and attitudes they will need in future practice. Besides the positive changes revealed in the oral health knowledge, attitude and behavior, among the students passing through the undergraduate curriculum from first to final year of dental studies, preventive behavior among the students could still be improved. Regarding these tasks, professional education should provide meaningful learning experience on modern methods. Preventive dentistry courses should be taught early in the dental curriculum of the pre-clinical years. Professional education of dental students should create stable health behavior which will overcome differences in personal characteristics and will be helpful for the future dental health providers to provide good preventive oral health care services to their patients, family and friends.

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PROFORMA

Serial No:

Age/Sex:

Education:

KNOWLEDGE

- 1) How many sets of dentitions do we have?
One : Two : Three : Four : Don't know :
- 2) How many milk teeth do we have ?
10 : 16 : 20 : 32 : Don't know:
- 3) How many permanent teeth do we have?
16 : 20 : 24 : 32 : Don't know:
- 4) What is the purpose of tooth brushing?
Clean bright teeth: Reducing the cost of dental care:
Prevention of tooth decay and gum disease: Prevention of oral ulcers: Don't know:
- 5) What should be the interval for change of tooth brush?
1 – 3 months: 4 – 6 months: 7 – 12 months: More than 1 year: Don't know:
- 6) What does plaque mean?
Soft deposit on teeth: Hard deposit on teeth:
Discoloration of teeth: White patches on teeth: Don't know:
- 7) What does dental plaque lead to?
Staining of teeth: Oral ulcers:
Tooth decay and Gum disease: White patches on teeth: Don't know:
- 8) What does gum bleeding mean?
Healthy gum: Tooth infection:
Calcium deficiency in body: Gum disease(inflammation): Don't know:
- 9) What are the reasons for bleeding gums?
Calcium deficiency: Excess sweet eating:
Gum disease due to improper brushing: Tooth infection: Don't know:
- 10) What are the methods to prevent bleeding from gums?
Regular tooth brushing and flossing: Calcium supplements:
Reduction in sweet consumption: Eat soft food: Don't know:
- 11) Do you think that fizzy soft drinks affect the teeth adversely?
Yes: No: Don't know:
- 12) What is the effect of sweets retention on dentition?
Mobility of teeth: Yellowish staining of teeth:
Leads to tooth decay: Leads to bleeding gums: Don't know:
- 13) What is the reason for tooth decay?
Tobacco chewing: Worms:
Improper brushing: Vit. C deficiency: Don't know:
- 14) Do you think decayed teeth can affect the appearance of a person?
Yes: No: Don't know:
- 15) What are the methods to prevent dental decay?
Avoid tobacco chewing: Vit. C supplements:
Regular brushing with fluoridated tooth paste: Calcium supplements: Don't know:
- 16) What is the effect of fluorides on dentition?
Gives clean bright teeth: Prevents tooth decay:
Prevents mobility of teeth: Prevents gum disease: Don't know:
- 17) What is the reason for development of oral cancer?
Improper brushing: Tobacco chewing or smoking:
Vit. C deficiency: Excess sweet eating: Don't know:
- 18) What are the reasons of tooth loss in old age?
Gum diseases: Tooth decay:
Old age: Reduced dietary intake: Don't know:
- 19) Does the health of mouth and dentition impact the health of the body?
Yes: No: Don't know:
- 20) Loss of teeth can interfere with speech.
Yes: No: Don't know:
- 21) It is possible to move irregularly placed teeth into correct position.
Yes: No: Don't know:

ATTITUDE

- 1) Do you think regular visit to a dentist is necessary?
 Yes: No: Don't know:
- 2) Do you think immediate replacement of missing natural teeth by artificial teeth is necessary?
 Yes: No: Don't know:
- 3) Do you think gutkha chewing / smoking is a bad habit?
 Yes: No: Don't know:
- 4) Do you think dentists care only about treatment & not prevention?
 Yes: No: Don't know:
- 5) Do you think that treatment of toothache is important as any other organ in body?
 Yes: No: Don't know:

BEHAVIOR

- 1) How many times in a day do you brush your teeth?
 Once: Twice:
 Thrice or more:
- 2) When do you brush your teeth?
 In the morning: In morning & before going to bed:
 In morning, before going to bed and after sweet eating /meals:
- 3) What material do you use for brushing your teeth?
 Tooth paste with brush: toothpowder or others with finger:
 Tooth powder with brush:
- 4) If toothpaste, do you use fluoridated tooth paste?
 Yes: No: Don't know:
- 5) What is the reason for you to change the tooth brush?
 Fraying of bristles: New tooth brush design available in the market:
 After breakage of tooth brush handle:
- 6) Do you clean your tongue?
 Yes: No:
- 7) Do you use any of the oral hygiene aid ?
 Dental floss: Mouthwash: No:
- 8) If you have visited a dentist, what was the driving factor for your last visit?
 Routine check up: Severe dental pain:
 Treatment of common dental diseases: Never visited a dentist:
- 9) How many times in a day do you eat sweet?
 1- 3 times: 4 - 6 times: Not at all:
- 10) Do you take care about your teeth as much as any other part of your body?
 Yes: No:
- 11) Do you have any of the habits like Pan chewing, Gutkha chewing, Cigarette smoking?
 Yes: No:

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References

- Chen M S. Children's preventive dental behavior in relation to their mother's socioeconomic status, health beliefs, and dental behaviors. *Journal of Dentistry for Children* 1986;**53**:105-09.
- Friedman LA, Mackler IG, Hoggard GJ, et al. A comparison of perceived and actual dental needs of a selected group of children in Texas. *Community Dentistry and Oral Epidemiology* 1976;**4**:89-93.
- McCaul KD, Glasgow RE, Gustafson C. Predicting levels of preventive dental behaviors. *Journal of American Dental Association* 1985;**111**:601-05.
- WriGHt FA. Children's perception of vulnerability to illness and dental disease. *Community Dentistry and Oral Epidemiology* 1982;**10**:29-32.
- Paik DI, Monn HS, Horowitz AM, Gitt HC, Jeong KL, Suh SS. Knowledge of oral practices related to caries prevention among Koreans. *Journal of Public Health Dentistry* 1994;**54**:205-10.
- Steptoe A, Wardle J, Vinck J, et al. Personality and attitudinal correlates of healthy and unhealthy lifestyles in young adults. *Psychology and Health* 9:331-43.
- K Park. Park's Textbook of Preventive And Social Medicine. 18th Edition, M/s Banarsidas Bhanot Publishers.
- Freeman R, Maizels J, Wyllie M, Sheiham A. the relationship between health related knowledge, attitude and dental health behaviors in 14-16 years old adolescents. *Community Dental Health* 1993;**10**:397-404.
- Abraham NJ, Cirincione UK, Glass RT. Dentist's and Dental hygienist's attitude toward Toothbrush replacement and maintenance. *Clinical Preventive dentistry* 1990;**12**:28-33.
- Freeman R. The determinants of dental health attitudes and behavior. *British Dental Journal* 1999;**187**:15-18.
- Uitenbroek DG, Schaub RMH, Troomp JAH, Kant JH. Dental hygienist's influence on patient's knowledge, motivation, self-care, and perception of change. *Community Dentistry and Oral Epidemiology* 1989;**17**:87-90.
- Brown LF. A comparison of patients attending general dental practices employing or not employing dental hygienists. *Australian Dental Journal* 1996;**41**:47-52.
- Cortes FJ, Nevot C, Ramon JM, Cuenca E. The evolution of dental health in dental students at the University of Barcelona. *Journal of Dental Education* 2002;**66**:1203-08.
- Federation Dentaire Internationale. The impact of changing disease trends on dental education and practice. FDI Technical Report No. 30. *International Dental Journal* 1987;**37**:127-30.
- Brain A. Burt & Stephan A. Eklund. Dentistry Dental Practice & The Community; 5th Edition, (1999). W.B. Saunders Company.
- Kawamura M, Yip HK, Hu DY, Komabayashi T. A cross-cultural comparison of dental health attitudes and behavior among freshman dental students in Japan, Hong Kong and West China. *International Dental Journal* 2001;**51**(3):159-63.
- Tseeveenjav B, Vehkalahti M, Murtomaa H. Preventive practice of Mongolian dental students. *European Journal of Dental Education* 2002;**6**:74-78.
- Dolar Doshi, Pavan Baldava, Nagaraj Anup, Peter S Sequeira. A comparative evaluation of self-reported oral hygiene practices among medical and engineering university students with access to health-promotive dental care. *The Journal of Contemporary Dental Practice* 2007;**8**(1):1-8.
- Mahmoud K Al-Omari, Ahed M Al-Wahadni. Oral health attitudes, knowledge, and behavior among school children in North Jordan. *Journal of Dental Education* 2006;**70**(2):179-87.
- Kawamura M, Honkala E, Widstrom E, Komabayashi T. Cross-cultural differences of self-reported oral health behavior in Japanese and Finnish dental students. *International Dental Journal* 2000;**50**(1):46-50.
- Tseeveenjav B, Vehkalahti M, Murtomaa H. Time and cohort changes in preventive practice among Mongolian dental students. *European Journal of Dental Education* 2003;**7**(4):177-81.
- WS Rong, WJ Wang, HK Yip. Attitudes of dental and medical students in their first and final years of undergraduate study to oral health behavior. *European Journal of Dental Education* 2006;**10**(3):178-84.
- Rise J, Holund U. Prediction of sugar behavior. *Community Dental Health* 1990;**7**:267-72.
- Cynthia M. Pine. Community Oral Health, (1997). Reed Educational & Professional Publishing Ltd.
- Khamsi MR, Virtanen JI, Jafarian M, Murtomaa H. Oral health behavior and its determinants amongst Iranian dental students. *European Journal of Dental Education* 2007;**11**(1):42-47.
- Al-Omari QD, Hamasha AA. Gender-Specific Oral Health Attitudes and Behavior among Dental Students in Jordan. *The Journal of Contemporary Dental Practice* 2005;**6**(1):15.
- Kassak KM, Dagher R, Doughan B. Oral health and lifestyle correlates among new undergraduate university students in Lebanon. *J Am Coll Health* 2001;**50**:15-20.
- Barrieshi-Nusair K, Alomari Q, Said K. Dental health attitudes and behavior among dental students in Jordan. *Community dental Health*, 2006;**23**(3):147-52.
- Prochaska, JO. Strong and weak principles for progressing from precontemplation to action on the basis of twelve problem behaviors. *Health Psychology* 1994;**13**:47-51.
- Horowitz LG. Dental patient education : Self care to healthy human development. *Patient Education and Counselling* 1990;**15**:65-71.
- Polychronopoulou A, Kawamura M, Athanasouli T. Oral self-care behavior among dental school students in Greece. *Journal of Oral science* 2002;**44**(2):73-78.
- Ostberg AL, Halling A, Lindblad U. Gender differences in knowledge, attitude, behavior and perceived oral health among adolescents. *Acta Odontol Scand* 1999;**57**:231-6.
- Fukai K, Takaesu Y, Maki Y. Gender differences in oral health behavior and general health habits in an adult population. *Bull Tokyo Dent Coll* 1999;**40**:187-93.
- Takashi Komabayashi, SYL Kwan, De-Yu Hu, Kyoko Kajiwara, Hisako Sasahara, Makoto Kawamura. A comparative study of oral health attitudes and behavior using the Hiroshima University-Dental Behavioral Inventory (HU-DBI) between dental students in Britain and China.