Author's response to reviews

Title: A three model comparison of the relationship between quality, satisfaction and loyalty: an empirical study of the Chinese healthcare system

Authors:

LEI Ping (ray6333@hotmail.com)
JOLIBERT Alain (alain.jolibert@upmf-grenoble.fr)

Version: 3 Date: 11 October 2012

Author's response to reviews: see over
Dear Editor

Thank you for your interest for the manuscript we submitted previously. The following answers refer to the questions point-by-point you required in your feedback of the 6th of September, 2012.

Reviewer: Motasim H. Badri

Date: 18 March 2012

Questions and answers:

1), the manuscript is repetitive in many places; e.g.; the “theoretical background and research hypothesis “needs to be shortened as much of its contents have already been mentioned in the “background” section.

Thank you for this comment. You are right. We have cut and reorganize the text in a more logical way.

2), the “sampling frame” is vast yet the sample of respondent is very small! In addition, there is no mention how this sample was chosen!

Thank you for your question. We detailed this point. We used a random systematic sample. Therefore the number of respondents to choose is not related to the population size. Theoretically it should be related to the variance of the population (Kish, 1965). But unfortunately the variance is unknown.

Was this a “purposive” or a “random” sample? The difference is important given the vast potential number of possible respondents.

We apologize that our sentence was not precise enough. We clearly added explanation about our sampling procedure in the paper.

Data were collected by four non-medical students. These students were trained to collect data on hospital patients who underwent surgery in the 30 days prior to administration of the questionnaire. Data were collected from the inpatient healthcare services department in the six
public hospitals. A questionnaire was given to a systematic probability sample of individuals in two phases.

Of 6200 licensed beds in the six hospitals (Table 2), a total of 800 inpatients were selected according to the systematic sample procedure using a step of two on the basis of bed numbers from a bed number list established at each hospital. Questionnaires were distributed to participants who underwent surgery in the six hospitals in the 30 days prior to administration of the questionnaire. A quota sampling based on the number of beds per hospital was used to obtain the number of inpatients to be questioned per hospital. Table 2 provides the number of questionnaires per hospital.

Table: six simple public hospitals in Shanghai in 2009 and number of questionnaires

<table>
<thead>
<tr>
<th>Hospital’s name</th>
<th>Number of bed</th>
<th>Number of questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai zhongshan hospital</td>
<td>1700</td>
<td>150</td>
</tr>
<tr>
<td>Shanghai huashan hospital</td>
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<tr>
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<td>80</td>
</tr>
<tr>
<td>Shanghai no.5 people hospital</td>
<td>800</td>
<td>80</td>
</tr>
</tbody>
</table>

Of the 800 questionnaires, 200 were distributed in the first phase, and 600 were distributed in the second phase.

With a response rate of 78 percent, 646 surveys were collected over the two phases (150 questionnaires were collected in the first phase and 496 were collected in the second phase). Empty beds and patients who were not in a position to answer constituted non-responses. Sixteen surveys were discarded due to missing data. Six hundred and thirty responses (150 in the first phase and 480 in the second phase) were finally statistically analyzed.
The sample consisted of 51 percent males and 49 percent females, aged between 20 and 65 years. Forty eight percent had less than a high school level education, 27 had a high school education, 13 percent were university graduates, 11 percent post-graduates. Twenty-five percent had a monthly income below $250, 57 percent between $250-$500, 8 percent between $500-$750 and 10 percent of the patients had a monthly income of more than $750. We did not consider patients under 20 years of age because of the risk of influence by staff and researchers [4] or those aged over 65 because Medicare Insurance issues related to retirement might interfere with respondent judgment [36].

A list of patients’ personal information was obtained from the hospital administration. To protect patient privacy and encourage free expression of patient opinions, we did not include information such as patient name, address or diagnosis in the study. An explanatory note describing the study to respondents was placed at the beginning of the questionnaire. All participants were asked to confirm their agreement to participate before the actual survey was administered and most of them agree.

3), the author mention that “patient satisfaction consequence was used as in indicator for patient loyalty” measures section. Why patient was not directly asked about their loyalty? How valid to use patient satisfaction as a “surrogate” for patient loyalty?

Thank you for this question. We have modified the text and provided a more precisely explanation:

Word-of-mouth was used as a reflective indicator of patient loyalty. In medical services, loyalty through repeat patronization is not pertinent, whereas patient word of mouth (WOM) [43] has an important impact on responses for several reasons [5]. First, it involves face-to-face communication between patients potentially possessing concrete information based on vivid experiences. Second, patient word-of-mouth originates from non-firm, non-marketing sources and is likely to be perceived as more credible than communications from marketers. Third, negative patient word-of-mouth can be extremely damaging because it is generally more widely communicated than is positive word-of-mouth [5]. Thus, we employed word-of-mouth as a loyalty intention instrument in this study. A single item was measured using a seven-point Likert scale: “Will you recommend this hospital to someone who seeks your advice?” According to the recommendation of Bergkvist and Rossiter [44, 45], “a carefully
crafted single-item measure of a concrete construct is at least as valid as multiple-item measures of the same construct, and the use of a multiple-item measure then is not necessary” [45].

4), what is the implication of choosing “hospitals that had fairly good reputation in the Shanghai public healthcare market”?

Thank you for this question! We added the following explanation in the new text:

Hospital sample

“The six hospitals chosen for the studies were located in Shanghai, China. Based on the classification of Shanghai hospitals, we selected among the 33 tertiary public hospitals. Tertiary hospitals are general hospitals located in the city, with a bed capacity exceeding 500. These hospitals are not only for local residents, but for patients with difficult and complex diseases from all over the country [35]. Among the 33 tertiary hospitals, six hospitals were selected for our study (Table 2). They ranged from the largest urban teaching hospitals (Fudan University Zhongshan, Huashan, Jinshan and Shanghai No.5 People’s Hospital) to middle sized municipal hospitals (Shanghai Oriental Hospital and Shanghai Minhang District Hospital). Among the six hospitals, two were located in urban areas, two in suburban areas and two in rural settings. The six hospitals are the biggest from among the three categories of hospitals. Therefore, the selected hospitals represent the Chinese inpatient population fairly well.”

How representative these hospitals to the public healthcare facilities?

We choose the most important in the number of beds in each of the hospital categories of China. Then, our sample should be representative of public healthcare facilities.

How generalizable the findings to the overall public health service in China, as the title of manuscript suggest?

Thank you for this question:
Populations welcomed in the Shanghai hospitals come from Shanghai region but also from other regions of China. We have added this point in the text.

“Based on the classification of Shanghai hospitals, we selected among the 33 tertiary public hospitals. Tertiary hospitals are general hospitals located in the city, with a bed capacity exceeding 500. These hospitals are not only for local residents, but for patients with difficult and complex diseases from all over the country [35]. Among the 33 tertiary hospitals, six hospitals were selected for our study (Table 2). They ranged from the largest urban teaching hospitals (Fudan University Zhongshan, Huashan, Jinshan and Shanghai No.5 People’s Hospital) to middle sized municipal hospitals (Shanghai Oriental Hospital and Shanghai Minhang District Hospital).”

Reviewer: Oyvind Bjertnaes

Date: 20 August 2012

Questions and Answers:

1) Theoretical background and research hypotheses:

1.1) Lack of inclusion and discussion of relevant literature and concepts from the health service research (HSR) field.

We included references and discussion on the following references, thank you very much for your suggestions!


1.2) The authors need to situate their approach within the current HSR field on patient experiences and satisfaction. For instance, the concept patient-reported experience is well established in HSR, a distinct but related concept to patient satisfaction.

You are right. Thank you! We agree.

We have covered this point in the conclusion part:

Conclusion

“...This article supports the literature of Bitner [15]; Bolton and Drew [16]; Parasuraman, Zeithaml, and Berry [18, 19]; Oliver [20]; Rust and Oliver [21]; and
Zeithaml, Berry, and Parasuraman [22]. It emphasizes the distinction between perceived quality and customer satisfaction, with perceived quality as an antecedent of customer satisfaction in a service setting. From the empirical data, we confirm a mediation role of patient satisfaction in the relationship between perceived quality and patient loyalty. This result offers important implications for both marketing researchers and healthcare managers.

This study used the perceived service quality scale standard scale (SERVQUAL) adapted to health service. This scale was selected because of its widespread use. However, it focuses more on services provided than on the full spectrum of patient experience [27]. Our adaptation of the SERVQUAL instrument using a single dimensional measure confirms Babakus and Mangold’s [27] findings. Therefore, our results indicate that the adapted SERVQUAL scales can be used to assess service quality in the Chinese healthcare sector.

Other studies, however, have conceptualized the service quality constructs with different numbers of dimensions. For instance, in the healthcare sector, Cho et al. [5] confirmed a four-dimensional structure of perceived health service quality in South Korea. Anbori et al. [56] identified a six-dimensional structure of perceived health service quality in Yemen. The nature of the concept of perceived health service quality is at the origin of this difference. In this paper, we use a reflective measure of the concept because we are interested in comparing models. For explanatory purposes, researchers might prefer formative models using causal links. The patient reported experience concept [55] is formative by nature because it takes into account the various causes of perceived health service quality (doctor and nursing services, information examinations, organization, hospital and equipment etc). Such a focus is therefore multidimensional and the indicators do not need to have strong co variations [57].”

1.3) **It is unclear how patient-reported experience relates to quality,**

We used the perceived service quality standard scale (SERVQUAL) adapted to health service. This scale has been selected because of its widespread used. However it is focusing more on services provided than other components of patient experience [55]
therefore it is a limitation of the paper that is presented in the “conclusion and limitation part”

1.4) I think theory and research in this field will point strongly to the H1 hypothesis in this study. The novel part seems to be the actual test of these interrelations using SEM. The two other hypotheses could be mentioned briefly, but are less interesting.

Yes! You are right.
We suppressed all the hypotheses, because we are focusing on models comparison.
The most important thing to our study is that one of those three models (model 1) is superior to the others two.

2) Methods

2.1) Most of the above studies are lacking from the literature review. The search strategy in the current study should be better described (purpose, key words, databases, results).

Yes! Thank you! Hereby we modified in the text of the new purpose of this study:

“Faced with three contradictory theoretical models, determining what model is most appropriate for studying healthcare services in mainland China is challenging. Therefore, the purpose of this study is to analyze the relationships between perceived quality, patient satisfaction and loyalty intentions in mainland China’s healthcare system.”

2.2) Data collection should be better described, for instance: how was the sample approached? Where and when did the patients fill out the questionnaire? How did they return the questionnaire?

Hereby we added in the text more explanations:

“Data collection
This study used in-hospital patients as research participants to assess the relationship between perceived quality, patient satisfaction and patient loyalty intention constructs.
Hospital sample

The six hospitals chosen for the studies were located in Shanghai, China. Based on the classification of Shanghai hospitals, we selected among the 33 tertiary public hospitals. Tertiary hospitals are general hospitals located in the city, with a bed capacity exceeding 500. These hospitals are not only for local residents, but for patients with difficult and complex diseases from all over the country [35]. Among the 33 tertiary hospitals, six hospitals were selected for our study (Table 2). They ranged from the largest urban teaching hospitals (Fudan University Zhongshan, Huashan, Jinshan and Shanghai No.5 People’s Hospital) to middle sized municipal hospitals (Shanghai Oriental Hospital and Shanghai Minhang District Hospital). Among the six hospitals, two were located in urban areas, two in suburban areas and two in rural settings. The six hospitals are the biggest from among the three categories of hospitals. Therefore, the selected hospitals represent the Chinese inpatient population fairly well.

Inpatient sample

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A list of patients’ personal information was obtained from the hospital administration. To protect patient privacy and encourage free expression of patient opinions, we did not include information such as patient name, address or diagnosis in the study. An explanatory note describing the study to respondents was placed at the beginning of the questionnaire. All participants were asked to confirm their agreement to participate before the actual survey was administered and most of them agree.”

We hope it would be now clearer.

2.3) **Measures: translation, (cognitive) testing and so on is not described. This is important for documenting content validity, and should be addressed.**

Thank you! Hereby we added in the text more explanations:

The study used a back translation procedure in two phases. During the first phase, the original questionnaire was translated from English into standard Mandarin Chinese by a Chinese English professor from Shanghai Foreigner Language School. In the second phase, a private translation company translated the Chinese questionnaire back into
English. No differences were found between the two translations. This process has the advantage of pinpointing misinterpretations and misunderstandings before they reach the public [46]. Back translation therefore provides a test of content validity of our scales.

2.4) Furthermore, it is unclear whether 22 items or 44 items were used (both perceptions and expectations?).

We modified in the text for more explanations:

“The patient perceived quality scale was developed based on the SERVQUAL instrument as recommended by Parasuraman, Zeithaml and Berry [48]. Based on its original form, SERVQUAL contains 22 pairs of Likert-type items. One half of these items measure the patients’ expected level of health service quality. The other half measures the perceived level of health service quality provided by hospitals. Perceived quality is measured using disconfirmation scores based on patient healthcare service quality perceptions minus service quality expectations (P-E).”

2.5) All included items should be placed in an appendix with descriptive (n, means, SDs).

Hereby we added in the text an appendix with descriptive of each concept:

Table 3: Descriptive statistics means and standard deviations: Study 1

<table>
<thead>
<tr>
<th>Patient perceived service quality items</th>
<th>Mean and standard deviations</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>1 Prompt service to patients</td>
<td>.82</td>
<td>.99</td>
</tr>
<tr>
<td>2 Employees who are consistently courteous</td>
<td>.61</td>
<td>.86</td>
</tr>
<tr>
<td>3 Employees who deal with patients in a caring fashion</td>
<td>.64</td>
<td>.84</td>
</tr>
<tr>
<td>4 Providing services at the promised time</td>
<td>.65</td>
<td>.88</td>
</tr>
<tr>
<td>5 Employees who understand the needs of patients</td>
<td>.79</td>
<td>.99</td>
</tr>
<tr>
<td>6 Visually appealing materials associated with the service</td>
<td>.64</td>
<td>.96</td>
</tr>
<tr>
<td>7 Having the patient’s best interest at heart</td>
<td>.93</td>
<td>1.00</td>
</tr>
<tr>
<td>8 Willing to help patients</td>
<td>.69</td>
<td>.98</td>
</tr>
<tr>
<td>9 Maintaining error-free records</td>
<td>.55</td>
<td>.76</td>
</tr>
<tr>
<td>10 Keeping patients informed about when service will be performed</td>
<td>.53</td>
<td>.78</td>
</tr>
<tr>
<td>11 Providing service as promised</td>
<td>.74</td>
<td>.92</td>
</tr>
<tr>
<td>12 Employees who instill confidence in patients</td>
<td>.71</td>
<td>1.03</td>
</tr>
<tr>
<td>13 Employees who have the knowledge to answer patient questions</td>
<td>.75</td>
<td>.99</td>
</tr>
<tr>
<td>14 Dependability in handing patients’ requests</td>
<td>.66</td>
<td>.89</td>
</tr>
<tr>
<td>15 Readiness to respond to patients’ requests</td>
<td>.77</td>
<td>1.06</td>
</tr>
</tbody>
</table>
16 Performing services right the first time  .70  .96
17 Visually appearing living rooms & environments  .95  1.08
18 Giving patients individual attention  .91  1.07
19 Employees who have a neat, professional appearance  .43  .74
20 Convenient business hours  .77  .98
21 Modern living room facilities & equipment  .89  1.00
22 Making patients feel safe in their transactions  .68  .91

**Patient satisfaction items**

<table>
<thead>
<tr>
<th>Item</th>
<th>Rating</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>How would you rate the overall quality of service provided by your hospital? (overall quality)</td>
<td>7.36</td>
<td>1.30</td>
</tr>
<tr>
<td>Thinking about this hospital overall, please rate the value you feel you get for your money (value)</td>
<td>7.10</td>
<td>1.38</td>
</tr>
<tr>
<td>Overall, how satisfied are you with this hospital? (overall satisfaction)</td>
<td>7.43</td>
<td>1.39</td>
</tr>
</tbody>
</table>

**Loyalty intention item**

Recommend hospital to someone who seeks your advice  5.80  1.35

2.6) **It is also unclear how quality was computed: difference between perceptions and expectations, only perceptions or what?**

Thank you! We clarify this point in the text:

“The patient perceived quality scale was developed based on the SERVQUAL instrument as recommended by Parasuraman, Zeithaml and Berry [37]. Based on its original form, SERVQUAL contains 22 pairs of a reflective seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). One half of these items measure the patients’ expected level of health service quality. The other half measures the perceived level of health service quality provided by hospitals. Perceived quality is measured using disconfirmation scores based on patient healthcare service quality perceptions minus service quality expectations (P-E).”

2.7) **If difference score: discuss this concept versus patient-reported experiences, and discuss reliability of difference score in relation to this study:**

Yes! Thank you!

According to Prakash (1984), it shows that difference scores decrease the reliability and validity of the construct. We mentioned it in reference [40].
3) Results/Discussion

3.1) Study 1: the process from 22 (or 44?) to 5 items should be much better documented. Furthermore, this reduction is highly questionable from a content validity perspective, and should be much more discussed in the Discussion.

The process was from 22 pairs

In our measurement model, the two constructs measured for this study are patient perceived quality and patient satisfaction. Testing for reliability ensures that there is a high level of internal consistency among the questions that comprise the construct. Using an iterative process, we removed items with non-significant loadings or loadings on multiple factors. By doing so, we ultimately revised the items and arrived at a parsimonious instrument containing items that only directly assessed the construct. This process left us with a shortened scale of 5 items loaded on one factor for the healthcare perceived quality concept.

The validity of each construct is based on the judgment of whether each measure (indicator) is measuring what it is intended to measure. Content validity can only be determined by a thorough literature review and expert judgment; it cannot be tested statistically. Based on support of the literature and systematic data collection procedure, the two construct used here are conceptually sound (Flynn et., 1990)

3.2) The distinction between formative and reflexive constructs is important in this context.

Hereby, we added in the text for more explanations:

“In this paper, we use a reflective measure of the concept because we are interested in comparing models. For explanatory purposes, researchers might prefer formative models using causal links. The patient reported experience concept [55] is formative by nature because it takes into account the various causes of perceived health service quality (doctor and nursing services, information examinations, organization, hospital
and equipment etc). Such a focus is therefore multidimensional and the indicators do not need to have strong co variations [57].”

3.3) Implication

We changed deeply the conclusion part. We hope this could fit better to our study. More specifically the reflective versus formative indicators have been covered.

For the content validity question, we added the information on the back translation paragraph. In our back translation procedures, the process showed that there were no barriers of content validity in our study. Therefore, our western concept of perceived service quality, patient satisfaction and patient loyalty relationship is received as the same concept in the Chinese culture.

3.4) focus more on the SEM/structural part throughout the study. The only study I know of in this field using SEM for a similar purpose is the following (this study should also be discussed in relation to the current study, including differences in the analytical model like the inclusion of socio-demographics):

Yes! Thank you! This is the limitation of our study. Therefore, we added in the text for more explanation.

“Fifth, this research used SEM/structural equation modeling comparing the relationship between patient perceived quality, patient satisfaction and loyalty intention using three models. For explanatory purpose, we didn’t focus on the socio-demographics differences. This could also be a new direction for our future research.”

Reviewer: Ali K Anbori
Date: 24 August 2012

Questions and answers:

1) Define “appropriate assessment model” statement you used in paragraph 3 in the background?
Thank you for your question. We realize that it was an inappropriate sentence. It has been cut off.

2) **Do you think you have achieved the first half of the main purpose of this study (analyze perceived quality) and how?**

We wrongly worded the sentence. Our objective is to analyze relationships. Therefore we replace “Therefore, the main purpose of this study is to analyze perceived quality and its relationship with patient satisfaction and loyalty intentions in mainland China’s healthcare system.”

By the following sentence:

“Therefore, the purpose of this study is to analyze the relationships between perceived quality, patient satisfaction and loyalty intentions in mainland China’s healthcare system.”

3) **Where did you explain patient service quality-seeking behavior in the Chinese healthcare market which has been mentioned as one of the aims of this study?**

Thank you for your question! As mentioned before our goal is to test and compare models relating quality, satisfaction and loyalty constructs, with more explanation now, our text is the following:

“Faced with three contradictory theoretical models, determining what model is most appropriate for studying healthcare services in mainland China is challenging. Therefore, the purpose of this study is to analyze the relationships between perceived quality, patient satisfaction and loyalty intentions in mainland China’s healthcare system.”

4) **Please explain the sampling technique you have used to select the hospitals and the patients?**
Thank you for this question! The sampling in our study can be described as a systematic probability sampling. We detailed the procedure in the text:

Hospital sample

The six hospitals chosen for the studies were located in Shanghai, China. Based on the classification of Shanghai hospitals, we selected among the 33 tertiary public hospitals. Tertiary hospitals are general hospitals located in the city, with a bed capacity exceeding 500. These hospitals are not only for local residents, but for patients with difficult and complex diseases from all over the country [35]. Among the 33 tertiary hospitals, six hospitals were selected for our study (Table 2). They ranged from the largest urban teaching hospitals (Fudan University Zhongshan, Huashan, Jinshan and Shanghai No.5 People’s Hospital) to middle sized municipal hospitals (Shanghai Oriental Hospital and Shanghai Minhang District Hospital). Among the six hospitals, two were located in urban areas, two in suburban areas and two in rural settings. The six hospitals are the biggest from among the three categories of hospitals. Therefore, the selected hospitals represent the Chinese inpatient population fairly well.

Inpatient sample

Data were collected by four non-medical students. These students were trained to collect data on hospital patients who underwent surgery in the 30 days prior to administration of the questionnaire. Data were collected from the inpatient healthcare services department in the six public hospitals. A questionnaire was given to a systematic probability sample of individuals in two phases. Of 6200 licensed beds in the six hospitals (Table 2), a total of 800 inpatients were selected according to the systematic sample procedure using a step of two on the basis of bed numbers from a bed number list established at each hospital. Questionnaires were distributed to participants who underwent surgery in the six hospitals in the 30 days prior to administration of the questionnaire. A quota sampling based on the number of beds per hospital was used to obtain the number of inpatients to be questioned per hospital. Table 2 provides the number of questionnaires per hospital. Of the 800 questionnaires, 200 were distributed in the first phase, and 600 were distributed in the second phase.
Table 2: Sample of six public hospitals in Shanghai in 2009 and number of questionnaires

<table>
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<tr>
<th>Hospital name</th>
<th>Number of beds</th>
<th>Number of questionnaires</th>
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A list of patients’ personal information was obtained from the hospital administration. To protect patient privacy and encourage free expression of patient opinions, we did not include information such as patient name, address or diagnosis in the study. An explanatory note describing the study to respondents was placed at the beginning of the questionnaire. All participants were asked to confirm their agreement to participate before the actual survey was administered and most of them agree.

5) **Define “all six hospitals had fairly good reputation…”? And don’t you think this might affect the result of this study?**

Thank you! You are right! We cut this sentence and explained more precisely why we chose these six hospitals:

Hospital sample
“The six hospitals chosen for the studies were located in Shanghai, China. Based on
the classification of Shanghai hospitals, we selected among the 33 tertiary public
hospitals. Tertiary hospitals are general hospitals located in the city, with a bed
capacity exceeding 500. These hospitals are not only for local residents, but for
patients with difficult and complex diseases from all over the country [35]. Among
the 33 tertiary hospitals, six hospitals were selected for our study (Table 2). They
ranged from the largest urban teaching hospitals (Fudan University Zhongshan,
Huashan, Jinshan and Shanghai No.5 People’s Hospital) to middle sized municipal
hospitals (Shanghai Oriental Hospital and Shanghai Minhang District Hospital).
Among the six hospitals, two were located in urban areas, two in suburban areas and
two in rural settings. The six hospitals are the biggest from among the three categories
of hospitals. Therefore, the selected hospitals represent the Chinese inpatient
population fairly well.”

6) Please describe the different types and/or classifications of public hospitals in
Shanghai and what type did you selected?

We provide this information in the new version:

“Hospitals in China are organized according to a 3-tier system that recognizes a
hospital's ability to provide medical care, medical education, and conduct medical
research. Based on this, hospitals are designated as Primary, Secondary or Tertiary
institutions.
A primary hospital is typically a township hospital that contains less than 100 beds.
They are tasked with providing preventive care, minimal health care and rehabilitation
services. Secondary hospitals tend to be affiliated with a medium size city, county or
district and contain more than 100 beds, but less than 500. They are responsible for
providing comprehensive health services, as well as medical education and conducting
research on a regional basis. Tertiary hospitals round up the list as comprehensive or
general hospitals at the city, provincial or national level with a bed capacity exceeding
500. They are responsible for providing specialist health services perform a bigger role
with regard to medical education and scientific research and they serve as medical
hubs providing care to multiple regions. At this level, there are 33 hospitals each with
more than 500 beds in Shanghai health care market. These facilities are not only for
local residents, but for patients with difficult and complex diseases coming from all over the country. To conduct study and do our research, we have only selected the tertiary public hospitals.”

7) Why did you choose 20-65 age groups and how did you get the sex percentage?

We provide this information in the new version:

“We did not consider patients under 20 because of a risk of influence by staff and researchers [4] and over 65 because Medicare Insurance issues related to retirement might interfere with respondent judgments [36].”

8) Is there any missing data in the completed questionnaire? How did you handle it?

We explain in the text the nature of the missing data:

“Among 800 questionnaires, 200 of them were distributed in the first wave, and 600 of them were distributed in the second wave.

“With a response rate of 78 percent, 646 surveys were collected over the two phases (150 questionnaires were collected in the first phase and 496 were collected in the second phase). Empty beds and patients who were not in a position to answer constituted non-responses. Sixteen surveys were discarded due to missing data. Six hundred and thirty responses (150 in the first phase and 480 in the second phase) were finally statistically analyzed.”

9) Why did you use the two study technique?

Why two studies?

Study 1 is a test of the measurement model. The two constructs measured for this study are patient perceived quality and patient satisfaction. Testing for reliability and validity ensures that there is a high level of internal consistency among the questions that comprise the construct. Study 2 is a test of the structural models.
10) And what are the bases of the numbers of questionnaire you have distributed in each stage?

Among 800 questionnaires, 200 of them were distributed in the first stage, and 600 of them were distributed in the second stage.

11) Why did you use 10-point semantic differential scales with items of patient’s satisfaction and not the 7-point Likert Scale?

We explain in the text the reason for using 10-point semantic differential scales:

Ten point scales were prefered to the usual 5 point scales because, in health care satisfaction studies, they show better properties than 5 point scales. They possess higher validity and explanatory power [52].

12) Did you think it is confusing for participants to use different scales with different direction?

Thank you for your question!

We used inverted score scale to avoid some response styles bias such as yes saying It is quiet usual in investigations where you are fearing such a bias like China (Baumgartner and Steenkamp [41], Peter and Churchill [42]) show that it does not lower the scale reliability.

13) Why did you use single item measure with patient loyalty and multiple item measure with patient satisfaction?
We used a single item for word of mouth “Will you recommend this hospital to someone who seeks your advice?” based on Bergkvist and Rossiter(2007) advice. Measures of construct are as valid as multiple-item measures when the concept is concrete. Asking question about recommending the hospital does not need several questions. On the contrary, satisfaction has been shown a very complex construct. Therefore we tried to capture the most of it using the three questions.

14) Did you think that you have thoroughly searched for many other studies, on other Asian countries, about perceived quality; patient satisfaction and loyalty?

You are right! We found some other very interesting articles that we cite in the new version:


Thank you for the consideration of the resubmission to your journal. We wish these corrections will improve the quality of our article.

Sincerely yours;

Alain JOLIBERT
Université of Pierre Mendes France, Grenoble 2, France
150 rue de la chimie BP47, 38040 Grenoble Cedex 9
Email: alain.jolibert@upmf-grenoble.fr

Ping LEI
Assistant Marketing Professor
Group Ecole Supérieure de Commerce Chambéry Savoie, France
12 Avenue du Lac d’Annecy 73381
Le Bourget du Lac Cedex
Tel: +33 (0)4 79 25 37 07
Fax: +33 (0)4 79 25 33 54
Email: p.lei@esc-chambery.fr