Integrating Kano's Model and SERVQUAL to Improve Healthcare Service Quality

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Abstract

The purpose of this research is focus on customer relationship management (CRM) strategies and relationship between service attributes and customer satisfaction through Kano's model especially on healthcare service at the private hospital. The paper specifically investigates the applicability of the model and the key factors in the hospital service business. The hospital service quality much depends on the performance of the attributes that define a service. The aim of this paper is first to investigate the attribute of service quality using Servqual perspective, thus the management is able to adjust the relationship between performance of service attributes and customer satisfaction, and second, through a case study in the private hospital to prove that the importance of a service attribute is a function of the performance of that attribute.

An empirical study using questionnaires with a focus on service enquiring about the performance of service key attributes and overall customer satisfaction was conducted using Servqual perspective including 5 parameters i.e. Tangibles, Reliability, Responsiveness, Assurance, Empathy. The data were fed into the Kano customer satisfaction model which used Five-level Kano questionnaire for analysis and comparison between one attribute to the others.

This research found that there are three of the total 26 service quality attributes have been categorized as "attractive". Four service quality attributes have been categorized as "must be", and sixteen of them as "one-dimensional". However, there is no service quality attribute can be categorized as "reverse" and "questionable". It can be predicted that offering customers "must be" or expected quality attributes will not be enough for customer satisfaction in few next days cause of the contemporary world and the environment changing. Hence, companies should focus on "attractive" quality attributes instead of "must be" or "one-dimensional" attributes in order to satisfy customers and to achieve competitive advantage.

The research limitations is the Kano model of customer satisfaction needs to be extended to other customer behavior variables and also management strategic response to increase customer loyalty; which not include in this paper. The implication is the methodology employed here can be easily applied by hospital management to evaluate customer behaviors and service quality performance.

Keywords: Customer satisfaction, Service quality, Healthcare service, Kano's model

1. Introduction

Considering that customer loyalty is a key factor for business success in a competitive market, companies should find out how to increase and sustain it in the long-term. Service quality and customer satisfaction have been recognized as the main antecedents of customer loyalty. (Anderson and Mittal, 2000; Grace and O'Cass, 2005; Karatepe et al., 2005; Hume et al., 2006). Thus, continuously improved

quality should be the focus for any company. Thus, firms must rely on customers' perceptions of service quality to identify strengths and/or weaknesses and design appropriate strategies. It is argued that service quality is viewed as being more closely linked to the actual service provision and, is multidimensional by nature (Grace and O'Cass, 2005).

Even though preventive medicine is successful, some people will be ill during their life. Therefore, they will need curative medicine oar hospital treatment. The health care services given by doctors, nurses and other health workers in hospitals have to be managed in an efficient and effective way. The health service quality, time management, response to patients' expectations, prevention from malpractice, updated treatment and so on, are very important while giving health services in hospitals (Oguzhan, et al., 2004). Strategic significance of customer satisfaction has been realized by healthcare business including the hospital services like the case in other services sectors in recent years. To fill the gaps between customer perceptions and expectations about the service received is vital for customer satisfaction. As Matzler and Hinterhuber (1998) stated more and more organization use satisfaction ratings as an indicator of the performance for services and consequently an indicator of the organization's future. Since service quality is a vital element in creating customer satisfaction.

Service quality, and customer satisfaction, can be improved by managing the performance of the service attributes. Since, not all attributes have the same role in satisfying customer needs, it becomes important to find out how their performance impacts on customer satisfaction. It means that a company should evaluate the importance of the service attributes for the customers and evaluate the current performance of these attributes to plan quality improvements. Patients often have few prior expectations about a healthcare service before their first visit and mainly rely on gathering information indirectly usually from friends and family recommendations when choosing a provider. Despite its importance, most are hard pressed to make well-informed decisions when they choose a doctor (York and McCarthy, 2011). Information available from providers or the other media is often highly technical and not useful for forming initial impressions or making decisions. Consequently, quality perceptions are often based on a patients' judgments (Turner and Pol, 1995), relying on indirect and subjective resources such as family and friends, service availability and timing, and also location.

The meaning of the customer concept has undergone a displacement, from a recipient of a service provided by a producer, through being one who participates in creating value in service experiences (Bitner et al., 1997; Prahalad and Ramaswamy, 2004) to the view of being an actor who creates value (Vargo and Lusch, 2004). Traditionally the patient has been described as weak, exposed and dependent on the immediate environment and seen as an object in medical discourse (Nordgren, 2009). Now, the role of the customer as a participator is articulated particularly apparent for services such as health care and personal fitness (Bitner et al., 1997; Prahalad and Ramaswamy, 2004). Physical comfort and pleasant reception of the patient will reduce dissatisfaction, but "real" value creation cannot be reached without a satisfactory dialogue that supports and establishes the relation between patient and doctor/ nurse (Resnick and Griffiths, 2011). The patient's experience of care can be related to a sense of trust in relations (Philip and Stewart, 1999). Possibilities for developing a customized concept of service productivity to the requirements of health care have been explored. It has been essential to focus on understanding of processes of value creation seen from the customers/ patient perspective. As a value creator the customer affects his/her health and life quality in a way and to a degree that is relevant in health care. Value is created in the recreation of the value creation process and interaction between the provider and the customer. Instead of talking about activities, the concept of service productivity in health care should encompass values like experienced health, quality of life, reduced waiting time and accessibility, trust, information, avoidable suffering and avoidable deaths. An overall aim should be to create value by complementing, supporting and matching the value creation process of the customer (patient). Within the practical field a possible support system for how health care services could be integrated fitting the value creation process of the customer (patient) is lacking. In light of the identified inadequacies, it should be a matter of interest to outline a support system for harmonizing capacity

between providers and organizing ways of match making competence fitting the customers (Nordgren, 2009).

If patient problems occur and are not resolved in a satisfactory manner they can affect the future relationship between the patient and the service provider. They include perceived technical competence of providers, interpersonal relationships with all staff, access to appointments or other services, perceived coordination of care between different departments and providers and complaint handling. It is important for hospital staff to know how to respond appropriately and effectively to patient dissatisfaction. Tax and Brown (1998) and Boshoff and Allen (2000) state that successful service recovery is highly influenced by the effectiveness of frontline employees who receive the complaint. As in many service industries, it is also frontline staff who are at the forefront of recovering much of the service in patient contact settings. The importance of frontline staff and the service recovery they perform is a critical component in health service quality and an organization's reputation (Ashill et al., 2005).

The perspective adopted in this paper contributes to our understanding of customer relationship in the healthcare and hospital management in such ways. First, it extends the diagnostic benefits of the attribute approach to our understanding of hospital service quality to improve loyalty. Second, it relates to the importance of each quality attribute to the customer satisfaction – so that managerial implications can be meaningfully interpreted. While this increases the complexity of the relationships, it also forces us to recognize the dynamic shaping that is occurring in the healthcare and hospital management environment. The purpose of this research is focus on customer relationship management (CRM) strategies and relationship between service attributes and customer satisfaction through Kano's model especially on healthcare service at the private hospital. The paper specifically investigates the applicability of the model and the key factors in the hospital service business. The hospital service quality much depends on the performance of the attributes that define a service. The aim of this paper is first to investigate the attribute of service quality using Servqual perspective, thus the management is able to adjust the relationship between performance of service attributes and customer satisfaction, and second, through a case study in the private hospital to prove that the importance of a service attribute is a function of the performance of that attribute.

2. Literature Studies
2.1. Kano model

The Kano model was first developed by Dr Noriaki Kano and his colleagues in 1984 (Kano et al., 1984) to categorize the attributes of a product or service, based on how well they are able to satisfy customers' needs; Inspired by Herzberg's Motivator-Hygiene Theory (M-H Theory) in behavioral science. In essence, the theory posits that the factors that cause job dissatisfaction are different from the factors that cause job satisfaction. A distinction between satisfaction and dissatisfaction was first introduced in the two-factor theory of job satisfaction by Herzberg et al. (1959). Kano's theory of attractive quality has gained increasing exposure and acceptance since it was first introduced in 1979, and has been applied within quality management, product development, strategic thinking, employee management, business planning, and service management (Witell and Lofgren, 2007) . Kano's model is also dynamic in that once introduced, the exciting feature will soon be imitated by the competition and customers will come to expect it from every other providers (Shahin, 2004). It has commonly been used to investigate the role of various quality attributes in customers' perceptions of quality in product or service development processes. Compare to the other methods, the strength of the Kano methodology is that it can provide guidance in trade-off situations and it can point out opportunities for service differentiation (Matzler and Hinterhuber, 1998; Witell and Lofgren, 2007).

The Kano model of excitement and basic quality (Kano et al., 1984; Berger et al., 1993; Witell and Lofgre, 2007) brings a different perspective for the analysis of improvement opportunities in products and services, exactly because it takes into consideration the non-linear relationship between performance and satisfaction. The Kano model classifies the attributes of products and services in three categories:

(1) Basic attributes. These attributes fulfill the basic functions of a product. If they are not present or their performance is insufficient, customers will be extremely dissatisfied. On the other hand, if they are present or have sufficient performance, they do not bring satisfaction. Customers see them as prerequisites.

(2) Performance attributes. As for these attributes, satisfaction is proportional to the performance level -the higher the performance, the higher will be the customer's satisfaction and vice-versa. Usually, customers explicitly demand performance attributes.

(3) Excitement attributes. These attributes are key factors for customer satisfaction. If they are present or have sufficient performance, they will bring superior satisfaction. On the other hand, if they are not present or their performance is insufficient, customers will not get dissatisfied. These attributes are neither demanded nor expected by customers.

Two other attributes may be identified in the Kano model: neutral and reverse attributes. Neutral attributes bring neither satisfaction nor dissatisfaction. Reverse attributes bring more satisfaction if absent than if present. This explanation could be expressed by figure 1.

2.2. Five-level Kano questionnaire

The original classification process is based on a "Kano questionnaire", which is constructed through pairs of customer requirement questions (Kano et al., 1984; Berger et al., 1993). Kano suggested a variation on his original approach. This questionnaire is constructed through pairs of customer requirement questions. Each question consequently has two parts: how do you feel if that feature is present in the product (functional form of the question), and how do you feel if that feature is not present in the product (dysfunctional form of the question) (see Kano et al., 1984; Berger et al., 1993).The first question in each pair is intended to capture the respondent's feeling if a product or service possesses a certain attribute, whereas the second captures the respondent's feeling if the product does not have that attribute. For each part of the questions, the customer selects one of five alternative answers. These five alternatives were described as "like"; "must-be"; "no feeling"; "give up"; and "do not like" (Kano et al., 1984). But in the many implementation, these statements could be vary. The perceptions were then evaluated into quality dimensions on the basis of how the respondents perceived the functional and dysfunctional form of a quality attribute; shown by figure 2.

Kano's model (Kano et al., 1984), a widely used methodology in customer relationship management, offers a similar perspective on product/ service features which are grouped into four distinctive types, each with its unique customer satisfaction effects. An important feature of the theory of attractive quality is that quality attributes can be classified as "attractive quality", "one-dimensional quality", "must-be quality", "indifferent quality", or "reverse quality" which known as the five-level Kano classification scheme that had 25 possible outcomes. One-dimensional (O) attributes refer to those attributes that result in customer satisfaction when fulfilled and dissatisfaction when not fulfilled. Attractive (A) attributes are those not expected by consumers. While their absence does not lead to customer dissatisfaction, their presence and strong performance, however, greatly delight customers. Must-be (M) attributes refer to those attributes that are taken for granted when present, but customers become very dissatisfied when they are absent or do not perform sufficiently; and finally, Indifferent (I) attributes are those for which customer satisfaction remains unchanged by attribute performance. Thus, the procedure of this methods is shown by figure 2.

2.3. Servqual and Healthcare Quality Attributes

There are several alternative ways of viewing service attributes. These options are based on their role in the alternative evaluation process, their relation to the physical product, their role in value creation, their role in the creation of customer satisfaction (Nilsson-Witell and Fundin, 2005) and their role in quality creation (Kano et al., 1984). There are two critical attributes that are linked to the alternative evaluation process. Search attributes are attributes that are observable prior to purchase, while experience attributes

can be evaluated only after purchase and consumption of a product. Nilsson-Witell and Fundin (2005) identified a third category called credence attributes, which are those that are not readily observable even after some degree of purchase and consumption. A fourth category has been identified, ambiguous attributes; these attributes are perceived and evaluated by the customer but can be perceived in more than one-way (Hoch and Ha, 1986). According to Johnson (1995), price information can be viewed as a search attribute, while quality often is considered as an experience attribute. In addition, services are dominated by experience and credence attributes, and as a consequence services are difficult to evaluate before purchase. He has suggested that signal quality can be divided into intrinsic and extrinsic cues. Intrinsic cues involve the physical composition of the product, while extrinsic cues are product-related but not part of the physical product itself. Examples of such attributes are price, brand and level of advertising (Zeithaml, 1988).

For evaluating service quality, Servqual is one of the most widely used models (Pawitra and Tan, 2003). It was developed in the mid 1980s by Parasuraman et al. (1988) to define service quality by means of the gap between the customers' perceptions and the expectations about organization's service quality performance. Consequently, service quality is composed of perceived quality and expected quality. While perceived quality can be defined as the customer's judgment about the general position and excellence of the service they received, expected quality explains the expectations about the service they have received. On this scale, also known as the gap analysis, service quality is defined as a measurement of the extent to which the offered service quality enables to meet customer expectations (Baki et al., 2009). The five dimensions of service quality are shown (Lim et al., 1999):

(1) Tangibles: physical facilities, equipment, external appearance of store and appearance of personnel.
(2) Reliability: company's potential of performing the promised service dependably and accurately.
(3) Responsiveness: company's willingness to help customers and provide prompt service.
(4) Assurance: employees' knowledge and courtesy levels and their ability to inspire trust and confidence. This dimension also includes competence, courtesy, credibility, and security.
(5) Empathy: caring and personalized attention that the firm provides to its customers. This dimension also includes access, communication and understanding the customer.

3. Methodology

The research methodology was designed to take into account the main goals of this study and is specified below:

(1) Defining service quality attributes for hospital service based on Serqual perspective through literature studies.
(2) Fed the data to the Kano model to categorizing the importance of these attributes
(3) Assisting in improving service quality within the service quality to improve customer satisfaction.

3.1. Servqual: a multi-attribute construct

Constructs used in medical service evaluations appear to fit the five service dimensions, and Servqual has been widely used in numerous healthcare studies. The Servqual instrument is reliable (Baki et al., 2009) and the instrument is said to have concurrent validity (Resnick and Griffiths, 2011). The Servqual approach is both a methodology as well as a method; it underpins theoretical and philosophical concepts around service quality. Its extensive use also suggests it is reliable and valid. It was designed to be adapted to measure service quality in any organization (Resnick and Griffiths, 2011). In order to measure service quality of the hospital service it was necessary to first identify the important dimensions or attribute of service quality. The result of the quality attributes from literature studies is represented by table 1.

3.2. Kano's data collection methods

A representative private hospital in Indonesia was chosen to carry out the empirical analysis. The sample for this study was selected from Class II and III (the total is 10 wards) which represent the most demanding service. Primary data were collected from the ward patient by using questionnaires. The sampling method is stratified random sampling. The Cohren methods was used to calculate the minimum sample, i.e. 135 patients with alpha 0,05. In this research, the number of respondent is 153 patients.

Kano et al. (1984) have suggested a specific method to collect data that involves a functional-dysfunctional form of asking an attribute-level question. The functional part is stated as: How do you feel if that dimension of that attribute is present in the hospital service; and the dysfunctional part is stated as: How do you feel if that dimension of that attribute is not present in hospital service. Respondents can answer in one of five different ways to each part of the question. The questionnaire covers the Kano scale. In this part, for every service quality attribute, customer responses were measured by two questions – one is functional and the other is dysfunctional. As a result, customer requirements were measured by a total of 26 questions with the Kano model.

4. Result and Discussion

By combining the two responses, both functional and dysfunctional, for every service quality attribute the service attributes were classified into six categories as Kano et al. (1984) stated: must be (M), one-dimensional (O), attractive (A), indifferent (I), questionable (Q) or reversal (R). The following evaluation table explains how these service attributes have been mainly classified. Answer to functional and dysfunctional questions were compared for every respondent and so every service attribute was assigned to the one of the six service categories. The more detail procedure is shown by figure 2.

Data processing from the questionnaire were calculated based on Kano model's procedure. In this research, the gender, age, and other social status were not considered. The assumption is all patients have the same behavior for the certain healthcare service, but we realize that basically service satisfaction is vary for each patient. Tabulated the result of the all attributes calculation using Kano's model, table 2 shows the attribute categories.

Each service quality attribute which were assigned by the respondents was analyzed through frequency analysis. As Matzler and Hinterhuber (1998) stated, the simplest method is to use frequency of answers for evaluation and interpretation goals. So, in defining the characteristic of every service attributes, the service attribute category which has the highest frequency among four categories is selected as identifier. The results of the analysis are shown on Table 3.

As can be seen in Table 3, three of the total 26 service quality attributes have been categorized as "attractive". Four service quality attributes have been categorized as "must be", and sixteen of them as "one-dimensional". However, there is no service quality attribute can be categorized as "reverse" and "questionable". Pawitra and Tan's (2003) study found that none of the nineteen service quality attributes took a place in the "must be". It can be predicted that offering customers "must be" or expected quality attributes will not be enough for customer satisfaction in few next days cause of the contemporary world and the environment changing (Shen et al., 2000). Hence, companies should focus on "attractive" quality attributes instead of "must be" or "one-dimensional" attributes in order to satisfy customers and to achieve competitive advantage (Chen and Su, 2006).

The results demonstrate areas in which the healthcare especially patient ward is close to meeting patient expectations, and areas in which it falls far short of expectations. As management goes through the service management strategy should pay close attention to quality improvement which mention in the "must be" attributes. In this way the healthcare management can improve its level of quality in those areas which impact on patient perceptions of service quality. This case study illustrates also how an existing approach of Servqual and Kano Model can be applied to a hospital management. As a first attempt to applying this integrative approach to a different sector and thus offering practical and applied information, it will be useful for both academicians and practitioners. Through such integration, service

quality position of the hospital service management was evaluated. Then, service quality attributes of Servqual were assigned to Kano categories in order to see which attributes of service quality have a strategic significance on customer satisfaction.

From a methodological perspective, it can be concluded that the ability of designing healthcare services upon customer satisfaction makes this approach a powerful tool for hospital business sector like other sectors. There are two main reasons explaining why this integrative approach applied in different sectors can create expected benefits also for the hospital service. First of all, the globalization on the world commerce and fundamental progresses on information, communication and transportation technologies have increased not only customer/ patient standard of quality service but also strategic significance of the healthcare management. This phenomenon has introduced a competency issue which does not exist before. In order to stay competitive, designing their services in according with customers expectations has become an increasingly important necessity. In this context, this approach provides healthcare business a deep understanding of their service quality levels from customer satisfaction perspective. Also, highlighting the most important service attributes which are highly attractive for their customers, it helps the management to develop innovative ideas in both strategic and tactical levels. Secondly, using two methods in a complementary way creates some methodological and practical benefits. Integrating Kano to Servqual eliminates, the linearity assumption which is the main criticism of Servqual and offers researchers to an opportunity of identifying specific customer expectations which can be very profitable. Although the results of the Kano Model highlight the main customer expectations to be satisfied, it cannot present a solution about how these expectations can be satisfied. The other method should be implemented and integrated such as QFD (quality function deployment) which can overcome this limitation at this point. It successfully identifies and optimizes internal capabilities and addresses specific customer opportunities by improving organization' services design in parallel with the customer needs (Killen et al., 2005).

As can be seen, integrating both methods is particularly successful in terms of overcoming limitations of each method. For Servqual, limitations such as measuring the expectations of excellence which might not exist, weak discrimination between the dimensions and the results of gap analysis which cannot be easily generalized to the other areas can be also mentioned here (Baki et al., 2009). Similarly, Kano Model asks customers to state their satisfaction or dissatisfaction for the service with a hypothetical situation (Tontini, 2007). The limitations, however, have not affected the use of the integrative model, as its advantages are far greater than its limitations. In summary, since none of the methods separately can achieve total benefits of this integrative approach and also minimal amount of adaptation is required for either method (Pawitra and Tan, 2001), this methodology can be evaluated as sufficient in response to the main goal of this study. Also, ease of applying this methodology to different sectors constitutes the practical benefit aspect and makes it desirable for healthcare business like others. In addition to the benefits above, integrative usage of both methods has also some limitations. It does not provide an optimal solution upon linear programming and forecasting which will maximize customer satisfaction.

5. Conclusion

This paper identifies the main attributes in the healthcare business to especially private hospital as an empirics research subject for the purpose of customer satisfaction improvement. Practitioners on hospital management need to consider that the relationship between performance of attributes and customer satisfaction depends on the classification of attributes. This paper analyzed two methods of Serqual perspective and the Kano model for customer satisfaction improvement. This study also made a contribution to our understanding of the complexity of the healthcare service. This research reveals shifts in categories over time and with customer and management experience. As competitive forces continue to pressure imitation and innovation, both in the ways a specific interactive attribute is executed as well as in the adding of new attributes, the hospital management must continuously monitor the their service and customer satisfaction relationship in order to implement changes that will strengthen the relationship and

improve the loyalty. The last but not the least, the research limitations is the Kano model of customer satisfaction needs to be extended to other customer behavior variables and also management strategic response to increase customer loyalty; which not include in this paper. The implication is the methodology employed here can be easily applied by hospital management to evaluate customer behaviors and service quality performance.

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Notes

Table 1. Quality attributes categorized by Serqual Dimension

Dimension	Attributes of the service
Reliability	1. Quick and appropriate staff response for patient (Anderson, 1995; Tam, 2007; York and McCarthy, 2011; Sharma et al., 2011) 2. Efficency of service procedures and appointment system (Wadongo, 2010; York and McCarthy, 2011; Sharma et al., 2011) 3. Acting with professionalisme and accurate in its billing (Tam, 2007; Wadongo, 2010) 4. Medical treatment and docetor visiting as scheduled (Bullivant, 1996; Philip and Stewart, 1999; Tam, 2007; Sharma et al., 2011) 5. Available and adequate visiting for patient family as scheduled (Philip and Stewart, 1999; York and McCarthy, 2011; Sharma et al., 2011) 6. Provide adequate rest time for patient as they promise (Philip and Stewart, 1999; Resnick and Griffiths, 2011)
Responsiveness	7. Quick medical treatment response when patient need it (Anderson, 1995; Bell, 2004; Tam, 2007; Sharma et al., 2011) 8. Employee give clear information and understandable (Anderson, 1995; Bell, 2004; Tam, 2007) 9. Provide good communication of the service right the first time (Bullivant, 1996; Tam, 2007) 10. Nurse on the ward never busy to respond patient request (Philip and Stewart, 1999; Tam, 2007)
Assurance	11. Feel safe and at home while in the treatment ward (Anderson, 1995; Philip and Stewart, 1999) 12. Employees are polite and friendly in serving (Bell, 2004; Tam, 2007; Nugus et al., 2011) 13. Friendly security staff and safe parking area (Anderson, 1995; Tam, 2007; Sharma et al., 2011) 14. Doctors have an accurate ability to diagnose patient disease (Ashill, 2005; Tam, 2007; Nugus et al., 2011; Resnick and Griffiths, 2011; Sharma et al., 2011)
Empathy	15. Good communication among doctors, staff, and patients (Munro, 1992; Anderson, 1995; Philip and Stewart, 1999; Nordgren, 2009; York and McCarthy, 2011; Sharma et al., 2011) 16. Doctors and nurses are carefull about treating and examining patient (Anderson, 1995; Bullivant, 1996; Philip and Stewart, 1999; Bell, 2004; Tam, 2007; Nugus et al., 2011; Resnick and Griffiths, 2011; York and McCarthy, 2011) 17. Employee give patients and their family dedicated attention (Anderson, 1995; Philip and Stewart, 1999; Bell, 2004; Nugus et al., 2011; Resnick and Griffiths, 2011; Sharma et al., 2011) 18. No social status dicrimination to the patient (Munro, 1992; Nordgren, 2009; Sharma et al., 2011)
Tangibles	19. Physical facilities and medical instrument lay out is in place and visually appealing (Anderson, 1995; Resnick and Griffiths, 2011; York and McCarthy, 2011) 20. Suitable temperatur at patient rooms (Philip and Stewart, 1999; Tam, 2007) 21. Adequate fresh water supply at the ward (Tam, 2007; Sharma et al., 2011) 22. Cleanlines and adequate supplies for each ward (Anderson, 1995; Philip and Stewart, 1999; Tam, 2007; Sharma et al., 2011) 23. Clean and well maintained toilet (Anderson, 1995; Philip and Stewart, 1999; Tam, 2007;

Sharma et al., 2011)

24. Employee are neat-appearing (Anderson, 1995)

25. Give the specific need of their patients including various food and beverage (Bullivant, 1996; Resnick and Griffiths, 2011)

26. Sufficient and convinient parking area   (Tam, 2011; Anderson, 1995; York and McCarthy, 2011; Sharma et al., 2011)
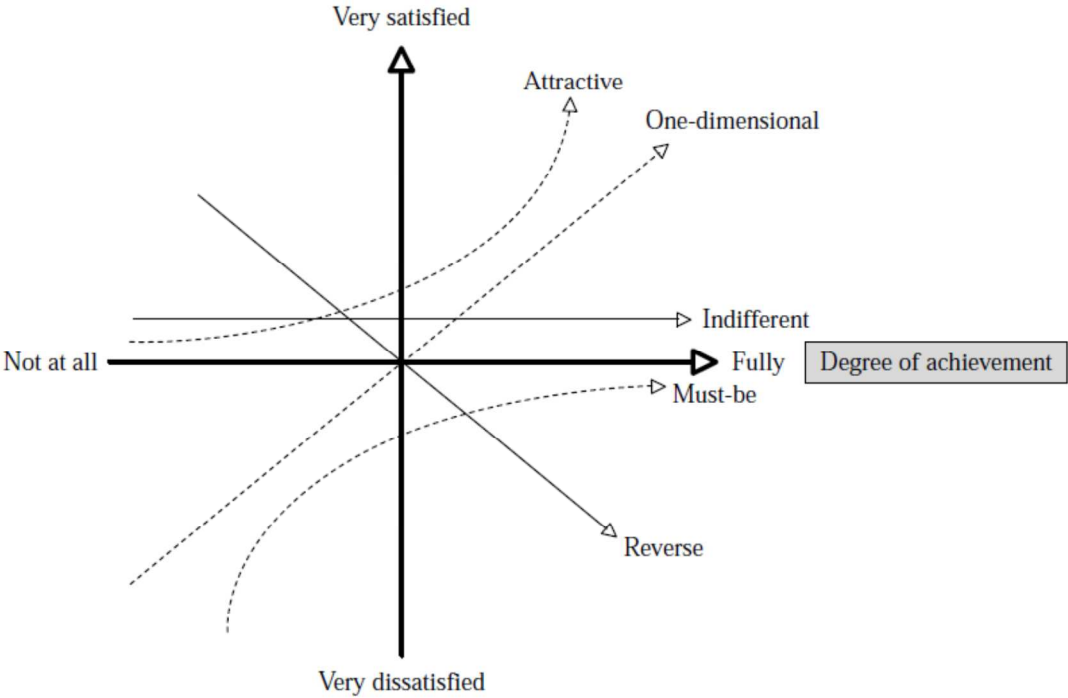
Table 2. The result of the all attributes calculation

Dimension	Attributes of the service	Frequency of each attribute						Total
		O	A	M	I	R	Q	
Reliability	1. Quick and appropriate staff response for patient	29	66*	24	34	0	0	153
	2. Efficency of service procedures and appointment system	70*	21	45	17	0	0	153
	3. Acting with professionalisme and accurate in its billing	93*	21	30	9	0	0	153
	4. Medical treatment and docetor visiting as scheduled	73*	32	32	16	0	0	153
	5. Available and adequate visiting for patient family as scheduled	18	44	13	66*	7	5	153
	6. Provide adequate rest time for patient as they promise	44*	38	27	44	0	0	153
Responsiveness	7. Quick medical treatment response when patient need it	104*	12	28	9	0	0	153
	8. Employee give clear information and understandable	51	24	57*	21	0	0	153
	9. Provide good communication of the service right the first time	87*	23	27	16	0	0	153
	10. Nurse on the ward never busy to respond patient request	105*	19	25	4	0	0	153
Assurance	11. Feel safe and at home while in the treatment ward	68*	37	34	14	0	0	153
	12. Employees are polite and friendly in serving	17	89*	38	9	0	0	153
	13. Friendly security staff and safe parking area	131*	5	16	1	0	0	153
	14. Doctors have an accurate ability to diagnose patient disease	130*	8	13	2	0	0	153
Emphaty	15. Good communication among doctors, staff, and patients	54	22	62*	15	0	0	153
	16. Doctors and nurses are carefull about treating and examining patient	74*	8	58	13	0	0	153
	17. Employee give patients and their family dedicated attention	61*	26	55	11	0	0	153
	18. No social status dicrimination to the patient	50	22	60*	21	0	0	153
Tangibles	19. Physical facilities and medical instrument lay out is in place and visually appealing	24	34	41	54*	0	0	153
	20. Suitable temperatur at patient rooms	61*	38	26	28	0	0	153
	21. Adequate fresh water supply at the ward	101*	19	26	7	0	0	153
	22. Cleanlines and adequate supplies for each ward	106*	23	23	1	0	0	153

23. Clean and well maintained toilet	79*	20	45	9	0	0	153
24. Employee are neat-appearing	31	32	49*	41	0	0	153
25. Give the specific need of their patients including various food and beverage	12	72*	19	50	0	0	153
26. Sufficient and convinient parking area	3	29	14	107*	0	0	153

Table 3. Summary of item number for each category

Categories	Item number	Total
Attractive	1, 12, 26	3
Must be	8, 15, 18, 24	4
One dimensional	2, 3, 4, 6, 7, 9, 10, 11, 13, 14, 16, 17, 20, 21, 22, 23	16
Indifferent	5, 19, 25	3
Reverse	-	-
Questionable	-	-
	Total item	26

Source: Hogstrom et al. (2010)

Figure 1. The Kano Model

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How do you feel if that dimension of that attribute is present in the hospital service	1) I like it that way
	2) I must be that way
	3) I am neutral
	4) I can life with it that way
	5) I dislike it that way
(Functional form)	
How do you feel if that dimension of that attribute is not present in hospital service	1) I like it that way
	2) I must be that way
	3) I am neutral
	4) I can life with it that way
	5) I dislike it that way
(Dysfunctional form)	

Customer requirements		Dysfunctional form of the question				
		1) I like it that way	2) I must be that way	3) I am neutral	4) I can life with it that way	5) I dislike it that way
Functional form of the question	1) I like it that way	Q	A	A	A	O
	2) I must be that way	R	Q	I	I	M
	3) I am neutral	R	I	I	I	M
	4) I can life with it that way	R	I	I	Q	M
	5) I dislike it that way	R	R	R	R	Q

Requirement is:

A: Attractive   O: One dimensional
M: Must be   Q: Questionable
R: Reverse   I : Indifferent

C.R	A	M	O	R	Q	I	Total	Grade
1	1						1	A
2								
3								
...								

Source: Kano (1984)

Figure 2. The classification through the five-level Kano questionnaire