



ORIGINAL ARTICLE

Patient satisfaction analysis: Identifying key drivers and enhancing service quality of dental care



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Abstract *Background/purpose:* Dental care service quality has received increasing attention in recent years. Patient satisfaction is extensively used to evaluate healthcare service quality. The aim of this study was to propose a conceptual framework for identifying the key drivers and provide guidance for enhancing dental care service quality.

Materials and methods: The dentistry department of a typical Taiwanese hospital was investigated. In total, 400 adult patients, who subsequently visited the studied hospital for dental treatment, participated in this study. Donabedian's structure-process-outcome model was used to explore the dental care service elements. A Kano-type questionnaire was developed as the survey instrument.

Results: The response rate was 76% (303/400). Cronbach's α value to each question was >0.7 , implying that the questionnaire was highly reliable. When investigating 30 quality elements, based on Kano's perspective, 12 elements were classified into must-be attributes, which are regarded as key drivers of patient satisfaction; 10 elements were in the attractive attributes category; and the remaining were one-dimensional attributes. Patient responses to most dental service elements ranged from satisfied to very satisfied.

Conclusion: Physical characteristics of structural aspects and administration of process aspects are regarded as essential dimensions. Patient satisfaction with the surveyed service elements was positive. Satisfaction with administration-related factors, other than accurate patient records, in the process aspect was at the lowest level, thus there should be opportunities for improvement.

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Introduction

Patient satisfaction with healthcare services has recently received increasing attention. Increasing patient satisfaction requires healthcare services to be patient-oriented and comply with standard and efficient protocols. Analyzing patient satisfaction and understanding weaknesses, opportunities, and threats associated with healthcare services, can enhance the ability of healthcare providers to attract patients. Identifying key drivers of patient satisfaction and improving healthcare service quality have become crucial for hospital operation.

Numerous instruments have been developed to measure healthcare service quality, but the precise meaning of "quality of care" remains ambiguous. Numerous studies were developed to assess healthcare service quality. Patient satisfaction is extensively used to evaluate healthcare service quality.^{1,2} The SERVQUAL model, or the so-called gap model, which was developed to assess the service quality of general businesses and is commonly used to examine healthcare service quality, is useful for calculating the gap between customer/patient expectations and perceptions.¹⁻⁴

However, Donabedian⁵ indicated that healthcare significantly differs from general business services, and patient assessments of healthcare quality are more complex than those for other services. Donabedian thus developed a systematic framework, namely the structure-process-outcome model, to evaluate healthcare service quality.⁶ The Donabedian framework has been widely adopted to assess healthcare service quality. Those studies demonstrated a close relationship among the three aspects of structure, process, and outcome.⁷⁻⁹ Much literature has analyzed the relationships between patient satisfaction and these three aspects, and the service elements were explored in aggregate. Each service element exerts different impacts on patient satisfaction, and their peculiarities should be analyzed separately. In most quality models, such as the technical functional quality model¹⁰ and gap model,¹¹ the relationship between the levels of customer expectations fulfilled, and their perceptions, was assumed to have a linear relation. However, Kano et al¹² exhibited potential nonlinear product/service performance impacts on customer satisfaction, and proposed a two-dimensional quality model to separately classify service element attributes and formulize their relationship based on the motivator-hygiene theory of Herzberg.¹³ The two-dimensional quality model, shown in Fig. 1, assumes asymmetrical relationships between the level of customer expectations fulfilled and customer satisfaction. Depending on the influence of individual service elements on customer satisfaction, product/service elements are classified as must-be, attractive, one-dimensional, indifferent, and reverse attributes.

Must-be attributes are essential requirements that do not positively impact satisfaction, if expectations are exceeded, but generate dissatisfaction if they are not satisfactory. Attractive attributes are excitement factors that do not impact dissatisfaction but can enhance satisfaction. One-dimensional attributes are performance factors that symmetrically impact both satisfaction and dissatisfaction, in proportion to their level of fulfillment. Indifferent attributes do not impact satisfaction or dissatisfaction. Reverse

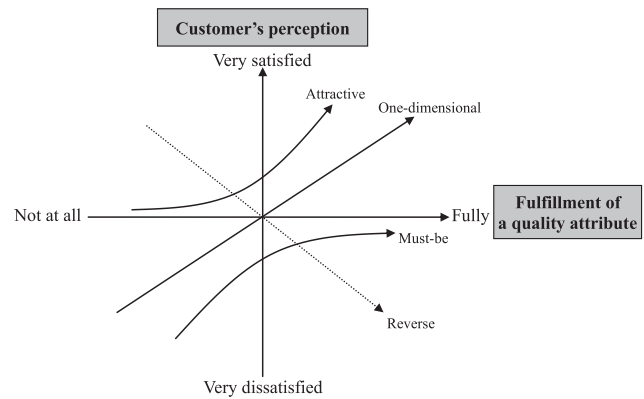


Figure 1 The Kano model of customer satisfaction.

attributes contrast with one-dimensional attributes and their fulfillment can cause dissatisfaction.¹²

The Kano model has attracted considerable attention among marketing practitioners and researchers interested in identifying key drivers of customer satisfaction and dissatisfaction.^{14,15} Accordingly, the literature has also adopted the Kano model to identify customer/patient requirements or enhance their satisfaction with healthcare services.¹⁶⁻²⁰ Such a model may prove useful in identifying drivers of patient satisfaction for application to dental services and clarify where there is room for improvement.

Dental services differ from other medical services, in that they assume a more personal, intimate, and lasting contact with the patient, since even the simplest dental procedure demands a relatively long session. Quality assessment of dental services remains relatively primitive.²¹ This study thus integrated the structure-process-outcome framework of Donabedian, and the two-dimensional quality model of Kano, to identify the key determinants of patient satisfaction with dental services.

Since 1995, the National Health Insurance (NHI) system has provided the population of Taiwan with universal and comprehensive health care (including dental care) accessible at a low cost. From 1998 to 2011, the number of dentists grew rapidly to reach 5.16 dentists/10,000 residents. The NHI Bureau contracted with 97% of the 6358 private dental service providers in Taiwan.²² Intense market competition has made the best means of promoting service quality²³ and attracting patients key issues for dental service providers. This study investigated a typical Taiwanese hospital, a medical center about which patients had high expectations. To fulfill the expectations of the government and the general population, the studied hospital emphasizes and strives to promote healthcare service quality and patient satisfaction.

Materials and methods

Identification of service quality elements

A comprehensive set of service elements was identified, based on the literature and suggestions from dentists at the studied hospital. Thirty service elements, shown in Fig. 2, were examined and classified in terms of three aspects, structure, process, and outcome, based on the framework

of Donabedian.⁶ The structure aspect included both physical (five elements) and staff characteristics (three elements); moreover, the process aspect examined professionalism (five elements), interactions (four elements), reactivity (four elements), and administration (six elements). The outcome aspect, which was neglected in the literature in terms of dental services,²¹ was explored to evaluate patient perceptions after visiting the hospital. This investigation proposed three elements, posttreatment pain relief, increased confidence, and acceptable fees for dental services, and used them as outcome measures.

Questionnaire design

A questionnaire was designed based on the perspectives of Kano. Pairs of questions, comprising a functional and

a dysfunctional question, were formulated for each service element with respect to dental services. For example, convenient access to the facility is considered an element of dental service. Table 1 lists the sample questions developed for the Kano-type questionnaires. Accordingly, patients (respondents) should select a state from “I like it that way”, “It must be that way”, “I am neutral”, “I can live with it that way”, and “I dislike it that way” from the functional and dysfunctional questions. Patient perceptions of the service quality level were explored using a five-point Likert scale, that ranged from “strongly dissatisfactory” to “strongly satisfactory” to assess patient satisfaction with each service element. This study thus adopted three survey types of classifying quality attributes, identifying the importance of service elements, and evaluating patient satisfaction.

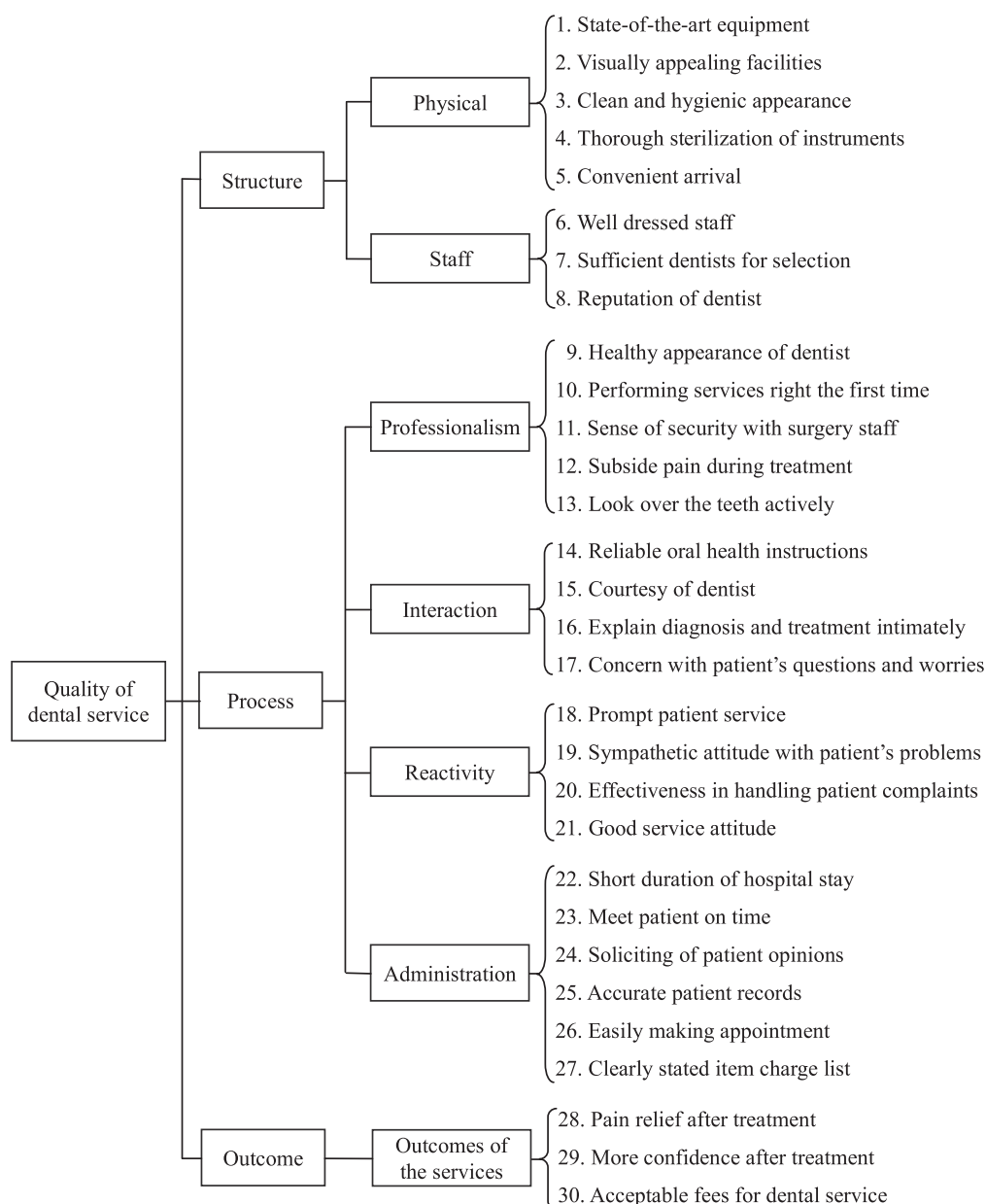


Figure 2 The framework of investigated dental service attributes based on Donabedian’s perspective.

Table 1 Sample questions of Kano-type questionnaires.

Sample questions	Possible responses
Functional question: If the facility is convenient arrival, how would you feel?	<input type="checkbox"/> I like it that way <input type="checkbox"/> It must be that way <input type="checkbox"/> I am neutral <input type="checkbox"/> I can live with it that way <input type="checkbox"/> I dislike it that way
Dysfunctional question: If the facility is <u>not</u> convenient arrival, how would you feel?	<input type="checkbox"/> I like it that way <input type="checkbox"/> It must be that way <input type="checkbox"/> I am neutral <input type="checkbox"/> I can live with it that way <input type="checkbox"/> I dislike it that way

The content validity of the survey determined whether the survey was appropriate for measuring issues related to patient attitudes. Content validity testing of this study was performed using a panel consisting of personnel who served as administrators of the dental care sector of the studied hospital and a professor with extensive experience in the field. The reliability appropriate in the context is an estimation of the internal consistency or homogeneity. Cronbach’s α statistic was widely used in previous studies, and was also used in this study to measure the reliability.

Study participants and setting

This study was reviewed and approved by the Institute Review Board (IRB) at the studied hospital. All questionnaires included a separate section with informed consent and description of the study aims. The study population was comprised of patients who had visited the Department of Dentistry at the studied hospital once in the past 3 months. The study surveyed 400 adult patients, who subsequently visited the Department of Dentistry of the studied hospital for dental treatment.

The service element category was derived using two steps of identifying the categorization of an individual respondent and calculating the frequencies of categories to analyze the categorization result of a service element. For an individual respondent, the category of a service element was derived from his/her answers to a pair of questions, comprised of a functional and a dysfunctional question referring to Kano’s evaluation table (Table 2).²⁴ The Kano evaluation lists the different combinations of potential answers and associated categories. For example, if the

patient answers “I like it that way” in response to the question “How would you feel if the location of the facility is convenient?” (the functional form of the question) and answers “It must be that way” or “I am neutral” in response to the question “How would you feel if the location of the facility was not convenient?” (the dysfunctional question), the combination of questions in the evaluation table yields category “A”. A convenient location thus becomes an attractive attribute for that respondent. For a service element, the category is derived from calculating the frequencies of the difference categories appearing in the responses. For example, if 55/100 patients respond that a service element is a must-be attribute and 25 patients respond that it is an attractive attribute, the results suggest that the service element being inquired about is viewed as a must-be attribute.

The Kano model can improve the understanding of how patients evaluate services and can help service providers focus on those quality attributes in most need of improvement. The patient satisfaction (PS) coefficient, which indicates how strongly a service element influences satisfaction or dissatisfaction, can serve as an indicator in ranking patient requirements. The PS coefficient of a service element comprises positive (better) and negative (worse) numbers. The former denotes the relative value of meeting this service element requirement or its impact on satisfaction, while the latter represents the extent to which this requirement remains unfulfilled.²⁵ The calculation can be written as follows, where *A*, *O*, *M*, and *I* denote the frequencies of attractive, one-dimensional, must-be, and indifferent attributes of each service element, respectively:

$$\text{Better} = \frac{A + O}{A + O + M + I}, \text{Worse} = -\frac{O + M}{A + O + M + I}$$

A minus sign is placed in front of the Worse number to emphasize the negative influence on patient satisfaction associated with this service requirement not being fulfilled. The range of absolute values of the PS coefficients is 0~1; values close to 1 are associated with stronger influences on patient satisfaction or dissatisfaction.²⁴

Rational allocation of scarce resources is important to optimize patient satisfaction. This study used patient satisfaction and PS coefficients to more accurately consider the ranking of service elements being evaluated to enhance their performance. Service elements with lower satisfaction and higher absolute values of both Better and Worse numbers of the PS coefficients need to be improved and should be prioritized.

Table 2 Kano evaluation table with the possible combinations and resulting categories.

Quality attribute	Dysfunctional				
	1. Like	2. Must-be	3. Neutral	4. Live with	5. Dislike
Functional	1. Like Q	2. Must-be A	3. Neutral A	4. Live with A	5. Dislike O
	2. Must-be R	1. Like I	3. Neutral I	4. Live with I	5. Dislike M
	3. Neutral R	2. Must-be I	1. Like I	4. Live with I	5. Dislike M
	4. Live with R	3. Neutral I	2. Must-be I	1. Like I	5. Dislike M
	5. Dislike R	4. Live with R	5. Dislike R	3. Neutral R	1. Like Q

A = attractive; I = indifferent; M = must-be; O = one-dimensional; Q = questionable; R = reverse.

Statistical analysis

Data were analyzed using SPSS 18.0 software (SPSS, Chicago, IL, USA) and Microsoft Office Excel 2007 (Redmond, WA, USA). To assess the internal consistency of the investigation, Cronbach's α statistic was calculated. A one-way analysis of variance (ANOVA) examined the statistical significance of patient satisfaction, based on demographic variables using the SPSS statistical package. Microsoft Office Excel 2007 was used to classify the attributes of dental service elements.

Results

Characteristics of the sample

Four hundred questionnaires were distributed to adult patients, who subsequently visited the dental section of the studied hospital for dental treatment. After removing incomplete samples, 303 questionnaires were further analyzed. Conservatively, this would give a 95% confidence interval (and so precision) of the estimate of the percentage of patients aware of dental service quality of $\pm 5.6\%$. Over half of the sampled patients (57.25%) were female, approximately 18% were aged <30 years, and 6.5% had received no more than 9 years of education (junior high school). The criterion of reliability, namely an estimate of the internal consistency and homogeneity, was evaluated using Cronbach's α statistic. The value of Cronbach's α for all questions exceeded 0.7, indicating reasonable internal reliability.

Analysis of service attributes

The attribute of each service element was derived according to the relative frequency of participant answers. The results are summarized in columns four to eight of Table 3. From the patient's perspective, most service elements were classified as must-be attributes (12 elements). Moreover, 10 elements were classified as attractive attributes; the remaining were classified as one-dimensional attributes.

The last three columns of Table 3 summarize patient satisfaction and give the PS coefficient of the service elements. The mean scores of patient satisfaction for most service elements exceeded 4.0. Patient satisfaction regarding service elements thus ranged between satisfied and highly satisfied. This finding indicates positive patient satisfaction with most service elements. However, six service elements revealed lower satisfaction, including ease of making appointments, a short duration of hospital stay, convenient arrival, clearly stating the item charge list, meeting patients on time, and soliciting patient opinions, in decreasing order of mean scores of patient satisfaction. Among the six service elements, clearly stating the item charge list, and meeting patients on time, were regarded as must-be attributes. A short hospital stay duration and ease of making appointments were considered one-dimensional attributes. Convenient arrival and soliciting patient opinions occupied the attractive attribute category.

To effectively manage the influence of patient characteristics on the six less satisfactory service elements, the statistical significance of the demographic variables (gender, age, education, and occupation) were analyzed using a one-way ANOVA. Table 4 lists the details of the results. Two of the six elements, clearly stating the item charge list and a short duration of hospital stay, significantly differed between genders ($P < 0.05$).

Service elements with lower satisfaction should be improved to promote overall patient satisfaction. Rationally optimizing the allocation of limited resources is important. This study took the level of patient satisfaction and the PS coefficient of service elements as indicators to prioritize service element improvement. As shown in Fig. 3, patient satisfaction and the PS coefficient of the service elements were plotted against each other in the form of a scatter diagram. Two different charts were drawn up. Fig. 3A shows patient satisfaction and Better numbers of PS coefficients of the service elements; Fig. 3B shows patient satisfaction and Worse numbers of PS coefficients of the service elements.

Discussion

This study focused on identifying key drivers of patient satisfaction and prioritizing service elements to improve the Department of Dentistry of the studied hospital. Compared to previous investigations,^{2,3} this study classified service elements for which researchers reported higher expectation scores as must-be attributes. Notably, the highest score awarded by patients surveyed in the previous study was "clean and hygienic appearance" and "thorough sterilization of instruments", which most patients in the present study regarded as crucial attributes. This is probably why elements classified in this study as must-be attributes are basic requirements and are regarded as crucial services that dental care providers must offer. Failure to fulfill the requirements associated with these elements induces high patient dissatisfaction.

Based on the Donabedian framework,⁶ service elements in the physical characteristics category of structural aspects, other than convenient arrival, were classified as must-be attributes. This result indicates that good hygienic facilities and up-to-date equipment are essential. This finding is consistent with those of Paliawadana and Barnes² and Karydis et al³ who found that these patient expectations were placed at the top of patients' priorities and should be fulfilled for all dental services. Additionally, those elements in the one-dimensional category were important attributes, and the presence or absence of particular service elements and patient satisfaction were proportionately related. Hospital managers should provide a good performance of these service elements to promote overall patient satisfaction. Meanwhile, attributes in the attractiveness category were less important than those in the must-be and one-dimensional categories. These attributes are also called excited factors, which do not impact dissatisfaction but can enhance satisfaction, and should be enhanced to attract patients and promote patient loyalty.

Associations between respondent characteristics and their satisfaction with the six less-satisfactory service elements were analyzed, and the results are listed in

Table 3 The classification of dental service attributes in this study.

Aspects	Dental service elements	Frequency				Attribute	Patient satisfaction	PS coefficients (%)		
		A	O	M	I			Better number	Worse number	
Structure	Physical characteristics	1. State-of-the-art equipment	47	99	139	15	M	4.25	48.7	-79.3
		2. Visually appealing facilities	60	92	130	21	M	4.21	50.2	-73.3
		3. Clean and hygienic appearance	18	63	200	22	M	4.33	26.7	-86.8
		4. Thorough sterilization of instruments	3	50	249	1	M	4.24	17.5	-98.7
		5. Convenient arrival	124	83	63	33	A	3.72	68.3	-48.2
Staff characteristics	6. Well dressed staff	80	83	172	26	M	4.23	45.2	-70.6	
	7. Sufficient dentists for selection	118	70	48	67	A	4.10	62.0	-38.9	
	8. Reputation of dentist	151	39	74	39	A	4.29	62.7	-37.3	
Process	Professionalism	9. Healthy appearance of dentist	128	59	68	48	A	4.20	61.7	-41.9
		10. Performing services right the first time	12	49	242	0	M	4.10	20.1	-96.0
		11. Sense of security with surgery staff	31	87	172	11	M	4.13	39.2	-86.0
		12. Subside pain during treatment	83	143	52	24	O	4.02	74.8	-64.6
		13. Look over the teeth actively	126	76	71	30	A	4.13	66.7	-48.5
	Interaction	14. Reliable oral health instructions	151	77	48	24	A	4.05	76.0	-41.7
		15. Courtesy of dentist	124	95	64	20	A	4.22	72.3	-52.5
		16. Explain diagnosis and treatment	57	63	120	62	M	4.16	39.7	-60.6
	Reactivity	17. Concern with patient's questions and worries	98	111	74	20	O	4.10	69.0	-61.1
		18. Prompt patient service	68	78	139	18	M	4.09	48.2	-71.6
		19. Sympathetic attitude with patient's problems	88	103	95	17	O	4.02	63.0	-65.3
		20. Effectiveness in handling patient complaints	111	52	107	31	A	4.01	54.2	-52.8
	Administration	21. Good service attitude	90	97	93	23	O	4.24	61.7	-62.7
		22. Short duration of hospital stay	77	112	91	20	O	3.79	63.0	-67.7
		23. Meet patient on time	20	106	167	10	M	3.87	41.6	-90.1
24. Soliciting of patient opinions		144	26	68	65	A	3.93	56.1	-31.0	
25. Accurate patient records		34	72	173	24	M	4.21	35.0	-80.9	
26. Ease in making appointment		95	115	69	24	O	3.66	69.3	-60.7	
27. Clearly stated item charge list		65	113	119	6	M	3.82	58.7	-76.6	
Outcome	Outcome	28. Pain relief after treatment	120	71	88	24	A	4.08	63.0	-52.5
		29. More confidence after treatment	52	138	79	33	O	4.27	62.9	-71.9
		30. Acceptable fees for dental service	29	140	123	11	O	4.04	55.8	-86.8

A = attractive quality; I = indifferent quality; M = must-be quality; O = one-dimensional quality.

The unclassified and reverse quality was <1%, omitted.

The shaded parts revealed relative higher cumulated frequencies and the service attributes belonged to the two-dimensional quality classification.

Table 4 Patient satisfaction by respondent demographic variables.

Service elements	Patient satisfaction Mean ± SD	P			
		Gender	Age	Education	Occupation
Easily making appointments	3.66 ± 0.78	0.982	0.653	0.702	0.872
Convenient arrival	3.72 ± 0.72	0.079	0.158	0.775	0.366
Clear and itemized list of charges	3.82 ± 0.73	0.030*	0.504	0.590	0.101
Short duration of hospital stay	3.79 ± 0.73	0.046*	0.510	0.424	0.549
Prompt and timely service delivery	3.87 ± 0.61	0.181	0.856	0.823	0.400
Soliciting of patient opinions	3.93 ± 0.70	0.152	0.445	0.259	0.118

* Denotes significant difference at $\alpha = 0.05$.

Table 4. Only two of the six elements, clearly stating the item charge list and a short duration of hospital stay, significantly differed between genders ($P < 0.05$). Males and females were compared in terms of their perceived satisfaction with the two service elements, and mean scores of both elements perceived by males were higher than those of females. This result indicates that male patients were more satisfied with dental services, while female patients had higher service requirements. This finding is similar to that of Karydis et al,³ who found that patient gender and socioeconomic characteristics affect their satisfaction.

Patient satisfaction can be enhanced, and dissatisfaction substantially reduced, by rationally allocating limited

resources. **Fig. 3** shows that service elements in the upper-left corner are those with the most room for improvement, while those in the bottom-right corner have the lowest priority. That is, to foster patient satisfaction, priority should be given to improving service elements with lower patient satisfaction and higher Better numbers of the PS coefficient. **Fig. 3A** shows that the first five service elements that should be improved to promote patient satisfaction, are easily making appointments, convenient arrival, a short hospital stay duration, clearly stating the item charge list, and meeting patients on time. Conversely, decreasing patient dissatisfaction requires prioritizing service elements with lower patient satisfaction and higher absolute Worse numbers of the PS coefficient. **Fig. 3B** shows that the items identified as priorities for reducing patient dissatisfaction coincide with those identified as priorities for increasing patient satisfaction. Only a low priority should be assigned to improving service elements with higher satisfaction and smaller PS coefficients.

As mentioned previously, administrators are responsible for improving the first five service elements. Three of the five service elements whose improvement should be prioritized, belong to the process aspect of the administration category. To promote overall patient satisfaction or reduce patient dissatisfaction, hospital managers should focus on improving “scheduling related” areas and streamlining the business process to increase facility utilization. Such streamlining can allow patients to make appointments more easily, shorten hospital stays, and thus, increase patient satisfaction. This result is a little different from that of Kaldenberg et al,²⁶ who found that the lowest level of patient satisfaction was related to scheduling areas; however, improving those areas would not dramatically reduce patient dissatisfaction. In their study, factors of “providing services as promised” and “instilling confidence in patients” were most likely to have the greatest impacts on improving patient satisfaction.

From this investigation, we found that patients were less satisfied with the service element of clearly stating the item charge list. The NHI program of Taiwan provides universal and comprehensive health insurance with low copayment for dental care, but excludes cosmetic services such as dentures, orthodontics, and implants.²² The sums of money involved differ with the materials used. For example, the cost of dental crowns range from New Taiwan Dollars (NT\$)4000 to >NT\$10,000 (in 2011, the average

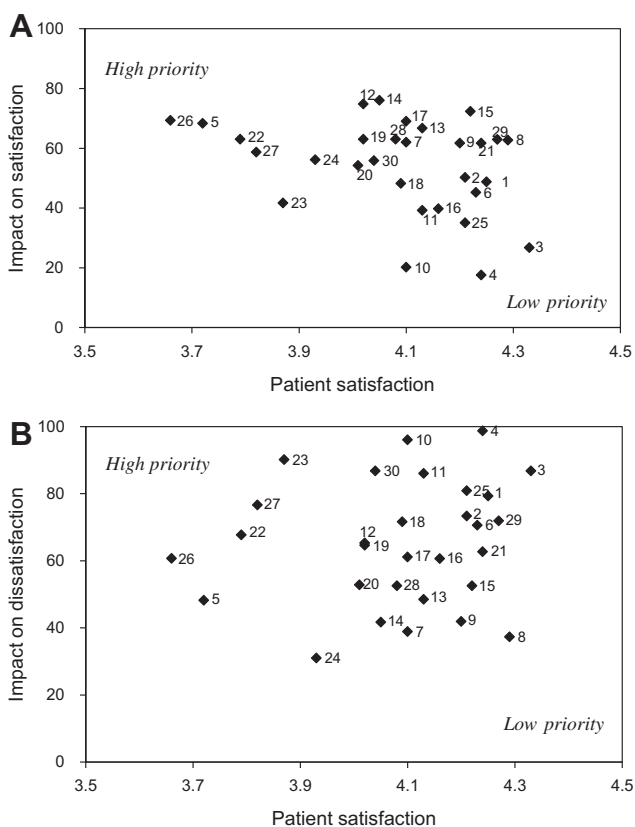


Figure 3 (A) The impact of the service attributes on patient satisfaction; (B) the extent of non-fulfilled service requirements being improved to reduce patient dissatisfaction.

exchange rate was US\$1 \approx NT\$29.464).²⁷ This study thus suggests that dentists of the studied hospital should inform patients of the costs of fee-charged service before providing those services.

Overall patient satisfaction was investigated and evaluated by mean scores of patient satisfaction with various service elements (sum of patient satisfaction of service elements divided by the number of service elements). One year after proposing the guidelines for improving dental service quality, the overall patient satisfaction had substantially increased (from 4.08 to 4.33). The duration of hospital stay was shortened by about 10%, and the percentage of meeting patients on time had increased from 75.4% to 84.7%. In the clearly stated item charge list of elements, patient satisfaction increased from 3.82 to 4.08. The consequence of improved patient satisfaction shows that this study proposed good guidelines for enhancing dental service quality.

Our study proposed a conceptual framework and developed an instrument to identify the key drivers of patient satisfaction and helped identify issues in dental practice that can be improved. The developed instrument is not intended to undermine or subvert a professional's understanding of appropriate technical care, but instead to supplement it.²⁶ The usefulness of a service quality assessment tool like the Kano-type questionnaire is primarily diagnostic. It is one way to answer the questions, "what is important?", "how am I doing?", and "what should I do to enhance dental service quality?". If a similar survey is used by an individual practitioner, a general process for conducting such a service quality assessment might include four steps. First, determine patient needs and identify service elements by interviews and a literature survey. The practitioner can comprehensively determine service elements using the structure-process-outcome model of Donabedian. Second, evaluate service elements and patient satisfaction using the Kano-type questionnaire, which consists of examined service elements. Third, categorize service elements by referring to the Kano evaluation table according to the respondent's answers. Finally, prioritize the service elements which should be improved. Examine which service elements most drive satisfaction in your practice, by looking at categories of service elements. Compute mean satisfaction scores and service element classifications to prioritize service elements which need to be improved.

In this research, following the four steps just described, we found that the physical characteristics of the structural aspect and administration of the process aspect are regarded as must-be attributes at the top of patient priorities. Patients were positively satisfied with all surveyed elements in the dental service sector of the studied hospital, and we found that patient gender affected satisfaction. Service elements with the lowest patient satisfaction, other than convenient arrival, were related to the process aspect of administrative factors for which there were opportunities for improvement. These administration-related factors, other than soliciting patient opinions, which were classified as must-be or one-dimensional attributes and were strongly correlated with satisfaction, would be most likely to have the greatest impact on improving patient satisfaction.

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