Visualizing Desirable Patient Healthcare Experiences

Sandra S. Liu\textsuperscript{a}, Hyung T. Kim\textsuperscript{b}, Jie Chen\textsuperscript{a} & Lingling An\textsuperscript{c}

\textsuperscript{a} Department of Consumer Sciences and Retailing, Purdue University, West Lafayette, Indiana

\textsuperscript{b} Research and Transformational Development, Ascension Health, St. Louis, Missouri

\textsuperscript{c} Department of Agricultural and Biosystems Engineering, University of Arizona, Tucson, Arizona


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Visualizing Desirable Patient Healthcare Experiences

SANDRA S. LIU
Department of Consumer Sciences and Retailing, Purdue University,
West Lafayette, Indiana

HYUNG T. KIM
Research and Transformational Development, Ascension Health, St. Louis, Missouri

JIE CHEN
Department of Consumer Sciences and Retailing, Purdue University,
West Lafayette, Indiana

LINGLING AN
Department of Agricultural and Biosystems Engineering, University of Arizona,
Tucson, Arizona

High healthcare cost has drawn much attention and healthcare service providers (HSPs) are expected to deliver high-quality and consistent care. Therefore, an intimate understanding of the most desirable experience from a patient’s and/or family’s perspective as well as effective mapping and communication of such findings should facilitate HSPs’ efforts in attaining sustainable competitive advantage in an increasingly discerning environment. This study describes (a) the critical quality attributes (CQAs) of the experience desired by patients and (b) the application of two visualization tools that are relatively new to the healthcare sector, namely the “spider-web diagram” and “promotion and detraction matrix.” The visualization tools are tested with primary data collected from telephone surveys of 1,800 patients who had received care during calendar year 2005 at 6 of 61 hospitals within St. Louis, Missouri-based, Ascension Health. Five CQAs were found by factor...
analysis. The spider-web diagram illustrates that communication and empowerment and compassionate and respectful care are the most important CQAs, and accordingly, the promotion and detraction matrix shows those attributes that have the greatest effect for creating promoters, preventing detractors, and improving consumer’s likelihood to recommend the healthcare provider.

KEYWORDS healthcare experience, promotion and detraction matrix, spider-web diagram

The healthcare environment in the U.S. has been impacted by both technological advancement and market forces. The possibility for consumers to freely and easily acquire health information from the Internet or advertisements has changed the traditional dynamics between patients and physicians (Brond, 2006; Johnson & Ramaprasad, 2000). Managed care offers an open access to and broad choice of providers to the patient. Thus, the healthcare market has become a consumer-choice market under the managed care system (Marketing Health Services Staff, 2002). The strategic tool of “pay for performance” in healthcare and the recent Hospital Quality Initiative of the Centers for Medicare and Medicaid Services (CMS) further drive healthcare providers to strive for assuring the attainment of better patient satisfaction (Thompson & Checkley, 2006). Easily viewed patients’ desired critical quality attributes (CQAs) to their healthcare experience should facilitate the providers to discern areas for improvement and/or enhancement of their caring process and, in turn, patient satisfaction. This study reports two new research techniques, namely the “spider-web diagram” and “promotion and detraction matrix.”

The spider-web diagram is a visualization tool which is an effective way to visually present and compare patients’ assessments of different CQAs. With visual presentations the stakeholders are able to discern significant drivers among the CQAs at one glance. The promotion and detraction matrix technique evaluates the importance of the CQAs in terms of the degree to which these attributes influence patients’ recommendations of the hospital. In the healthcare field, few studies have adopted these two techniques to conduct research. Thus this study shall be making a breakthrough in the introduction of these techniques to healthcare research.

THEORETICAL BACKGROUND

The focus of this article is to report the tools that provide easy visualization of patient desirable experience. The CQAs for attaining patient satisfaction are the means for verifying the usability and usefulness of these tools. Hence, this
section starts with the discussion of the tools and is followed by the delineation of the scales that are examined and adopted for the telephone survey.

Spider-Web Diagram

Spider-web diagram is applied to compare different dimensions of a construct visually and therefore provide a complete picture of the strengths and weaknesses of all the dimensions. An example of the spider-web diagram is shown in Figure 1. The eight axes represent eight CQAs. The respondents are usually asked to evaluate their perceived importance and performance for these CQAs. These evaluations are measured by a 5-point scale (each dash parallel line represents one point). Respondents’ overall evaluation for each attribute can be plotted along the specific axis. It is easy to identify the most important CQAs (Attribute 5) and the best performed attribute (Attribute 7) from the spider-web diagram. When examining Attribute 7, one notes that the current performance score is about four; therefore, it has been the best performed. However, the importance score for Attribute 7 is less than 1. Thus, there is a wide gap between performance and importance in Attribute 7.

**FIGURE 1** An example of spider-web diagram.
The spider-web diagram has been evaluated as a visual presentation tool in a number of studies (Gibbon, Labonte, & Laverack, 2002; Laverack, 2005; Ahmed & Rafiq, 1998). Gibbon et al. (2002) apply the spider-web approach to map the concept of community capacity with eight dimensions. They argue that it is difficult and time-consuming for practitioners to use traditional methods to interpret such a complex concept while the spider-web diagram can represent the analysis of the complex concept in a concise and measurable way. Hence, a spider-web diagram can be easily understood by all stakeholders (Gibbon et al., 2002). Ahmed and Rafiq (1998) suggest that the spider-web can be used to conduct performance gap analysis because spider-web diagramming can illustrate multiple targets or gaps at the same time. It appears, however, that the use of spider-web diagrams in the healthcare has been at best limited. This study aims to demonstrate the usefulness and usability of spider-web diagram for comparing the perceived importance of healthcare attributes.

Promotion and Detraction Matrix

Promotion and detraction matrix maps the attributes according to their promotion and detraction effects. Promotion and detraction effects have been adapted from the concept of promoter and detractor, which are first developed as a customer-relationship metric known as the net-promoter score (NPS) (Reichheld, 2006). NPS is a calculated score from the 11-point (rating from 10 = extremely likely to 0 = not at all likely) assessment of the likelihood to recommend (LTR) a certain service, that is the difference between the percentage of the promoters (those respondents who rates LTR from 9 to 10) and that of the detractors (those respondents who rates LTR from 9 to 10) (Reichheld, 2006). This study adopts the NPS scale and the categorization of 10 to 0. However, in a manner different from NPS, the promotion and detraction effects in the current study are evaluated on a continuous basis without calculating the actual net promotion score and, hence, both the promotion effect and the detraction effect are taken into consideration when evaluating the perceived importance of the CQAs. Promotion effect of a CQA is defined as the average evaluations of the CQA by all promoters, whereas detraction effect is the average evaluations of the CQA by all detractors. The promotion and detraction matrix shown in Figure 2 illustrates the mapping of CQAs with the detraction effect (X-axis) and the promotion effect (Y-axis). Attribute 2 has both high promotion and detraction effects, while Attribute 1 has high promotion effect and only moderate detraction effect.

Studying promotion and detraction effects is quite meaningful as illustrated by Reichheld’s (2006) study that the NPS is highly correlated with growth rates in a competitive industry. The report also argues that promoters and detractors have differing economic impacts upon business,
such as upon retention rates and margins. For example, promoters are those who are less price-sensitive and have a higher retention rate. Promoters also constitute 80% to 90% of positive recommendations. Thus, promoters provide the most contributions to the margins of a business (Reichheld, 2006). The opposite is true for detractors. Detractors drag the performance of a business (Reichheld, 2006). To the best of our knowledge, there have been no previous studies using the method relevant to NPS in the healthcare environment. Thus, this study proposes the concepts of promotion effect and detraction effect similar to the origin of NPS. According to the definitions of these two effects, promotion effect and detraction effect of a CQA reflect the perceived importance of the CQA by the promoters and detractors respectively. That is, through improving the quality of the CQAs with high promotion effects, the healthcare providers can promote their customers into promoters, whereas decreasing the quality of the CQAs with high detraction effects will detract their customers into detractors. With the aims of improving the quality of healthcare services, the current study will identify the CQAs with high promotion effects and detraction effects instead of recognizing the promoters and detractors.

The Critical Quality Attributes Influencing Patient Satisfaction

Previous studies have examined the determinants of patient satisfaction from various perspectives. The current study organizes them into three major categories: physiological, psychological, and physical environmental aspects, and examines their individual levels of importance from the aspects of patients' expectations and their perception of the services received.

Note. 1, 2, and 3 represent healthcare Attributes 1, 2, and 3, respectively.

FIGURE 2 An example of promotion and detraction matrix.
The physiological care includes the functional attributes (competence or convenience) that are involved in the clinical care provided by the hospital. Competences, such as technical skill, knowledge, and other abilities, are advocated to be the requisite or adequate abilities or qualities of the associates in the hospital (Andaleeb, 1998; Andrus, 1984; Lee, 2005; Otani & Kurz, 2004; Tucker & Tucker, 1985; Ward, Rolland, & Patterson, 2005). On the other hand, an experience that is considered convenient indicates a perceived saving of patients' time and effort (Berry, Seiders, & Grewal, 2002). Convenient services in the healthcare context may include speedy admission and discharge, efficiency in dealing with emergencies and problems, and others (Braunsberger & Gates, 2002; Otani & Harris, 2004; Powers & Bendall, 2004; Ware & Snyder, 1975).

Psychological care includes empathy, respect, and communication. Empathy has been defined as the ability or action of understanding, being aware of, and/or being sensitive to the patients' feelings, thoughts, and experiences (Tomes & Chee Peng Ng, 1995). Respect is the quality or state of being esteemed at the perspective of patients (Tomes & Chee Peng Ng, 1995; Ward et al., 2005). In the healthcare studies, communication is the information intercourse between patients and staff about medical conditions, treatment, and possible results (Andaleeb, 1998; Brown, Boles, Mullooly, & Levison, 1999; Tomes & Chee Peng Ng, 1995).

The physical environment itself encompasses circumstances, objects, or conditions in the hospital. Previous research has mentioned four factors particular to the physical environment, namely: the equipment, waiting area, food, and room. The equipment contains characteristics of function, aesthetics, and usage of service (Lam, 1997; Tomes & Ng, 1995; Andaleeb, 1998; Swan, Richardson, & Hutton, 2003).

METHODS

Data Sources

The data for this study came from individuals who received inpatient care at least once during calendar year 2005 at a St. Louis, Missouri-based Ascension Health, the largest nonprofit and Catholic healthcare system in the United States. Quota sampling method was used according to the patients' demographic characteristics: age, gender, ethnicity, and insurance type. Each respondent was older than 18 years of age and 300 respondents were recruited from each of six hospitals which participated in the study. 85.2% of the respondents had a high school and above education and used either Medicare or private insurance. A 20-minute telephone interview was administered to conduct this survey. Of the initial finished interviews of 1,800, 1,561 interviews remained after removing those which (a) offered identical responses (e.g., all 7s or all 1s), or (b) were not 100% complete.
Measures

The questions in the telephone survey can be categorized into three groups: (a) demographic questions, (b) a question regarding the likelihood of recommendation (LTR), (c) questions which measured the perceived importance for the attributes of healthcare services. The question about LTR was “how likely is it that you would recommend Hospital A to friends and family?” and an 11-point Likert-scale (i.e., 0–10), rated from extremely likely to not at all likely, was used.

Twenty-four questions about the attributes were developed from previous literature. These questions covered all the aspects discussed earlier. The questions about physiological care and psychological care were adapted from Powers and Bendall’s (2004), Lee’s (2005), and Braunserger and Gates’ (2002) surveys; and questions about the physical environment were derived from Powers and Bendall’s (2004) and Otani and Kurz’s (2004) surveys.

There were three steps necessary to the process of question development. First, we collected the existing questions from the previous literatures which have been discussed in literature review. Then the overlapping questions were deleted and the wording of the questions was revised. Finally, the seven-point Likert-scale was used to assess the perceived importance with respect to each question.

RESULTS

Exploratory Factor Analysis

One of the purposes of this study is to extract the CQAs influencing patient satisfaction. An exploratory factor analysis has been conducted on 24 relevant questions to attain this purpose. Varimax rotation method is used in this study. The results of the factor analysis are shown in Table 1. The criteria used to determine the number of factors is not only eigenvalue) >1. Although eigenvalue >1 is the most frequently used criteria, some researchers have suggested that the construct definition should be theory grounded and not data grounded, and the researchers should be responsible for the judgment (Thompson & Daniel, 1996). Thus, in practice we also need to consider the interpretability of the factors to determine the number of factors. In this study, there are five CQAs, or factors identified: Communication and Empowerment, Compassionate and Respectful Care, Clinical Reputation, Care Responsiveness, and Efficiency. The reliability test is also shown in Table 1. Cronabach’s alpha is used to test the internal consistency reliability of the scales. The scales measuring the first three factors (Communication and Empowerment, Compassionate and Respectful Care, Clinical Reputation) are adequate scales, since their Cronabach’s alpha is higher than 0.7 (Garson, 2002). The scales measuring care responsiveness and efficiency
### TABLE 1  Factor Loadings of Exploratory Factor Analysis

<table>
<thead>
<tr>
<th>Factor Loadings: 24 questions</th>
<th>Communication and empowerment (10.705&lt;sup&gt;a&lt;/sup&gt;)</th>
<th>Compassionate and respectful care (1.741&lt;sup&gt;a&lt;/sup&gt;)</th>
<th>Clinical reputation (1.040&lt;sup&gt;a&lt;/sup&gt;)</th>
<th>Care responsiveness (0.943&lt;sup&gt;a&lt;/sup&gt;)</th>
<th>Efficiency (0.889&lt;sup&gt;a&lt;/sup&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s Alpha</td>
<td>0.893</td>
<td>0.819</td>
<td>0.773</td>
<td>0.669</td>
<td>0.664</td>
</tr>
<tr>
<td>Staff is the best at letting you know what is wrong with you and telling you about your medical care.</td>
<td>0.745</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff does the best job of listening to you.</td>
<td>0.695</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff is the best at letting you and your family know what is going on, how long things will take, and why there are wait times.</td>
<td>0.670</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You are given all the information you need to make decisions about your care.</td>
<td>0.651</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff is the best at making you feel that you can trust them and depend on them.</td>
<td>0.595</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You and your family are always involved in decisions about your care.</td>
<td>0.553</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctors and nurses are very good at communicating with each other about your needs and treatment.</td>
<td>0.525</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff is the most polite, introduces themselves, and knows your name.</td>
<td></td>
<td>0.741</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your spiritual needs and preferences are always addressed.</td>
<td>0.640</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff always makes you feel that they care about you.</td>
<td>0.595</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurses and other staff appear happiest and have the most positive attitude.</td>
<td>0.584</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital is easiest to get around in and offers helpful signs.</td>
<td>0.564</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff is the best at respecting your privacy.</td>
<td>0.535</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctors and the hospital have the best reputation for your condition.</td>
<td></td>
<td></td>
<td>0.703</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital has the latest and greatest treatments and equipment.</td>
<td></td>
<td></td>
<td></td>
<td>0.679</td>
<td></td>
</tr>
<tr>
<td>You never have to wait unnecessarily.</td>
<td></td>
<td></td>
<td></td>
<td>0.754</td>
<td></td>
</tr>
<tr>
<td>Nurses are the most responsive and prompt when you need something.</td>
<td></td>
<td></td>
<td></td>
<td>0.656</td>
<td></td>
</tr>
<tr>
<td>You are able to leave the hospital as quickly as possible on the day of your discharge.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.764</td>
</tr>
<tr>
<td>Staff or doctor always tells you when you can expect to go home as soon as possible.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.710</td>
</tr>
</tbody>
</table>

<sup>a</sup>Eigenvalues.
are acceptable, because the lenient cut-off value for Cronbach’s alpha is 0.6 (Garson, 2002).

After extracting the CQAs, or factors influencing patient satisfaction, the next step is to plot the perceived importance of these factors on a spider-web diagram. The perceived importance is evaluated in terms of two methods: the unweighted method and the weighted method. In the unweighted method, the factor score is the mean of all respondents’ ratings for all the items under each factor. Based on the unweighted method, the factor score of the weighted method is weighted by an eigenvalue of each factor, i.e., the score from the unweighted method multiplied by the corresponding eigenvalue. The eigenvalue for a given factor measures the variance in all variables explained by that factor. Thus, the eigenvalue represents the explanatory importance of the factor with respect to all the variables (Garson, 2002). As a factor’s eigenvalue becomes larger, that factor is becoming more important. Therefore, the factor scores weighted by the eigenvalue can reflect the importance of the factors more accurately than those factors which remain unweighted.

Based on the unweighted method, the final score for each factor is plotted on the corresponding axis (dark line in Figure 3). The scores for the five factors are: 6.38 (Communication and Empowerment), 5.99 (Compassionate and Respectful Care), 6.28 (Clinical Reputation), 5.98 (Care Responsiveness), and 5.9 (Efficiency). The spider-web diagram clearly illustrates that these five factors are almost equally important based on the

FIGURE 3 Spider-web diagram based on the unweighted scores.
unweighted method. According to the weighted method, the final scores for these factors are plotted on Figure 4 (dark line), which are: 6.79 (Communication and Empowerment), 5.4 (Compassionate and Respectful Care), 4.3 (Clinical Reputation), 3.7 (CareResponsiveness), and 3.4 (Efficiency). From the results in Figure 4, Communication and Empowerment is the most important factor, and the second most important factor is Compassionate and Respectful Care. The comparison of the results between the weighted and the unweighted methods demonstrates that the weighted method can indicate the differences between the CQAs more clearly.

**Matrix of Promotion and Detraction Effects**

The average perceived importance of a CQA by the promoters (who have a rating of LTR from 9 to 10) is the promotion effect of the CQA; and the average perceived importance of a CQA by the detractors (who have a rating of LTR from 0 to 6) is the detraction effect of the CQA. There are several steps to calculate the promotion effect and detraction effect.

**THE PROMOTION EFFECT**

First, after factor analysis, five factor scores for each patient are obtained and ordered. The higher score represents the higher evaluation of the CQA. However, since the differences between the factor scores are too small, we assign a weight to each factor so as to effectively differentiate the five factors.
When calculating the promotion effect, the factor with highest score is given 1 and then 1/2, 1/3, 1/4, 1/5. Second, we assign weights to different ratings of LTR: from 10 to 11 represented by 1 and others represented by 0. Third, we calculate five new factor scores for each respondent, which are the weighted factor scores obtained from the first step multiplied by their weights obtained in the second step. Fourth, for each factor, we average its new factor scores as the promotion effects.

THE DETRACTION EFFECT

First, after factor analysis, five factor scores for each patient are obtained. The five factor scores for each patient are ordered and a weight is assigned to each factor. When calculating the detraction effect, the factor with lowest score is given 1 and then 1/2, 1/3, 1/4, 1/5. Second, we assign weights to different ratings of LTR: from 1 to 7 represented by 1 and others represented by 0. Third, we calculate five new factor scores for each respondent, which are the weighted factor scores obtained from the first step multiplied by their weights obtained in the second step. Fourth, for each factor, we sum up its new factor scores as the detraction effects.

Finally, the factors are then plotted on an X-Y scale (as shown in Figure 5). Each factor has a detraction effect and a promotion effect, and they are corresponding to the X-axis and the Y-axis, respectively. In Figure 5, the position of the circles represents the promotion effects and detraction effects of the five CQAs, or factors. The size of the circles represents the magnitude of the impact of the five factors on the ratings of the recommendation.
question. This magnitude is the coefficient obtained from the following regression analysis. The results of the regression analysis are shown in Table 2.

\[ Y = a_1 \times \text{Factor Score}_1 + a_2 \times \text{Factor Score}_2 + \cdots + a_5 \times \text{Factor Score}_5 \]

Where \( Y \) = the ratings of likelihood of recommendation (LTR) which is measured by ‘How likely is it that you would recommend Hospital A to friends and family?'; \( \text{Factor Score}_i \) = the ith factor’s factor score (the five factors are as follows: Communication and Empowerment, Compassionate and Respectful Care, Clinical Reputation, Care Responsiveness, and Efficiency); and \( a_i \) = The magnitude of factor \( i \) on the ratings of LTR (the magnitude means the effect of the factor on LTR and is measured by the standardized coefficient listed in Table 2).

The results provided in Figure 5 show that Efficiency and Compassionate and Respectful Care have high promotion effects; and Clinical Reputation and Communication and Empowerment have high detraction effects. The result of the regression analysis in Table 2 reveals that Compassionate and Respectful Care has the greatest impact on the patients’ likelihood of recommendations.

**DISCUSSION**

This study proposes and validates the spider-web approach and promotion detraction matrix for investigating and demonstrating meaningful multiple dimensions of a single construct. The use of a commonly understood construct of patient satisfaction makes it easier to comprehend the illustration of the proposed approach and tools. The resulting spider-web diagram effectively and efficiently reflects the important attributes as expected by the patients with regards to these critical quality attributes. When discussing with the practitioners, the mapping sheds lights on the future effort that could be invested. The concept of promotion and detraction effects facilitate healthcare providers in understanding how to attain a high percentage of the promoters and decrease the percentage of the detractors by improving healthcare services.

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**TABLE 2 The Results of the Regression Analysis**

<table>
<thead>
<tr>
<th>Factor Score</th>
<th>Standardized coefficients</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication and Empowerment</td>
<td>.077</td>
<td>3.100*</td>
</tr>
<tr>
<td>Compassionate and Respectful Care</td>
<td>.149</td>
<td>5.995**</td>
</tr>
<tr>
<td>Clinical Reputation</td>
<td>.066</td>
<td>2.655*</td>
</tr>
<tr>
<td>Care Responsiveness</td>
<td>.050</td>
<td>2.008*</td>
</tr>
<tr>
<td>Efficiency</td>
<td>.053</td>
<td>2.144*</td>
</tr>
</tbody>
</table>

*Note. Dependent variable = the ratings of LTR; \( R^2 = .038 \).

*\( p < .01 \). **\( p < .001 \).
The promotion detraction matrix (Figure 5) demonstrates the stronger promotion effects of Compassionate and Respectful Care and Efficiency; and major detraction effect of Clinical Reputation and Communication and Empowerment. That is, improving Compassionate and Respectful Care and Efficiency could significantly promote the recommendation of the service; whereas lowering the perceived level Clinical Reputation and Communication and Empowerment would detract patients from recommending or utilizing the services. The implications are: (a) the medical staff needs to consider the patients' emotional needs, and thereby show more respect and sympathy to the patients; (b) the healthcare providers also need to improve the efficiency in the healthcare services. Both the spider-web diagram (Figure 4) and the regression analysis (Table 2) identify the two most important CQAs: Communication and Empowerment and Compassionate and Respectful Care, which means that these two CQAs are perceived as the critical aspects in healthcare services and have the larger impacts on patients' referrals than other attributes. All of these findings suggest that healthcare providers should pay more attention to improving the staff's communication skills, giving more rights to the hospitalized patients, and providing compassionate and respectful care to said patients. All these findings are consistent with previous literatures. For example, Otani, Kurz, and Harris (2005) find that explanations provide to patients and lengths of time spent with patients are the most influential aspects in the physician care attributes. Bowers, Swan, and Koehler (1994) find that empathy and communication have the most significant effects on patient satisfaction. Andaleeb (1998) similarly concludes that communication is a significant factor in patient satisfaction. Tomes and Chee Peng Ng's study (1995) report that the respect shown to patients is a significant intangible factor relating to the service quality of inpatient care.

This study also identifies the similar critical quality attributes as discussed in the previous literatures (Otani et al., 2005; Bowers, Swan, & Koehler, 1994; Andaleeb, 1998; Tomes & Chee Peng Ng, 1995). It further validates the visual presentation tool that allows a more efficient decision-making process. Another contribution is that this study further classifies the critical quality attributes into promoters as opposed to detractors. The promotion and detraction matrix directly provides insights to healthcare administrators as to what strategies to undertake in order to best utilize the limited resources for specific attributes of the services so as to ultimately increase their NPS and attain optimal patient assessment.

Study Limitations and Future Research Directions

There are two noted limitations in this study. First, this study only examines the expected importance of the five CQAs, while not investigating current performance in these five aspects. Thus, in future research, the current
performance in these five aspects must be examined and a gap analysis can be conducted using the spider-web approach. The result of gap analysis can help practitioners understand their strengths and weakness so as to improve their performance. Second, the reliability of three factors (clinical reputation, care responsiveness, and efficiency) is relatively low. The reason might be that these three factors are only based on two items. Future studies may incorporate more questions into their survey so as to improve the reliability of these factors.

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