

## RESEARCH PAPER

**Factors affecting Dental Satisfaction among Indian Undergraduate Dental Students****Harsh Priya, Bharathi.M.P, Shashidhar Acharya, Meghashyam Bhat, Manoj Kumar****Abstract**

**Aims:** To assess the level of satisfaction with dental care among dental students and to know whether students in different stages of the dental course had any difference in their level of satisfaction with dental care. **Methods:** 372 students from first to final year and interns completed the nineteen item Dental Satisfaction Questionnaire (DSQ). **Results:** The mean DSQ total was  $49.64 \pm 10.3$ . The comparison ( $F=4.52$ ,  $p < 0.01$ ) of the total DSQ among the dental students showed that the total dental satisfaction was more among third years, final years and interns. The mean of the three subscales of dental satisfaction i.e. access, pain management and quality of dental care were  $18.9 \pm 4.1$ ,  $16.5 \pm 5$ , and  $18.9 \pm 4.1$  respectively. Post hoc ( $F=7.03$ ,  $p < 0.01$ ) comparisons showed that third year dental students and interns had more satisfaction with the quality of dental care as compared to first and second year students. **Conclusion:** Improving dental satisfaction among the dental students is a factor that should be given paramount importance in preparing of professionally competent dentists.

**Key words:** Dental Satisfaction Questionnaire; Dental Students; Dental Care; Pain Management.

**Introduction**

Patient satisfaction is a multidimensional concept.(1) The dimensions of dental care satisfaction include pain management, quality of dental care, cost, availability and accessibility. The stated factors in turn have potential implications for future utilization of health care and for health outcomes. Therefore understanding the factors related to health care satisfaction has essential for the utilization and delivery of dental care. Calnan et al. 1999(2) in their study reported that the evaluation of quality of general dental care from the users' point of view hinges on perceived technical skills, particularly pain management. Major dissatisfaction stems from concerns about costs of dental care and privatization. The priority was placed on technical skills and pain management. However, the major source of decline in satisfaction with the quality of general dental care is the barrier to access created by the rising cost of dental care and the increasing involvement of dentists in private practice.

The dentists too have their own preconceived notions based on their past dental experience. The dental care experienced by a dentist might have an effect on his dental care delivery pattern. A favorable dental exposure could enhance the dentists' personal satisfaction and in turn encourage him to provide a similar dental service. A positive dental care received by the dentist might have long-lasting impact on the dentist towards the quality of treatment he would perhaps render to his patients.

In dentistry, clinical practice is a significant component. The clinical practice

involves various procedures that have to be performed without causing harm to the patient. The educational framework states that the curriculum should provide students with education in all the dimensions of dental care. (3) The reflection about the teaching and learning process in dentistry should focus not only on information acquired during the undergraduate course, but also on the process through which knowledge is acquired.(4) This assessment includes the perceptions of senior students about their professional preparation and about how this preparation meets the challenges of their daily practice, especially in developing countries like India. Therefore, it is imperative to conduct studies to understand the level of satisfaction with dental care among dental students. The literature search found no studies that examined dental student's level of satisfaction with dental care. The objective of this study was to assess the level of satisfaction with dental care among dental students and to know whether students in different stages of the dental course had any difference in their level of satisfaction with dental care.

**Materials and Methods**

The study population consisted of students from Manipal College of Dental Sciences, Manipal, Karnataka, India. There was a total enrollment of 372 students from the first to final year and interns who were completing their one year of rotatory internship. All the subjects (female=40.59%, male=59.41%, Mean age=20.91 and SD= 2.52) completed a self-administered questionnaire in English.

A structured questionnaire was used prepared to record the demographic characteristics such as age, gender, year of study, domiciliary status, religion, parent's education and parent's occupation; oral health related behavior including tooth brushing frequency, dietary, alcohol and smoking habits; global oral health indicator; received dental treatment and the nineteen item Dental Satisfaction Questionnaire (DSQ).(1) The responses for received dental treatment, global oral health indicator and alcohol intake were dichotomized as 1=yes and 2=no. Frequency of cleaning teeth yielding the categories of 1=once, 2=twice and 3=more than twice were obtained and smoking habit was assessed under past, current and nonsmoker categories.

The DSQ(1) is a nineteen item instrument designed for self-administration in about five minutes. Three subscales assess quality, pain management and access of dental care. Additional items rate attitudes toward continuity and general satisfaction. The individual item were rated on five-point Likert scale ranging from "strongly agree" to "occasionally agree", "indifferent", and "occasionally disagree" to "strongly disagree". Few of the items had their scoring reversed to avoid response set bias. Previous works (5, 6) have shown the items to have acceptable reliability and validity.

Informed consent was obtained from each student before the questionnaire was distributed. Only those students willing to participate were asked to complete the questionnaire. The same was done for the interns posted in their respective departments in the dental school clinics.

The data analysis was done using SPSS (version 10). Some of the items of the DSQ are scored in a negative direction, and these items were reversed before the analysis to make a high total DSQ score which would imply high satisfaction with dental care. Reliability of the subscales was assessed using Cronbach's alpha statistics as a measure of internal consistency. The scaled mean (7, 8) is the mean score of the scale divided by the number of items in that scale. The scaled means puts the overall score, and the subscale scores on a 1 (strongly agree) to 5 (strongly disagree) scoring dimension. Scaled mean scores near 1.0 reflect extreme dissatisfaction, scores near 3.0 reflect neutrality, and scores near 5.0 reflect extreme satisfaction. The prorated mean (1,7,9) is the raw mean expressed as a percent of highest possible scale

or subscale score. Chi-square test was used for categorical data analysis. Non parametric tests e.g. Kruskal-Wallis, ANOVA and Mann-Whitney tests were used for analysis as the DSQ frequency scores were not normally distributed.  $P \leq 0.05$  was considered statistically significant.

## Results

The study was conducted in Manipal College of Dental Sciences, India in Feb- Mar 2007. Students from all four academic years and interns who were completing their one year of rotatory internship were invited to participate. Questionnaires were distributed to the students in their respective classrooms after the lectures. A total of 372 students (40.59% females) present on the day of the survey completed and returned the questionnaire corresponding to a hundred percent response rate. The absentees were not included in the study.

Table 1 shows the frequency distribution of the dental students according to the independent variable. The male female ratio was approximately 60:40. More than half of the students were on mixed diet, 24% of the students agreed of alcohol consumption and 85% of them reported themselves to be nonsmokers. Majority of the students brushed once and twice daily. Only 35 students reported as brushing more than twice daily. As high as 81% of the students were satisfied with their oral health and 79% of them had undergone dental treatment.

Independent Variable	Classification	N (%)
Gender	Female	151(40.59)
	Male	221(59.41)
Diet	Mixed	270(72.5)
	Vegetarian	102(27.5)
Alcohol Intake	Yes	90(24.19)
	No	282(75.81)
Smoking Status	Past	21(5.66)
	Current	34(8.08)
	Non smoker	317(85.0)
Satisfaction with oral health	Yes	302(81.18)
	No	70(18.82)
Dental treatment	Yes	294(79.03)
	No	78(20.97)
Frequency of cleaning	Once	119(31.9)
	Twice	218(58.40)
	More than twice	35(9.4)

Table 1 Frequency distribution of the students according to the independent variable

Questions 1, 5, 8, 10, and 19 (>3) showed highest mean values and questions 6, 7, and 17 showed lowest mean values ( $2.1 \pm 1.1$ ).

The mean DSQ total was  $49.64 \pm 10.3$ . No significant difference in dental satisfaction was found when independent variables such as gender, diet, and frequency of cleaning teeth

were considered. However students satisfied with their oral health demonstrated a better dental pain management and quality of dental care received. Also, the students who had

undergone dental treatment seemed to have higher level of overall dental satisfaction (Table 2).

Variables		n	Pain management Mean(SD)	Quality Mean(SD)	Access Mean(SD)	DSQ – Total Mean(SD)
Alcohol Intake	Yes	92	8.46(2.80)	16.96(5.04)	19.08(3.50)	49.9(10.5)
	No	281	9.03(2.9)	16.33(5.02)	18.7(4.2)	49.5(10.2)
p value			0.09	0.33	0.57	0.46
Smoking Status	Past	21	8.28(2.72)	15.42(3.55)	19.38(3.47)	49.57(7.30)
	Current	34	8.11(2.70)	17.82(4.57)	20.44(3.31)	52.61(8.39)
	Non smoker	317	9(2.97)	16.41(5.13)	18.61(4.12)	49.32(10.60)
p value			0.07	0.15	0.03*	0.16
Satisfaction with oral health	Yes	301	9.83(2.88)	18.28(4.9)	18.84(3.95)	59.39(10.36)
	No	70	6.08(3.18)	12.34(5.21)	18.72(4.42)	46.64(10.04)
p value			0.02*	0.01*	0.7	0.01*
Dental treatment	Yes	297	10.03(2.93)	16.72(4.87)	18.95(4.12)	50.17(9.90)
	No	74	8.25(2.91)	15.55(5.5)	18.28(3.7)	47.41(11.54)
p value			0.03*	0.1	0.14	0.06
Table 2 Comparisons of the subscales and the DSQ total mean values with independent variables.						

Current smokers were strongly convinced about the dental care accessibility. The alcohol consumption however did not show a significant difference in the level of satisfaction of the students.

Table 3 shows the comparison of the subscales and the total DSQ among the dental students. The subscale measurement of quality of

dental care and total DSQ were reported to show significant result with the students in various years in dentistry. Students of third year and interns felt that the quality of dental care was better as compared to first and second year students. Also total satisfaction with dental care was more among third years, final years and interns.

Subscales of DSQ	I Year Mean(SD)	II Year Mean(SD)	III Year Mean(SD)	IV Year Mean(SD)	Intern Mean(SD)	Total Mean(SD)	p value (post hoc)
Pain	15.16(4.2)	15.01(6)	18(5)	17.09(4.1)	18.3(4.5)	16.5(5)	0.406
Quality	9(2.7)	8.6(3.8)	8.9(2.6)	8.7(2.7)	9.8(2.7)	8.9(3)	<0.01* 1<3,5 2<3,5
Access	19(4)	18.4(5)	19.3(3.2)	18.8(3.7)	18.3(4.5)	18.9(4.1)	0.558
Dsq-total	48.6(8.6)	46.2(14.9)	51.9(8.5)	50.7(7.2)	52.5(9.2)	49.6(10.3)	<0.01† 2<3,4,5
Table 3 Comparisons of the subscales and the DSQ total mean values with the BDS year of study							

The internal consistency of the scales for pain management, quality, assess and overall index for dental satisfaction was assessed using Cronbach’s alpha. Scores ranged from 0.53 to 0.73. This demonstrated sufficient internal consistency for meaningful interpretation.

Table 4 gives the measure, number of items, mean and standard deviation, scaled mean,

and prorated mean. The scaled mean of total DSQ was 4.8 and reflected extreme satisfaction. Also, the subscales of pain management, access, and quality of dental care ranged from 3.4 to 4.4 showing affirmative attitude to dental care. The prorated means reported most subjects had neutral to somewhat positive ratings of care.

Scale	Number of items	Mean $\pm$ SD	Scaled Mean	Prorated Mean (%)
Pain Management	3	8.88 $\pm$ 2.3	3.4	59.2
Quality	7	16.5 $\pm$ 5.0	3.3	47.1
Access	7	18.73 $\pm$ 4.3	4.4	53.5
DS-I overall	19	49.64 $\pm$ 10.3	4.8	52.3

Table 4 Means, Standard Deviation, and Scale Midpoints for Dental Satisfaction Questionnaire Scales for the current study sample

## Discussion

This study was done to assess the level of satisfaction with dental care among dental students and to know whether students in different stages of dental course had any difference in their level of satisfaction with dental care. Comparing the DSQ between the dental students in each year clearly demonstrated their level of dental satisfaction.

The DSQ was developed and tested for reliability and validity in a large scale, multisite national study in the USA by Davies 1982.(1) This instrument has also been tested in a low income population in the same country. It is generally accepted that both the reliability and validity of psychometric scales may be influenced by cultural differences in attitudes,

beliefs, and priorities and the scale should therefore be retested before being used in a different cultural context. In their original work, Davies and Ware suggested that the same principle should be applied to the DSQ scale as well as to the different dimensions of dental satisfaction, particularly satisfaction with pain management.(1) However, to our knowledge, no such population-based studies have so far been published especially in dental students. The high Cronbach's alpha for the DSQ testifies to the reliability of the construct in this setting. The mean value of DSQ total scores and different subscale scores of the present study have been compared with other studies(1, 5, 6) It was seen that the DSQ score were least in the present study (Table 5).

Scale	# of items	Present Study Sample	Skaret E et al (6)	Davies AR(1)	Golletz D et al(5)
Pain Management	3	8.88 $\pm$ 2.3	10.19 $\pm$ 2.75	9.21 $\pm$ 2.56	7.91 $\pm$ 2.91
Quality	7	16.5 $\pm$ 5.0	23.24 $\pm$ 3.87	24.78 $\pm$ 3.45	24.77 $\pm$ 3.63
Access	7	18.73 $\pm$ 4.3	20.98 $\pm$ 3.70	21.90 $\pm$ 3.75	21.82 $\pm$ 3.85
DSQ total	19	49.64 $\pm$ 10.3	60.59 $\pm$ 8.52	63.11 $\pm$ 8.54	60.64 $\pm$ 9.05

Table 5 Mean (SD) for DSQ and subscales, compared to other studies

The knowledge gained by students can be said to have seeded critical thinking which guided them to assess the questionnaire more prudently. It could have been predicted that dental care satisfaction among dental students would be convincingly high because of the social desirability bias of the dental professionals. On the contrary it was seen that studies done in other populations showed more satisfaction with dental care. Also, mean age (=20.91 years) of the study population in the present study were much lower than in other studies on the DSQ(1, 5). Previous research on satisfaction with health care has shown that older individuals are more likely to report higher satisfaction than younger individuals.(10, 11) Golletz et al. 1995(5) compared the three subscales and the total DSQ with race/ethnicity, education level, marital status; and nation of origin in a low-income population and the statistically significant results confirmed their relationship. However, the present study showed no relationship between DSQ and independent variables such as gender,

domiciliary status, religion, parent's education and parent's occupation.

Oral health behavior variables such as alcohol intake and smoking habit were compared with dental satisfaction. The "current smokers" group was strongly convinced about the dental care accessibility (p= 0.03). This probably can be attributed to the fact that tobacco stains compelled these students to frequently access dental care.

Analysis of variance by self-reported dental health (global oral health rating) showed highly significant difference on each DSQ scale except the access to dental care. Students who were satisfied with their oral health rated their satisfaction with dental care higher on all dimension barring access. As the study set up was a dental school the access was no major reason of concern that whether the students were satisfied or not with their oral health. The dental care was accessible to both the groups equally. Students who had undergone dental treatment were satisfied with the pain management techniques in dental clinic as compared to the

students who had never received any dental treatment. Kawamura M et al. 1997(12) stated in their study that the percentage of Australian dental students “putting of going to the dentist” until they had toothache was lower in the students in final year. In another study(12) more than half of dental students reported that they put off going to the dentist until they had a toothache. The comparisons between different years of study were however not done. Thus pain management in the dental clinic was a very crucial part of the dental care among the dentists too.

Analysis of variance by the year of course showed statistically significant group mean differences between some categories on the quality of dental care ( $F=7.03$ ,  $p < 0.01$ ), and overall satisfaction ( $F=4.52$ ,  $p < 0.01$ ) but not on pain management and access. Post hoc comparisons showed that third year dental students and interns had more satisfaction with the quality of dental care as compared to first and second year students. Also post hoc comparisons for the total DSQ scale showed that the third and final year students and interns had higher overall dental satisfaction as compared to second year students. This could possibly be attributed to the clinical exposure of the students in their third year and onwards. The practical application of the knowledge gained in the first two years gives more confidence to the students in providing dental care. Their overall level of satisfaction with dental care increases. Thus it forms the foundation of better dental care delivery by these budding dentists.

### Conclusion

The level of dental satisfaction was found to be different for students studying in different stages of the dental course. Building up of positive satisfaction level with dental care will construct a positive attitude towards the dental care behavior among dental students. The dental educator can play an important role in this aspect. Moulding positive dental health attitudes and behaviors in dental students right from the first year can help them improve their level of dental satisfaction. Oral health screening programs can encourage them to avail various dental treatments such as oral prophylaxis, orthodontic treatments in their initial years. Also, freshmen dental students are vulnerable to deleterious habits when they enter into the professional courses. Hence such regular oral health screening programs and imparting oral health education to these novice dental students could possibly educate them regarding the

deleterious habits and could motivate students in taking care of their oral and general health.

As per the Indian curriculum the clinical education in dentistry starts from the third year, this forbids the first and second year students from observation of various treatment procedures being performed on patients. The dental school in the present study works seven days a week. A few hours of clinical observation in the first and second year of schooling can help them understand the various procedures being performed at the dental clinics.

To conclude it can be stated improving dental satisfaction among the dental students is a factor that should be given paramount importance in preparing of professionally competent dentists.

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