

Treatment Satisfaction among patients attending a private dental school in Vadodara, India

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Abstract

Purpose: Dental schools cater to a large section of population in need of dental care. As the dental care delivery system followed in dental schools differ from that of private practices a cross sectional survey was conducted to assess the level of satisfaction among patients attending dental treatment at a dental school in Vadodara, India.

Method: A total of 654 adults between the age group of 18 years to 85 years were interviewed during the three month study period using a dental satisfaction questionnaire² which was used in the Dental Satisfaction Survey conducted in Australia by the AIHW Dental Statistics and Research Unit, University of Adelaide.

Results: The findings show acceptable levels of patient satisfaction at the dental school hospital with the mean satisfaction scores ranging from 2.61 to 4.06. There was no statistical significance in the satisfaction scores between sexes however females consistently recorded higher scores than males except for content sub-scale. Statistically significant difference at $P < 0.05$ was seen in the facilities sub-scale, context sub-scale and overall satisfaction scale between age groups. Statistically significant difference at was seen in the sub-scales of facilities, context, cost and overall satisfaction scale between the departments which were visited by the patient for their treatment.

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Conclusion: As patient satisfaction is an integral part of health care evaluation, the authors feel that this area needs to be researched further.

Keywords: Patient satisfaction, dental school, questionnaire

Introduction:

Consumer satisfaction with health care is an issue addressed in current methodologies for evaluating health care programs. In this context, satisfaction can be considered an intermediate outcome of the health care process that reflects the extent to which the care given answers patients' needs, meets their expectations and provides an acceptable standard of service. There have been strong indications suggesting that care that is less satisfactory to the consumer is less effective¹. Associations between dissatisfaction with the outcome of dental care and non-compliance with instructions delay in seeking care, and poor understanding and retention of instructions have been demonstrated. Each of these behaviors could be detrimental to improved health status. Patient satisfaction is a subjective assessment and, by inviting consumers to express their opinions on their health care experience, studies of satisfaction may provide a measure of the success of a health care program in terms of the perceived needs, the expectations and the health care experience of the consumer.

Dental schools are teaching facilities and the dental care delivery system followed is specialty or discipline oriented with students rotating through these clinics. Patients are referred to these clinics depending on the care they need. They do not follow the comprehensive care approach which is centered on the patient and is more representative of the model of dentistry practiced in private practice. As the comprehensive care approach is found to be favored by care seekers, the success of dental schools in delivering timely and satisfactory dental care to the population is uncertain. Due to the lower cost of treatment, availability of specialty

care and a perceived sense of high quality of care, dental school hospitals cater to a large section of population in need of dental care.

Hence this cross sectional survey was conducted with an aim to assess the level of satisfaction among patients attending dental treatment at a dental school hospital in Vadodara, India.

Materials & Method

The study was conducted during a period of three months, among patients seeking dental care in K.M Shah Dental College & Hospital, Vadodara. A total of 654 adults between the age group of 18 years to 85 years were interviewed during the three month study period. All recall patients were interviewed near the exit gate of the hospital on three working days of the week viz, Monday, Wednesday and Friday. Prior to the study, permission was sought from the head of the institution and concerned ethical committee. Informed consent from the participants was also obtained.

By reviewing literature the dental satisfaction questionnaire² which was used in the Dental Satisfaction Survey conducted in Australia by the AIHW Dental Statistics and Research Unit, University of Adelaide was identified to serve the purpose of our study. The questionnaire was prepared by the authors by taking into context of the five dimensions of satisfaction with dental care i.e.: the context of the dental visit; the content of the dental visit, the outcome of the dental visit, satisfaction with the cost or affordability of dental care and satisfaction with facilities. The questionnaire was translated into Gujarati language and then re-translated into English by a language expert. A pilot survey was conducted to find out the reliability and validity of the questionnaire.

Scale formation:

The 2002 Dental Satisfaction Survey consisted of 31 items and was designed to capture five conceptual dimensions (or sub-scales) of dental satisfaction: context, content, outcome, facilities

and cost. Five items were excluded from the sub-scales:

Item 10, impersonal attitude of the dental professional;

Item 14, explanation of cost of treatment;

Item 18, unnecessary treatment costs;

Item 20, on over- or under-servicing; and

Item 22, which dealt with pain.

The individual items on the questionnaire which were included in each of these sub-sets and their inter-item reliability was tested (Cronbach α value).

Results

The mean age of the study population was 50.44 ± 16.97 SD. Distribution of the study group according to age and sex is given in Table 1. There was a statistically significant difference in sex of the patients with males comprising 59.3 percent ($p < 0.05$). 31.3 percent of the patients had visited Oral surgery for their last treatment followed by 31.2 percent to Prosthodontics (Table 2).

The responses to the 31 individual items of the Dental Satisfaction Questionnaire are shown in Figures 1(a) to (c). The bars represent the percentage of respondents scoring each of the five values of the scale.

In none of the 31 items 50% of the respondents indicated strong agreement or disagreement. On 5 of the 31 items more than 40% of respondents indicated strong agreement (indicating satisfaction) with the statement. Of the remaining 26 items, between 30% and 40% reported strong agreement on 9 items, 14 items were 20–30%, and 3 items were less than 20%. Maximum number of patients (42.7%) strongly agreed to item number 15 i.e., Thorough examination, followed by items 16, dental professional answered questions and 9, friendliness of staff (41.7 each). 41.6 % strongly agreed on items 13, explained treatment need and 14, explained cost.

The percentage of respondents expressing strong disagreement (indicating dissatisfaction) with any statement was less than 10% on 26 of the

31 items. The percentage expressing strong disagreement on the remaining five items were:-

item 1, distance to clinic 11.2%;

item 3, Arrangement of visit 10.9%;

item 12, Same professional 12.8%;

item 17, explained treatment options 21.3%; and

item 20, appropriate care 23.1%.

The mean scores and standard deviation of individual items of the Dental Satisfaction Questionnaire are given in Table 3. The mean scores ranged from 2.61 to 4.06. The lowest mean scores were recorded for;

Item 17, explained treatment options (mean 2.73 ± 1.27 SD)

Item 20, appropriate care (mean 2.61 ± 1.25 SD)

It should be noted that in general they express overt dissatisfaction with that aspect of the dental visit. If a score of 3.00 is regarded as the neutral point of the scale, showing neither agreement or disagreement with the statements, item 1, distance to clinic (mean 3.32 ± 1.30 SD); item 2, travel to clinic (mean 3.49 ± 1.25 SD), item 3, arrangement of visit (mean 3.14 ± 1.25 SD), item 12, same professional (mean 3.31 ± 1.37 SD), item 21, no untreated problems (mean 3.45 ± 1.29 SD), item 22, no unexpected pain (mean 3.45 ± 1.31 SD), item 26, expected improvement (mean 3.22 ± 1.27 SD) and item 29, no better care (mean 3.30 ± 1.29 SD) are barely above the neutral point.

The highest mean scores were recorded for:

Item 13, explained need (mean 4.03 ± 1.02 SD);

Item 14, explained cost (mean 4.03 ± 1.03 SD);

Item 15, thorough examination (mean 4.06 ± 1.01 SD); and

Item 23, explained treatment (mean 4 ± 0.96 SD).

The individual items on the questionnaire which were included in each of these sub-sets and their inter-item reliability (Cronbach α values) are given in Table 4. The inter-item reliability of all 31 items of the questionnaire was tested and the overall (31-item) satisfaction scale produced a high Cronbach α value of 0.90. Scores for each of the six sub-scales and a score for the overall (31-item) satisfaction scale were calculated by the summation of items. These

Table 1: Distribution of study population by age and sex

Age	Male	Female	Total
18-24	32	22	54
25-44	96	82	178
45-64	155	118	273
65>	105	44	149
	388	266	654

Table 2: Distribution of study population by department last visited for treatment

Department	No	Percent
Endodontics	106	16.2
Oral Diagnosis	22	3.4
Orthodontics	14	2.1
Oral Surgery	205	31.3
Public Health Dentistry	2	.3
Periodontics	101	15.4
Prosthodontics	204	31.2
Total	654	100.0

Table 3. Mean scores and standard deviation of individual items of the dental satisfaction questionnaire

Items	Mean	Std. Deviation
Distance to clinic + (context)	3.32	1.30
Travel to clinic (context)	3.49	1.25
Arrange visit + (context)	3.14	1.25
Prompt visit (context)	3.53	1.22
Attractive waiting room (facilities)	3.72	1.08
Waiting time (context)	3.62	1.18
Well equipped surgery (facilities)	3.95	1.06
Modern surgery (facilities)	3.91	1.09
Friendly staff (context)	3.98	1.10
Impersonal professional +	3.74	1.20
Preferred professional (context)	3.77	1.13
Same professional (context)	3.31	1.37
Explained need (content)	4.03	1.02
Explained cost	4.03	1.03
Through examination + (content)	4.06	1.01
Answered questions (content)	3.93	1.15
Explained options + (content)	2.73	1.27
Avoid unnecessary costs	3.74	1.12
Satisfied with care (content)	3.87	1.08
Appropriate care +	2.61	1.25
No untreated problems + (outcome)	3.44	1.29
No unexpected pain +	3.45	1.31
Explained treatment (content)	4.00	0.96
Problems fixed (outcome)	3.72	1.17
Improved dental health + (outcome)	3.59	1.21
Expected improvement + (outcome)	3.22	1.27
Affordable cost + (cost)	3.60	1.21
Confident of care (outcome)	3.78	1.12
No better care + (outcome)	3.30	1.29
Good advice (content)	3.89	1.12
Financially protected (cost)	3.92	1.08

Table 4. Components of the dental satisfaction sub-scales and Cronbach A

Scale	Items	Cronbach a
Context	1, 2, 3, 4, 6, 9, 11, 12	0.70
Content	13,15,16,17,19, 23, 30	0.76
Outcome	21, 24, 25, 26, 28, 29	0.69
Cost	27, 31	0.58
Facilities	5, 7, 8	0.75
Overall Satisfaction	1-31	0.90

Table 5. Dental satisfaction sub-scale scores

	Minimum	Maximum	Mean	Std. Deviation	Percentile		
					25	50	75
context	1	5	3.52	0.7	3	3.5	4
content	1.57	5	3.79	0.69	3.29	3.86	4.43
Outcome	1	5	3.51	0.77	3	3.5	4
cost	1	5	3.76	0.96	3	4	4.5
facilities	1	5	3.86	0.88	3.33	4	4.67
overall	1.94	5	3.63	0.58	3.1	3.65	4.06

Table 6. Mean satisfaction scores according to sex and age

	Context		Content		Outcome		Cost		Facilities		Overall	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Sex												
Female	3.55	0.69	3.77	0.68	3.54	0.76	3.81	0.95	3.89	0.84	3.65	0.57
Male	3.5	0.7	3.8	0.71	3.48	0.78	3.73	0.97	3.84	0.91	3.61	0.58
Age group												
18-24	3.71*	0.77	3.97	0.67	3.63	0.84	3.91	1.08	4.11*	0.88	3.77*	0.61
25-44	3.43	0.68	3.71	0.66	3.47	0.7	3.67	0.89	3.74	0.85	3.54	0.55
45-64	3.53	0.68	3.75	0.69	3.48	0.74	3.71	1	3.83	0.88	3.61	0.57
65>	3.55	0.71	3.88	0.73	3.56	0.86	3.91	0.9	3.97	0.88	3.7	0.61

*Significance P<0.05 ANOVA

Table 7. Mean satisfaction scores according to department last visited for treatment

Department		cost	facilities	overall	content	context	outcome
Conservative & Endodontics	Mean	3.76*	3.91*	3.62*	3.79	3.44*	3.55
	N	106	106	106	106	106	106
	Std. Deviation	0.93	0.87	0.55	0.67	0.74	0.70
Oral Diagnosis	Mean	3.61	3.80	3.54	3.68	3.64	3.31
	N	22	22	22	22	22	22
	Std. Deviation	0.99	0.85	0.72	0.81	0.70	1.06
Orthodontics	Mean	3.07	3.71	3.45	3.67	3.37	3.33
	N	14	14	14	14	14	14
	Std. Deviation	1.00	0.89	0.48	0.68	0.47	0.66
Oral Surgery	Mean	4.01	4.02	3.76	3.90	3.67	3.62
	N	205	205	205	205	205	205
	Std. Deviation	0.98	0.88	0.60	0.69	0.72	0.79
Periodontics	Mean	3.66	3.66	3.51	3.70	3.43	3.43
	N	101	101	101	101	101	101
	Std. Deviation	0.81	0.83	0.50	0.69	0.57	0.70
Prosthodontics	Mean	3.62	3.81	3.58	3.72	3.46	3.46
	N	204	204	204	204	204	204
	Std. Deviation	0.98	0.89	0.58	0.70	0.70	0.78
Total	Mean	3.76	3.86	3.63	3.79	3.52	3.51
	N	654	654	654	654	654	654
	Std. Deviation	0.96	0.88	0.58	0.69	0.70	0.77

*Significance $P < 0.05$ ANOVA

Figure 1(a). Distribution of responses to individual items of the Dental Satisfaction Questionnaire

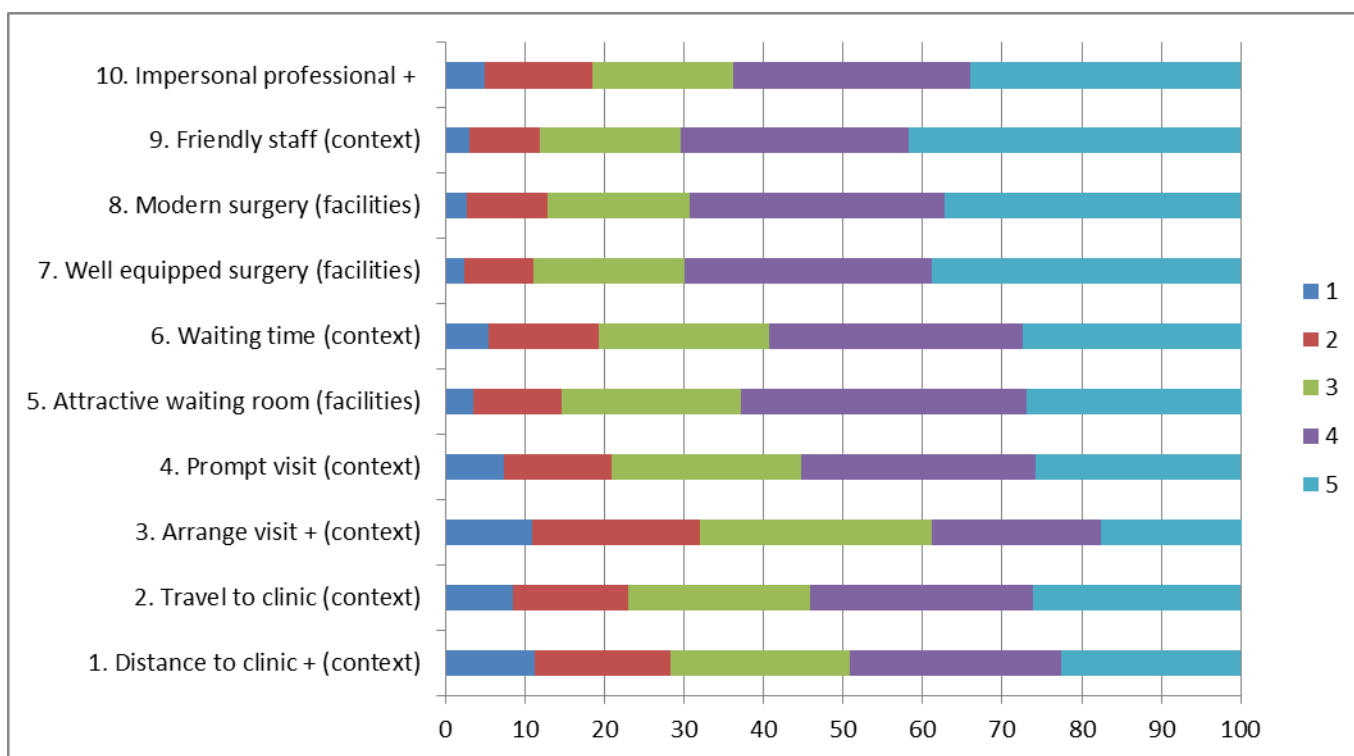


Figure 1(b). Distribution of responses to individual items of the Dental Satisfaction Questionnaire

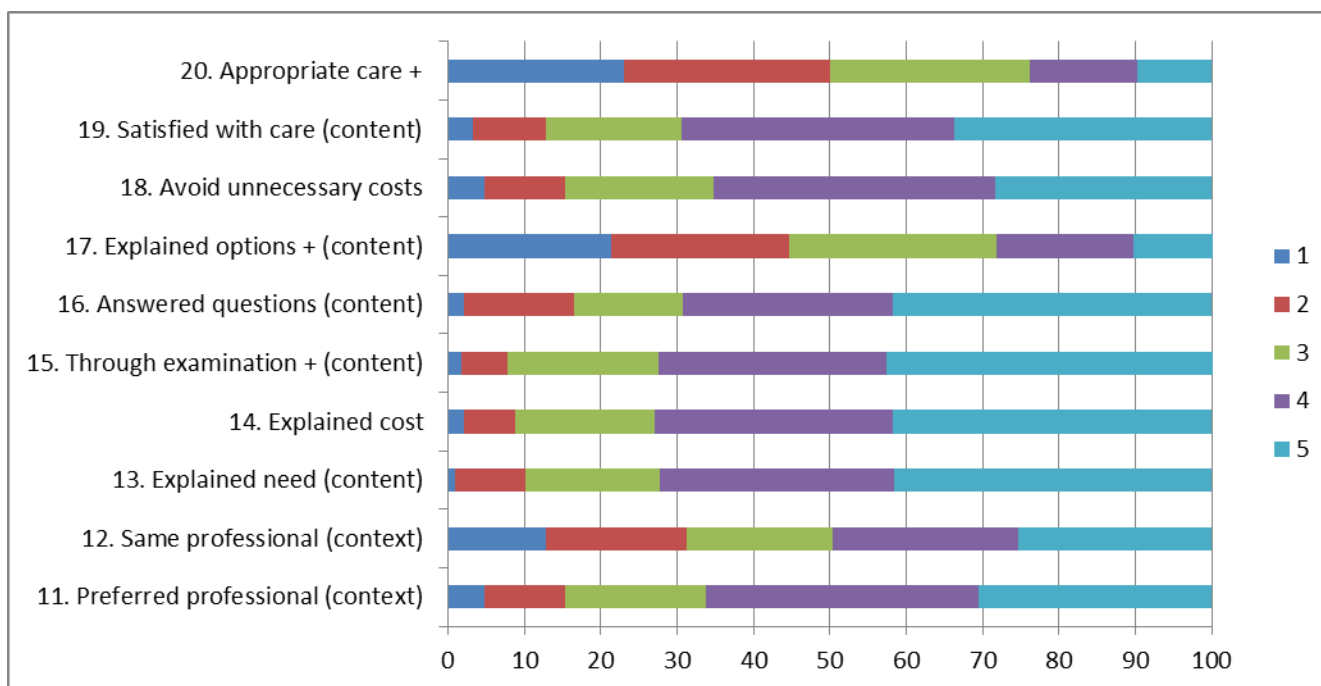
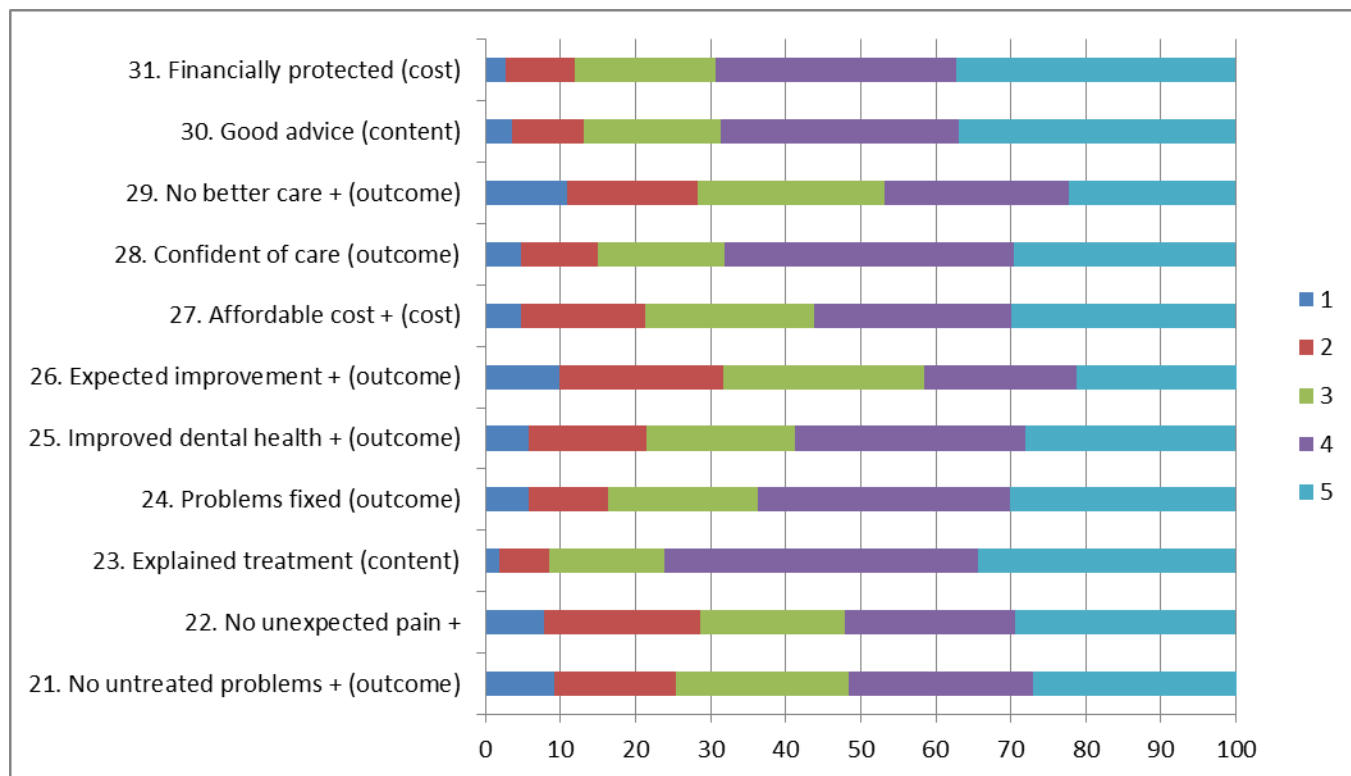


Figure 1(c). Distribution of responses to individual items of the Dental Satisfaction Questionnaire



scores were then scaled so that the range for each sub-scale and the overall scale was one to five, with one expressing strong disagreement with that dimension of dental satisfaction and five expressing strong agreement.

The mean score, the standard deviation, the minimum and the maximum scores for each of the six sub-scales and the overall (31-item) satisfaction scale are shown in Table 5. Mean scores ranged from 3.51 on the outcome scale to 3.86 on the facilities scale. Satisfaction with, outcome, cost, facilities and context encompassed all scores from one, strong dissatisfaction to five, strong satisfaction while the minimum scores for the other scales were content, 1.57, and overall (31-item) satisfaction, 1.94. Each of the six sub-scales and the overall satisfaction scale included the maximum score of five, i.e. there were

respondents who recorded strong agreement with all items forming the scale.

The percentiles in Table 5 show the score at each of the 25th, 50th and 75th percentiles. Only facilities and cost scale scores were close to the maximum score of five by the 75th percentile and above four by the 50th percentile. It is clear that the scale scores (unlike the individual item scores) indicated varying levels of satisfaction with aspects of the dental visit rather than overt dissatisfaction.

Table 6 show the differences in mean scores of the sub-scales and the dental visit satisfaction scale by age and sex. There was no statistical significance in the satisfaction scores between sexes however females consistently recorded higher scores than males except for content sub-scale and the highest difference was seen in cost sub-scale. Statistically significant difference at $P < 0.05$ was seen in the facilities sub-

scale, context sub-scale and overall satisfaction scale between age groups. The greatest range of mean scores occurred by age on the context scale (which addressed communication issues), with the age-group 18–24 years registering a mean score of 3.71 compared to a mean score of 3.43 for the group aged 25-44 years.

Table 7 show the differences in mean scores of the sub-scales and the overall satisfaction scale by the department last visited for treatment. As there were only two subjects who visited the department of public health dentistry, they were not included in statistical analysis. Statistically significant difference at $P < 0.05$ was seen in the sub-scales of facilities, context, cost and overall satisfaction scale between the departments.

Discussion

There is now a common consensus that care cannot be viewed as high quality unless the patient is satisfied³. Measurement of patient satisfaction is therefore seen as a vital aspect of evaluating the overall quality of care. Unfortunately, outlining the importance of taking into account patient satisfaction is rather easier than defining the construct and designing appropriate instruments to measure it. Human satisfaction is a complex concept that is related to a number of factors including lifestyle, past experiences and future expectations, and the values of both the individual and society⁴. Customer evaluation of a product, for example, is known to be influenced by both customer effort and expectation⁵. The concept of patient satisfaction was originally derived from consumer satisfaction, and there is strong interlinking between the two concepts.

In many cases, the two terms are used inter-changeably. Recent definitions see consumer satisfaction as a complex evaluative process that ‘the consumption experience was at least as good as it supposed to be’⁶. Three important elements can be extracted from this definition: that the concept involves expectation, perception and comparison.

Participants recorded their level of agreement or disagreement with each statement on a likert scale of one to five, with one indicating strong disagreement and five indicating strong agreement. Both positive and negative statements were used, thus it was necessary to reverse the response values of negative statements so that all favorable responses were reflected by higher scores.

Those items marked with a “+” at the right of the item label for each bar have been corrected for direction of response, eg a value of one on item one has been converted to a value of five; thus, strong disagreement on distance being a difficulty became strong agreement on distance not being a difficulty, the response indicative of greater satisfaction with that aspect of the dental visit.

The findings of this study show that patient satisfaction levels are good among patients reporting for at a dental school hospital. A robust measure of patient satisfaction was used, and the findings were apparent not only for overall satisfaction, but in the sub-scales of context, content, outcome, cost and facilities also. In the individual items only two items i.e., Item 17, explained treatment options and Item 20, appropriate care expressed overt dissatisfaction with that aspect of the dental visit. These are two areas where a dental school treatment facility is lacking in patient satisfaction as probably due to the excess number of patients handled by an individual dentist is more in this type of facility.

However, the findings do need to be carefully interpreted. The sample was not randomly drawn from patients attending the dental hospital: it was a convenient sample of consecutive patients attending for care, from a single dental school and the sample size was not statistically derived. This dental school cannot be seen as being generally representative of dental schools in India. Also a comparison with dental practices which adopt the comprehensive dental care model would allow comparison of patient satisfaction levels.

Since the sample was limited to patients attending the hospital, non-attending patients (who may have been relatively less satisfied) were not

included. Moreover, there was no attempt to control for equivalence of care in the design of the study. No record of the procedure undertaken was made. It is probable that patients who may have undergone simpler (and perhaps less traumatic) aspects of care are more satisfied. There was a significant gender difference in the study population and this might have confounded the current findings.

Nevertheless, the findings of this study are of interest, and although patient satisfaction with care at dental school hospital has not been previously researched, there are some indications that a differential in patient satisfaction according to the type of practice does exist. Patients may be more satisfied with care by private dental practitioners with their interpersonal skills, time availability and comprehensive nature of care. Anecdotally, appointments at dental school hospitals are longer for given procedures than with dentists for the same procedure, and this may be an important factor in influencing patient satisfaction, although there is no evidence to support this, and this may be an interesting avenue for further research.

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