A study of the determinants influencing customer satisfaction in medical tourism industry in Singapore

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Pham, TH 2015, 'A study of the determinants influencing customer satisfaction in medical tourism industry in Singapore', DBA thesis, Southern Cross University, Lismore, NSW.
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A Study of the Determinants Influencing Customer Satisfaction in the Medical Tourism Industry in Singapore

By
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Submitted to
The School of Business & Tourism
Southern Cross University, Australia
In partial fulfilment of the requirements for the degree of Doctor of Business Administration

March 2015
ABSTRACT

The aim of this study is to examine what determines customer satisfaction for people who seek medical treatment in Singapore. For the purposes of this research, medical tourism is defined as involving people who travel to a different country to receive medical treatment at a lower cost, and have access to higher-quality healthcare or obtain specialised treatment which they would not receive in their home country. Such medical treatments may involve therapeutic intervention for cancer and cardiac matters through to dental and aesthetic surgery. In pursuit of this objective, the study investigates and measures the factors that influence customer satisfaction.

Medical tourism is worth studying in detail for several reasons. Firstly, those seeking medical treatment will contribute to the tourism industry, which is a key factor in sustaining the competitive advantage of Singapore as a preferred destination in Asia. Secondly, contemporary medical tourism typically involves patients from developing and industrialised countries being attracted to developed countries, in this case Singapore, and is a relatively new phenomenon that has received very little research attention. Thirdly, medical tourism also involves those travelling from other developed countries to access certain medical services at somewhat reduced costs. As a consequence, it is vital for decision-makers to have access to a thoroughly research-based analysis of the determinants that influence customer satisfaction in the choice of a medical tourism destination.

As part of the literature review, the main disciplines explored include Expectation Confirmation Theory (ECT), the Kano model, and customer satisfaction. Specific research questions have been developed to understand customer’s expectations of medical services in Singapore. By measuring their satisfaction, a conceptual framework has been proposed. This relationship is moderated by Singapore-related environmental factors. The key variables include financial considerations, service quality, and medical facilities as the independent variables; customer satisfaction as the dependent variable, and the Singapore environment (comprising culture, location, and government) as the moderating variable.
Four hypotheses were generated for this study to explain the relationship between (1) financial considerations and customer satisfaction, (2) service quality and customer satisfaction, (3) medical facilities and customer satisfaction, and (4) the Singaporean environment and customer satisfaction.

In order to address the research questions comprehensively, the study adopted a mixed research design. A sample of 330 patients, drawn from medical tourists coming to Singapore, participated in the face-to-face survey. For the quantitative research, 33 questions were generated. As part of the qualitative method, and to add depth to the research questions, six open-ended questions were designed. Multiple and hierarchical regressions were applied to the four main hypotheses. The regressions produced a model that defined customer satisfaction based on three independent variables and a moderating variable. The findings from the regressions demonstrated that medical service quality, facilities, and advanced technology had significant and positive influences on customer satisfaction, followed by medical service quality such as the professionalism of the medical practitioners. However, the regressions indicated a negative relationship between financial considerations and customer satisfaction.

This study has made important contributions to both research and practice. It has contributed to the body of knowledge by enhancing the understanding of the relationships and factors that drive customer satisfaction in the medical tourism industry in Singapore. More importantly, a validated conceptual service quality model to measure customer satisfaction in the medical tourism industry has been derived. This model is based upon existing quality models, the insights gleaned from emergent literature, and the findings of the study.

*Key words: customer satisfaction, medical tourism, customer expectation.*
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## ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
</tr>
<tr>
<td>ASEAN</td>
<td>Association of South East Asian Nations</td>
</tr>
<tr>
<td>CME</td>
<td>Continuing Medical Education</td>
</tr>
<tr>
<td>CTQ</td>
<td>Critical to Quality</td>
</tr>
<tr>
<td>ECT</td>
<td>Expectation Confirmation Theory</td>
</tr>
<tr>
<td>EDB</td>
<td>Economic Development Board</td>
</tr>
<tr>
<td>EFQM</td>
<td>European Foundation for Quality Management</td>
</tr>
<tr>
<td>EIU</td>
<td>Economist Intelligence Unit</td>
</tr>
<tr>
<td>EMA</td>
<td>European Medicines Agency</td>
</tr>
<tr>
<td>EOQ</td>
<td>European Organisation for Quality</td>
</tr>
<tr>
<td>EPSI</td>
<td>European Performance Satisfaction Index</td>
</tr>
<tr>
<td>F&amp;B</td>
<td>Food and Beverage</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>HRA</td>
<td>Hierarchical Regression Analysis</td>
</tr>
<tr>
<td>HREC</td>
<td>Human Research Ethics Committee</td>
</tr>
<tr>
<td>HRM</td>
<td>Human Resource Management</td>
</tr>
<tr>
<td>IFCF</td>
<td>International Foundation for Customer Focus</td>
</tr>
<tr>
<td>JCI</td>
<td>Joint Commission International</td>
</tr>
<tr>
<td>KMO</td>
<td>Kaiser-Meyer-Olkin</td>
</tr>
<tr>
<td>LHW</td>
<td>Leading Hotels of the World</td>
</tr>
<tr>
<td>MBBS</td>
<td>Bachelor of Medicine and Bachelor of Surgery</td>
</tr>
<tr>
<td>MLR</td>
<td>Multiple Linear Regression</td>
</tr>
<tr>
<td>NLP</td>
<td>Natural Language Processing</td>
</tr>
<tr>
<td>PCA</td>
<td>Principle Component Analysis</td>
</tr>
<tr>
<td>PCs</td>
<td>Practising Certificates</td>
</tr>
<tr>
<td>SAB</td>
<td>Specialist Accreditation Board</td>
</tr>
<tr>
<td>SMC</td>
<td>Singapore Medical Council</td>
</tr>
<tr>
<td>SMTB</td>
<td>Singapore Medical Tourism Board</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
</tr>
<tr>
<td>SPSS STAS</td>
<td>SPSS Text Analytics</td>
</tr>
<tr>
<td>SQ</td>
<td>Service Quality</td>
</tr>
<tr>
<td>VOC</td>
<td>Voice of the Customer</td>
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</table>
DECLARATION OF ORIGINALITY

I certify that the substance of this thesis has not been submitted for any degree and is not currently being submitted for any other degree.

I also certify that to the best of my knowledge any assistance received in preparing this thesis and all sources used have been acknowledged and referenced in this thesis.

Signed ________________________________

Pham Thi Huyen, Anna

Date:  March 2015
ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to several people who have assisted and supported the development of this thesis.

First of all, I would like to express my thanks and appreciation to my supervisor, Dr. Lim Cheng Hwa and my co-supervisor Professor Michelle Wallace for their valuable advice, guidance, support, patience and encouragement throughout this research.

I wish to thank SCU-MDIS professors, lecturers and my fellow DBA candidates for the valuable comments and feedback during my six presentations at the DBA symposium held in MDIS, as well as John Revington for helping me to refine the language in this thesis.

My deepest gratitude goes to my classmates, friends and the participants in the DBA groups who gave me support and good comments about how I could improve my thesis.

Lastly, I am grateful to my family members and especially to my beloved daughter Annie, who has been my source of inspiration.
CHAPTER 1
INTRODUCTION
1.1 INTRODUCTION

This chapter consists of 11 sections (see Figure 1.1). The structure of this chapter is outlined in Section 1.1. Section 1.2 presents the research background. Section 1.3 identifies the research objectives. Section 1.4 discusses the research questions and conceptual framework, and Section 1.5 explains the research hypotheses. Section 1.6 proposes the research methodology, including sampling, data collection, data analysis, and ethical considerations. Section 1.7 discusses the contributions of the research and Section 1.8 identifies the research limitations. Section 1.9 lists the definition of key terms. The outline of the thesis is shown in Section 1.10, and Section 1.11 concludes the chapter.
Figure 1.1 Structure of Chapter 1

1.1 Introduction
1.2 Research background
1.3 Research objectives
1.4 Research questions and conceptual framework
1.5 Research hypothesis
1.6 Research methodology
1.7 Contributions of research
1.8 Limitations of research
1.9 Definitions of key terms
1.10 Outline of the research
1.11 Conclusion

Source: Developed by the researcher
1.2 RESEARCH BACKGROUND

Medical tourism, defined as involving people who travel to another country for medical treatment (Keckley & Underwood 2008) with the objective of seeking lower treatment costs (Caballeron & Mugomba 2007) continues to be a growing global industry. It has been one of the fastest growing industries in the world during the last decade. People from all over the world have travelled in search of medical treatment, seeking out value-for-money services with high customer satisfaction and the best treatment alternatives. Consequently, there is increasing competition for patients as countries compete for medical tourists. As a result, there is increasing competition for hospitals, with an emphasis on disease prevention, health promotion, and the availability of health-related information (Singapore Tourism Board 2012).

It is clear that medical tourists have access to better information, and hold healthcare providers accountable for higher-quality healthcare services (Akinci et al. 2004). The result of this study indicates that most of the participants have a high income and that cost does not affect their satisfaction. The participants are wealthy. Therefore, by seeking medical treatments in Singapore, they show that they can afford to pay the high costs. However, some respondents (e.g. from the United States) may visit Singapore because of the lower costs. Other patients (e.g. from Indonesia and Vietnam) come to Singapore owing to the location, high service quality and advanced technology, and are prepared to pay the higher costs. With competitive healthcare markets, customers have more options when selecting healthcare organisations (Tengilimoglu et al. 2007). Given these circumstances, medical tourists naturally expect higher-quality services and standards compared to those offered in their own countries.

Medical tourism has flourished in South East Asia, particularly in Singapore, where there has been a constant inflow of patients from less-developed countries seeking better medical facilities and services. This development has been a catalyst for the growth of the nation's commercial sectors such as hotels, food and beverage, and retail. Singapore tourism receipts from medical travellers achieved S$940 million in 2010, an increase of S$200 million compared to 2009 (Mohandas 2011). There are 17 hospitals and medical
centres in Singapore that have attained the Joint Commission International (JCI) accreditation (Singapore Medical Tourism 2011). This accounts for one-third of all the JCI-accredited facilities in Asia. Mount Elizabeth Hospital, Raffles Hospital, Singapore Medical Group, and Parkway Medical Group, which between them operate some of the high-end private hospitals in Singapore, have been proponents of high-quality healthcare services catering to a rich clientele from regional states, including Vietnam, China, and Indonesia (Medical Tourism Associations 2010).

Customer satisfaction is one of the most important marketing issues and concerns all types of business organisations. According to Caruana (2002), customer satisfaction is a central issue in marketing thought and marketing practice. Satisfaction is a major outcome of marketing activities and serves to link the processes of decision-making and consumption with post-purchase phenomena such as attitude change, complaining behaviour, word of mouth, repeat purchase, and brand loyalty (Bearden & Teel 1983; Fornell 1992; Oliver 1980). Customer satisfaction can be regarded as a valid indicator of an organisation’s financial viability. The study carried out by Musa et al. (2012) and Homburg, Koschate and Hoyer (2005a) showed a strong, positive influence of customer satisfaction on the customer’s willingness to pay. Customers who have been satisfied with a service in the past will not only seek out that service provider in the future, but also will be willing to pay a premium price for that service (Ganiyu, Uche & Elizabeth 2012).

The current research is driven by several considerations. Firstly, medical tourism has the potential to be an important factor in sustaining Singapore’s competitive advantage in the tourism market in general, while also being a significant revenue-generating market. Indeed, the policy of the Singapore government supports the medical industry in making Singapore the key medical tourism hub of Asia. Secondly, today’s medical tourism typically involves attracting patients from both developing and developed countries to developed countries; in this case Singapore. Medical tourism is a relatively new phenomenon that has received limited research attention.
Medical tourism continues to be one of the fastest-growing tourism sectors internationally, and many countries are currently planning legally and practically for this market (Heung, Kucukusta & Song 2010). Developing countries, in particular, are increasingly offering state-of-the-art medical facilities and services to foreign customers. Many countries have recognised the business opportunity that medical travel, particularly when combined with tourism, represents. The development of the health sector within the tourism industry has led to the emergence of new niche markets, with different destinations specialising in particular types of treatments, such as dental procedures, heart surgery, or cosmetic surgery (Heung et al. 2010).

Singapore, India, Thailand, Malaysia, Brunei, Hong Kong and the Philippines are now emerging as major health-care destinations with high-end medical expertise. At present, Asia remains the main region for medical tourism (Connell 2006). According to Heung et al. (2010), medical tourism continue to make a significant contribution to many of the world’s economies, with statistics (International Medical Travel Journal 2010) showing the industry worldwide to generate about US$60 billion annually.

Pocock and Phua (2011) state that medical tourism is a growing phenomenon, with policy implications for health systems, particularly of destination countries. The private sector and governments in South East Asia are promoting the medical tourist industry. In South East Asia, the health sector is expanding rapidly. This is attributable to the rapid growth of the private sector and notably, medical tourism, which is emerging as a lucrative business opportunity (Hopkins et al. 2010). Pocock and Phua (2011) highlight that countries such as Singapore, Thailand, and Malaysia are capitalising on their popularity as tourist destinations by combining high-quality medical services at competitive prices with tourist packages.

In the current research, a significant contribution to healthcare management is made by concentrating on both customer expectations and their perceptions, with managers being able to better understand customer satisfaction. As a result, such information will allow healthcare managers to formulate informed decisions and adopt appropriate strategies and
policies. It is imperative that managers and decision-makers not only focus on what is important to customers, but also on the satisfaction of the service that is actually delivered.

In addition, a thorough understanding of consumer behaviour in the context of medical tourism is an area requiring greater research. Consequently, it is vital for decision-makers to have access to a research-based analysis of the determinants that influence customer satisfaction in the choice of a medical tourism destination.

1.3 RESEARCH OBJECTIVES

The aim of this study is to examine the determinants that influence customer satisfaction when customers seek medical treatment in Singapore. In pursuit of this objective, the current study investigates and measures the criteria customers used when selecting Singapore as their preferred destination for medical treatment. The objectives of the research are listed below.

1. To examine the relationship between financial considerations and customer satisfaction in customers seeking medical treatment in Singapore.

2. To examine the relationship between hospital medical facilities and customer satisfaction in the medical tourism industry in Singapore.

3. To examine the relationship between service quality and customer satisfaction in the medical tourism industry in Singapore.

4. To examine the impact of the moderating variables (culture, location, and government) on customer satisfaction in the medical tourism industry in Singapore.
1.4 RESEARCH QUESTIONS AND THE CONCEPTUAL FRAMEWORK

1.4.1 Research questions

The research title is ‘A Study of the Determinants Influencing Customer Satisfaction in the Medical Tourism Industry in Singapore’. The research questions are as follows:

Research question 1
What are the critical factors that attract medical tourists to Singapore?

Research question 2
What are customers’ expectations of the medical tourism industry in Singapore?

Research question 3
Is there any relationship between service quality and customer satisfaction in the Singapore medical tourism industry?

Research question 4
How does the environment in Singapore, which comprises government support, location, and culture influence the medical tourists’ satisfaction?

Research question 5
How can the satisfaction of medical tourists seeking medical attention in Singapore be measured?

1.4.2 The conceptual framework

Firstly, the model presented in this thesis seeks to explain the factors influencing the choices made by patients seeking medical treatment in Singapore. Secondly, the intention is to examine the interplay of these influencing factors during the decision-making process of the medical patients, and to evaluate them as predictors of customer satisfaction. Finally, this understanding will allow the healthcare industry to develop business strategies that correspond to the market demands of medical tourists. The
A conceptual framework developed for this research is shown in Figure 1.2. This model proposes that customer satisfaction, as the dependent variable, is directly influenced by financial considerations, medical facilities, and the quality of medical services as the independent variables. The Singapore environment, comprising culture, location, and government support is the moderating variable.

**Figure 1.2 Conceptual framework**

![Conceptual framework diagram](image)

Source: Developed by the researcher

### 1.5 RESEARCH HYPOTHESES

Based on the research questions above and the literature discussed in Chapter 2, four hypotheses (H1 to H4) are generated for this study to explain the relationship between (H1) Financial considerations and customer satisfaction, (H2) Service quality and customer satisfaction, (H3) Medical facilities and customer satisfaction, and (H4) the Environment in Singapore (comprising culture, location, and government support) and customer satisfaction. The hypotheses are as follows:
Hypothesis 1: The medical tourists’ financial considerations have a direct positive correlation with their level of satisfaction.

H1a. The presence of a cost factor is highly associated with customer satisfaction.
H1b. Favourable foreign exchange rates positively impact on customer satisfaction.

Hypothesis 2: The level of service quality in the healthcare organisation has a direct positive correlation with the level of the medical tourists’ satisfaction.

H2a. Professionalism has a positive impact on customer satisfaction.
H2b. Prompt service has a positive impact on customer satisfaction.
H2c. Performance has a positive impact on customer expectations.

Hypothesis 3: The state of medical facilities is positively correlated with the medical tourists’ satisfaction.

H3a. The presence of advanced medical facilities is highly associated with customer satisfaction
H3b. Advanced medical technology has a positive impact on customer satisfaction.

Hypothesis 4: The environment in Singapore, as a moderating variable comprising government support, location, and culture, enhances the impact on the medical tourists’ satisfaction.

H4a. Singapore’s multi-culture has a positive impact on customer satisfaction.
H4b. Singapore’s geographical position has a positive impact on customer satisfaction.
H4c. Singapore’s government is an important factor and has a positive impact on customer satisfaction.

In this research, the environment of Singapore was tested as the moderator variable, which benefits medical tourism. The Singaporean environment comprises government support,
location, and culture, enhances the impact on the medical tourists’ satisfaction. This hypothesis is supported by this study, as patients are perhaps impressed with the environment created by the Singaporean government, which has successfully maintained political stability, good governance and has ensured strong economic growth to date.

The research performed by Lee (2006) noted that, in most rapidly developing countries, medical services grow in response to demand and become an essential part of people’s lives. However, it remains to be seen which countries are able to meet the growing domestic demand for medical services, and which countries with better developed infrastructure can exploit these opportunities.

Previous research by Eskildsen, Kristensen and Henrik (2010) stated that Singapore has achieved a significant degree of cultural diffusion with its unique mixture of racial groups. This has given it a rich cultural diversity, which is an advantage for medical tourism. This is because the medical practitioners in Singapore comprise a good ethnic and racial mix, thereby allowing them to easily connect, engage and understand the patients’ needs. In addition, Singapore’s geo-strategic location within South East Asia makes it convenient for patients to seek medical treatment. This study has determined that Singapore’s environment has a positive effect on medical tourism, and that Singapore’s multi-culture creates a positive environment for medical tourists. Furthermore, Singapore’s geographical position benefits medical tourism. Also, the economic and political stability which Singapore’s government provides remain key factors in attracting medical tourists.

1.6 RESEARCH METHODOLOGY

1.6.1 Sampling and collecting data

This study uses a mixed research methodology to provide an adequate exploration of the research questions. A sample-based survey is used as the principal method to collect the data. In addition, open-ended questions are used to collect insights into customer satisfaction. The population is drawn from foreign patients/medical tourists seeking medical treatment. In all, 330 respondents participated in the face-to-face survey. Respondents in the study sample were asked to answer questions that focused on
measuring their attitudes, opinions, and intentions and whether they were satisfied with: (i) their destination choice for medical service quality, (ii) the costs, (iii) the destination’s attributes and medical facilities, and (iv) the host government’s support.

1.6.2 Data analysis

The collected data was coded, computed, and analysed using the Statistical Package for Social Sciences (SPSS). Statistical analyses used in this research included frequencies, descriptive factor analysis, reliability test, correlation analysis, analysis of variance (ANOVA), multiple linear regression (MLR), and hierarchical regression analysis (HRA). Document analysis is also used to support data from other sources.

1.6.3 Ethical considerations

For this study, prior to their agreement on participating in the research, the participants were informed about the purpose of the research and data gathering. Participants were also told that their confidentiality would be protected, and that they had the right to withdraw from the study. Consent forms were given to participants before they answered the questions.

1.7 CONTRIBUTIONS OF THE RESEARCH

This thesis provides several noteworthy contributions to knowledge. Firstly, a new conceptual model applicable to the medical tourism industry is developed. Secondly, the existing Kano model, Expectation Confirmation Theory (ECT) model, and customer satisfaction model are extended to measure customer satisfaction in the medical tourism industry. Lastly, this research successfully tests the relationship between service quality and customer satisfaction. This test was specifically developed for this research, and led to useful empirical findings.

A significant contribution of this study to new knowledge is that it provides healthcare managers with a better understanding of the drivers of customer satisfaction and perceptions of customers in the medical tourism industry in Singapore. Such information
will allow healthcare managers to make more informed decisions on meetings patient needs of medical tourists and will enable them to adopt and enhance appropriate strategies and policies in relation to their respective demographics (Vincent et al. 2010). According to Meghann, Wong and Chan (2014), in order to create effective marketing strategies for products and services in the medical tourism industry, managers and decision-makers must not only focus on what is important to customers, but also focus on the satisfaction of the service that is actually delivered.

1.8 LIMITATIONS OF THE RESEARCH

Limitations of this study are concerned with the scope of the research which only covers a sample of 330 patients from hospitals in Singapore. As a result, generalisations are not made. There could also have been potential bias from respondents who may have misunderstood the questions or may have exaggerated their answers. Since the study did not conduct a post evaluation of the attributes, respondents may have provided very similar answers to both their expectations and their level of satisfaction, thus making the distinction between the two attributes more difficult. While this study has made substantial contributions to new knowledge in the healthcare industry, there are several limitations, and future research is needed.

The main limitation of this research is that the participants in the detailed survey were selected from foreign patients who chose Singapore for medical treatment, and were therefore biased in favour of Singapore’s healthcare. Measuring this perceived quality and perceived customer satisfaction may have affected the results. In this respect, it is important to develop a measurement of the quality of the customer relationship through the medical healthcare services. A more detailed discussion of the limitations is presented in Chapter 5, Section 5.5.
1.9 DEFINITION OF KEY TERMS

1.9.1 Medical tourism

*Medical tourism* is defined as involving people who travel to a different country to receive treatment at a lower cost, and to have access to higher-quality healthcare, or obtain specialised treatment which they could not receive in their home country (Global Spa Summit LLC 2011).

1.9.2 Customer satisfaction

*Customer satisfaction* is the consumer fulfilment response. It is the judgement of a product or a service feature, or the product or the service itself, which provides a pleasant level of consumption-related achievement (Oliver 1997b).

1.9.3 Customer expectation

*Customer expectation* plays a very important role in the satisfaction process and can be broadly defined as the customer’s pre-purchase beliefs or evaluative beliefs about a product or service (Oliver & Winer 1987).

1.9.4 Customer-perceived service quality

*Perceived service quality* is the extent to which a firm successfully serves the purpose of customers. Customers determine the perceived or cognitive value of a service based on their experience with the service delivered (Zeithaml, Parasuraman & Berry 1990).

1.9.5 Service quality

*Service quality* is defined as the outcome of an evaluation process in which consumers compare their expectations with the service they have received (Gronroos 2001).

1.10 OUTLINE OF THE THESIS

This thesis is structured using the outline advocated by Perry (1998). It comprises acknowledgements, an abstract, a table of contents with lists of tables and figures, five
chapters, and a list of references. Chapter 1 presents the introduction. It provides a summary of the thesis, including the research background, research objectives, research problem, research questions and hypotheses, the research methodology, definitions and terms used in this study, a thesis outline, and a conclusion.

Chapter 2 presents a review of the relevant literature. Two parent disciplines are explored: Expectation Confirmation Theory (ECT) and the Kano model. This review is followed by a review of the immediate discipline: customer satisfaction. A model for measuring customer satisfaction of medical tourists is proposed. This model proposes that customer satisfaction is influenced by customers’ perceived quality of medical service attributes, features, and benefits, and is moderated by customer expectations. Specific research questions are aimed at understanding customers’ expectations of medical services in Singapore, measuring customer satisfaction, and examining the relationship between customers’ expectations and service quality.

Chapter 3 discusses the research methodology. Based on the literature review in Chapter 2, this chapter draws in closer to the research objective, allowing the researcher to prove the hypothesis that customer satisfaction is not only very important, it is vital to any medical organisation. This chapter explains the data sample, describes the procedures used in designing the survey instrument and collecting the data, and explains the statistical procedures used to analyse the data collected from the pilot test. The way in which the results of the pilot test were used to refine the questionnaire survey is presented. Hypotheses are developed for testing and for examination.

Chapter 4 presents an analysis and a discussion of the data obtained from the questionnaire survey (for the quantitative method), and from the open-ended questions (for the qualitative method). This chapter reports on the findings of the relationship between customer satisfaction and customer expectations, and between customer satisfaction and perceived service quality within the medical tourism industry in Singapore. There are a number of analyses in this chapter such as descriptive statistics, reliability analysis, factor analysis, correlation analysis, multiple regression, and
hierarchical regression analysis that will be used to prove the hypotheses. The discussion of the analytical model is confined solely to presenting what was found in the data collected in the research process. The data is presented in terms of its significance to the research questions, the research objectives, and the research hypotheses presented in the earlier chapters. This chapter details the results of testing the hypotheses and measuring customer satisfaction.

Chapter 5 is the final chapter, and presents the research findings in the light of the research questions, and discusses the results of the hypotheses. This chapter also identifies issues relating to customer satisfaction, customer expectations, and perceived service quality in healthcare organisations. Chapter 5 summarises the previous chapters and discusses the key research outcomes, the implications and the limitations of the research, and its contributions to new knowledge. A new conceptual service quality model applicable to the medical tourism industry was developed in this research. Future research directions are also discussed. Chapter 5 is followed by a list of references and the appendices.

1.11 CONCLUSION

Chapter 1 has set out the commercial context and historical background against which the subject matter of this study was conceptualised and crystallised. The objectives of this study have been defined, and its contribution to the body of knowledge regarding customer satisfaction in Singapore’s medical tourism industry has been discussed. The research design and the methods of data collection have also been outlined in this chapter. Certain key terms have been defined to make the discussion as clear as possible. Lastly, this chapter presented an outline of the thesis. Chapter 2 reviews the literature and discusses a proposed conceptual framework for the research.
CHAPTER 2
LITERATURE REVIEW
2.1 INTRODUCTION

This chapter consists of 11 sections (see Figure 2.1). The structure of this chapter is outlined in Section 2.1. Section 2.2 presents general information about medical tourism. Section 2.3 identifies the background of medical tourism in Singapore. Section 2.4 discusses the research questions and the conceptual framework, and Section 2.5 explains the research hypotheses. Section 2.6 proposes the research methodology, including sampling, data collection, data analysis, and ethical considerations. Section 2.7 discusses the contributions of the research, and Section 2.8 identifies the limitations of the research. Section 2.9 defines key terms. The outline of the thesis is shown Section 2.10. Section 2.11 concludes the chapter.
Figure 2.1 Structure of Chapter 2

2.1 Introduction
2.2 Medical tourism
2.3 Singapore medical tourism
2.4 Literature concept map
2.5 Parent discipline
2.6 Immediate discipline
2.7 Research questions
2.8 Conceptual framework
2.9 The hypotheses
2.10 Summary of the variables
2.11 Conclusion

Source: Developed by the researcher
2.2 MEDICAL TOURISM

Medical tourism today is generally understood as foreign travel for the purpose of seeking medical treatment, and may also include a holiday or other tourism services (Connell 2006; Hall 2011). Medical tourism is a set of activities in which people travel long distances or across borders to avail themselves of medical services, with direct or indirect engagement in leisure, business, or other purposes (Prem 2009).

Many countries have now become involved in medical tourism. Owing to critical differences in the prices and ready accessibility of medical services in the West and the Middle East today, there has been a rapid rise in foreign demand for medical treatment in Thailand (Huang 2012). Thailand was particularly well suited to become a major destination of medical tourism, especially once the traditional restraints on the commodification of medicine were removed. Thailand continue to attract medical tourists because it offers high quality and readily accessible medical services at affordable rates, while enabling patients to combine treatment with vacationing. Reportedly, the number of tourists who availed themselves of medical services increased rapidly throughout the 2000s, and more than doubled between 2006 and 2012.

The reasons for this increase include: the continuing privatization of medical care; growing discontent with public health care; greater availability of cosmetic procedures; greater volumes of tourism; the aging baby boom generation, and greater availability of disposable capital (Connell 2013). A study conducted by the Confederation of Indian Industry (CII) and Mckinsey Consultants stated that in 2012 around 250,000 foreigners visited India for medical treatment, with that number rising by 15% every year. CII highlighted that India has the potential to attract 1 million medical tourists per annum and this could contribute around US$5 billion to the economy. Globalisation has accelerated considerably and, as a result, has led to the rise of healthcare companies seeking to maximise profits (Satpal & Sahil 2013).

Basanth and Kuriachan (2008) argue that India is unique as it offers holistic healthcare that address the mind, body and spirit, with yoga, meditation and other Indian systems of
medicine. In addition, India offers a vast array of services combined with a cultural warmth that is difficult to find in other countries. Medical tourism has also flourished in South East Asia, especially in the case of Singapore where there has been a constant inflow of patients from less-developed countries seeking better medical facilities and services. Caballeron and Mugomba (2007) defined medical tourism as ‘an activity involving people who travel to another country to receive medical treatment with the objective of seeking lower-cost, higher-quality services, and more differentiated care than they could receive in their home countries’.

The hospitals at the core of medical tourism have transformed themselves from the functional and clinical public hospitals that preceded them and have not taken on elements of elite hotels, IT offices and shopping malls. Some hospitals and hospital chains have become functionally integrated into the tourist industry. For instance, Bumrungrad, a Thai hospital group currently owns 74 serviced apartments (Sankrusme 2012). Hospitals have also become linked to airlines. Bangkok Hospital is linked with Air Asia, while Bumrungra has an agreement with Flight Centre for North American patients. The principal hospital group in Singapore, Raffles, arranges airport transfers, books airport transfers, books relatives into hotels and arranges local tours (Connell 2013). In 2012, those who came to Singapore for medical treatment were mostly from neighbouring countries, especially Indonesia (52%) and Malaysia (11%) (Connell 2013). Singapore has, however, seen a shift of its market from Indonesia to the Gulf States, alongside greater numbers of ethnic Chinese from a diversity of sources’.

Keckley and Underwood (2008) noted that medical tourism is the process of leaving home for medical treatment and care abroad, and pursuing a range of services that are not available in the home country. It is one of the emerging phenomena of the healthcare industry around the world whereby the more developed countries seek to exploit their advantages of a better healthcare infrastructure to cater for patients from less-developed countries. Carrera and Bridges (2006) concluded that medical tourism has developed into an international business and is growing rapidly owing to the ease of international travel, the accessibility of many destinations, as well as the cheaper cost of providing medical
services and treatments in certain countries. Singapore, with its inherently strategic geographical location, has become one of the world’s transportation hubs, with frequent flights from almost any country, thus making it a top medical destination (Lee & Hung 2010).

The medical tourism industry has also created opportunities for other sectors of the economy, such as hotels, food and beverage (F&B), and the retail sector, which capitalise on the families who accompany patients seeking treatment in the host country. In view of these advantages, some governments have been actively promoting medical tourism to boost their domestic economies (Caballeron & Mugomba 2007). Another factor that has contributed to the growth of medical tourism is the growth of incomes in developing countries. For example, Vietnam, China, and India are rapidly growing economies with higher disposable incomes among middle-income families (Mohandas, 2011). Thus, it is within the reach of many families to send their loved ones overseas for better medical attention. Developing countries often lack high-end medical infrastructure to cater for those seeking specialised treatments such as for certain types of cancer, and aesthetic and eye surgery (Gray & Poland 2008). Pocock and Phua (2011) posit that medical tourism can bring economic benefits to countries, including additional resources for investment in healthcare. In addition, growing demand for health services is a global phenomenon and is linked to economic development that generates rising incomes and education (Vincent et al. 2010).

Today, cross-border medical services are cheaper than those available in the medical tourism generating country, and are available in a more timely manner. This has certainly been a major factor behind the growth of medical tourism (Michael 2011). Medical services can be consumed in a relatively exotic location in conjunction with a holiday. Michael (2011) highlights that, as a result of migration and the demands of a global labour market, expatriates and migrants may return to their country of origin for medical treatment for cultural, family and language reasons. In addition, the regulatory structures that restrict availability of a medical service in the generating country do not exist in the destination country.
According to Phua (2007), medical tourists are a special group of people because they are foreigners from another country who have high expectations of customer satisfaction. If one factors in airfares, hotel, food, and other expenses, the amount they spend abroad would be much more than if they had stayed in their home country to seek medical treatment. Naturally, these additional expenses accord them the expectation of better services and treatment, and this gives rise to higher expectations of customer satisfaction.

Medical tourism is a niche industry in which people often travel long distances to overseas countries to obtain medical, dental, and surgical care, while simultaneously being more conventional holidaymakers (Connell 2006). In view of this discussion, this research will seek a more detailed understanding of the reasons why people travel overseas for medical attention.

Furthermore, it is imperative to find out what makes medical tourists decide to come to Singapore for medical attention. This has to be factored into the research to identify a formula for measuring customer satisfaction and determining how to improve service levels in the quest for better customer satisfaction. Thus, the focus of this research is to evaluate the existing medical services and find ways to improve customer expectations and satisfaction so that medical tourists will select Singapore as a preferred destination.

Medical tourism is an emerging industry in which countries with well-developed medical infrastructures and other inherent advantages such as transportation and communication seek to attract medical patients from less-developed countries (Carrera & Lunt 2010). The objective of this research is to explore and analyse in detail the service quality issues surrounding Singapore’s medical tourism.

2.3 BACKGROUND OF SINGAPORE’S MEDICAL TOURISM INDUSTRY

Medical tourism is driven by the private healthcare sector for profit. The private sector dominates primary care provision in Singapore. In Singapore, private sector hospital growth has risen in proportion with public sector hospital growth between 1998 and 2010.
(Pocock & Phua 2011). Private hospitals are smaller in size and tend to be located in urban areas, serving middle to high income patients as well as foreign patients. Consumer driven healthcare is becoming normalised globally and, in this region, is partly encouraged by governments and the private sector seeking to shift responsibility for one’s health to the individual in response to rising healthcare costs and demand for services. Singapore exemplifies this trend, as public health expenditure has slowly been declining whilst private health expenditure has increased (Pocock & Phua 2011). Singapore’s Tourism Board, the Ministry of Trade and Industry's Economic Development Board and the Ministry of Health have set a target to attract 1 million foreign patients by 2012 (Pocock & Phua 2011).

The number of countries seeking to develop medical tourism continues to grow rapidly. The success of medical tourism in Asia especially has prompted growing global interest and greater competition (Connell 2006). Singapore is emerging as a hub for medical tourism, attracting medical tourists from countries across the world. The World Health Organization (2000) ranked Singapore as the sixth best of the world’s healthcare systems after France, Italy, San Marino, Andorra, and Malta, and the top-ranked country in the Asia-Pacific region.

In September 2010, 17 hospitals and medical centres in Singapore obtained Joint Commission International (JCI) accreditation. This accounts for one-third of all the JCI-accredited facilities in Asia (Singapore Medical Tourism 2011). Beyond international certifications, the Singapore government also aims to attract world-ranking, high-quality healthcare institutions and providers to be located in Singapore. For instance, many of the world’s best known medical centres such as John Hopkins and The West Clinic have set up in Singapore (Lunt & Carrera 2011).

According to Nisha (2012), Singapore’s tourism receipts from medical travelers reached S$4.31 billion in 2012, an increase of S$200 million from 2009. The medical tourism industry is the fastest growing industry in Singapore’s economy. This development has been a catalyst for the growth of the nation’s commercial and industrial sectors.
2.3.1 Singapore’s medical specialists

Based on Ministry of Education Singapore (2000) statistics, Singapore trains physicians through a five-year undergraduate degree programme leading to a Bachelor of Medicine and Bachelor of Surgery degree (MBBS). The programme includes coursework and supervised clinical rotations and clerkships. In the fifth year, students complete a one-month internship shadowing and working under close supervision.

About 40% of registered medical practitioners are specialists who are certified by a Specialist Accreditation Board appointed by the MOH (Academy of Medicine Singapore Report 2013). Through its Health Manpower Development Program, established in 1980, the MOH sponsors public sector doctors and nurses for exposure and training at leading healthcare centres of the world, and brings renowned overseas experts to Singapore to share their expertise (Academy of Medicine Singapore Report 2013). A Joint Committee on Specialist Training (with representation from the Graduate School of Medical Studies and the Academy of Medicine of Singapore) oversees 35 Specialist Training Committees which, in turn, oversee specialist medical training in the respective fields

In order to practise independently in Singapore, an MBBS graduate must obtain a certificate of experience by completing postgraduate training in the form of a 12-month ‘housemanship’. Graduates must also be registered with the Singapore Medical Council (SMC). Provisional registration is available to medical graduates who are pursuing a certificate of experience through housemanship. After medical school and after completing their housemanship, doctors need to keep themselves up to date with the latest advances in medical developments, and in areas relevant to their individual specialisation. In addition, patients and society at large also want to be assured that the doctors that they consult are practising up-to-date medicine and are offering high-quality care.

For these reasons, the Singapore Medical Council (SMC) made continuing medical education (CME) compulsory for all doctors in Singapore, with effect from 1 January 2003. Since 1 January 2005, all fully and conditionally registered doctors renewing their
practise certificates (PCs) have been required to meet the compulsory CME requirements for their CME qualifying period(s) before their PCs are renewed. Conditional registration is granted for a period of one year for Singaporean citizens, and for a period of two years for foreign-trained physicians after certain criteria are met, including the completion of housemanship. Full registration allows a physician to practise anywhere in Singapore and is granted after successfully completing the conditional registration period (Singapore Medical Council 2011).

A strong concentration of medical expertise in various areas is another positive factor behind Singapore’s booming medical sector. Many medical professionals and healthcare companies based in Singapore help with training, share their expertise, and even help with healthcare research and events. As a result, international visitors flock to the nation to benefit from a wide array of medical facilities ranging from basic screening to more specialised services and surgical procedures (Lee 2010).

In conclusion, with many well-respected doctors who have been trained in the best centres around the world, internationally accredited hospitals and specialty centres, a global reputation as a centre for medical conventions and training, and a fast growing basic and clinical research hub, it is not surprising that Singapore has established itself as Asia’s leading medical hub (Lee & Hung 2010).

2.3.2 Singapore’s medical services

Under normal circumstances, wealthy patients from poorer countries go overseas to seek medical attention because of technical advantages. However, the reverse is also true: patients from developed countries are now turning towards less-developed countries and looking for high-quality medical care at affordable prices (Gray & Poland 2008). For example, Americans have gone to Thailand, Singapore and even some European countries to seek medical attention. This has created a medical tourism industry with high revenues and good profits for the countries involved (Garud 2005).
Dayrit (2004) stated that there is an overriding motivation to achieve a productive transformation of the healthcare sector and to make it self-sustaining, cost-effective, and efficient in order to increase its economic contribution and performance, and so preserve the integrity of the national healthcare system. Offering medical treatment at a lower price but with good quality is the best strategy for attracting medical tourists (Burch, Rogers & Underwood 1995).

A few years ago, most foreign patients made appointments directly with hospital administration departments. Patients could not select particular specialists or choose a particular hospital, and did not even mind waiting a long time for their appointment overseas (Cormany & Baloglu 2010). Today, every hospital, either private or government, has an established network of medical agents to serve overseas patients in their own country, from the time that they plan to go abroad for medical treatment to the that day they return to their home country (Cormany & Baloglu 2010).

In addition, agent networking has become an important factor in the medical tourism industry and involves private hospitals and agent intermediaries as well as tour companies. These services can be extended to cater for other medical tourism-related services such as hotels and accommodation (Lunt & Carrera 2010). Agent networking is normally established by both private and government hospitals needing to link up with potential patients overseas, especially from those countries that speak a different language. Intermediary agents provide a value-added service by giving patients information about foreign hospitals before they select one. This allows patients to choose the medical services they actually need rather than choosing by trial and error (Lee 2010).

All medical organisations in Singapore are trying to build up a strong customer base for these services. The medical services that foreign patients benefit from have not only become more complex and more demanding, but have also created new problems for healthcare providers. Some of the problems are listed below:
• Most patients who come to Singapore make at least two appointments with two specialists in different hospitals or medical centres.
• Patients often request an interpreter service free of charge.
• For some procedures, patients always negotiate the price directly with the specialist.
• Patients can choose an auspicious day for the surgery.
• For any medical issue, patients call the service centre 24-hour hotline for information.
• Patients request airport pickup services.
• Patients request arrangements for accommodation.
• Patients request visa extensions.
• Patients request prayer room facilities.

Singapore’s healthcare organisations are able to adapt to the changing needs of their customers and satisfy customer needs and expectations. This helps achieve sustained growth. Knowing customers’ needs well helps healthcare providers to design better strategies for promoting medical tourism in Singapore (Medical Tourism Associations 2010).

2.3.3 Singapore’s medical facilities

Singapore is one of the leading medical tourism destinations in the world. Its medical facilities are regarded as the best in Asia, although treatment costs are higher than those charged by its Asian competitors. In 2011, Singapore had nearly 30% of the medical tourism market in Asia and, by 2015, more than one million medical tourists are expected to arrive in Singapore (International Medical Journal 2012).

Singapore offers an excellent healthcare system and the majority of private and government hospitals are equipped with the most up-to-date diagnostic technology (Lee 2010). There are numerous government polyclinics as well as private clinics. Furthermore, the government has introduced community hospitals with intermediate
healthcare of the aged, and convalescing facilities for sick patients who do not require the
generic care of general hospitals (Mohandas 2011).

Moreover, Singapore offers extensive and advanced medical research opportunities. The
government has taken the initiative and has invested more than US$1.4 billion in
biomedical research over a five-year period (Ministry of Health Singapore 2013). Singapore is a hub with many healthcare providers. Internationally acclaimed companies
like Siemens Medical, GlaxoSmithKline, and Baxter Healthcare provide extensive
opportunities for medical professionals to pursue research, teaching, and medical practice
(Singapore Travel 2012).

The government’s healthcare facilities are primarily designed to provide subsidised
healthcare services to Singaporeans. These facilities consist of a number of government hospitals for inpatient services and numerous polyclinics offering outpatient services.
Although wholly owned by the government, the public sector hospitals are operated as
private limited companies so that they can compete with the private sector on service and quality. Singapore’s public sector hospitals are very different to what are generally known as a ‘government hospitals’ in other countries. They not only provide excellent healthcare services to the masses but also handle the most complicated cases referred from other hospitals and from neighbouring countries (Ministry of Health Singapore 2013).

However, private healthcare facilities in Singapore are as good as any in the world, with excellent levels of medical care and services (Taylor & Blair, 2003; Chee 2010; Ministry of Health Singapore 2014). For non-Singaporeans, the difference in cost between
government and private healthcare facilities is negligible as the two services compete
directly with each other (Lee 2010). Private healthcare facilities consist of many private
clinics and private hospitals offering outpatient services. Since private healthcare facilities
generally offer better service levels and shorter waiting times than government facilities,
most expatriates living in Singapore, as well as medical tourists from abroad, prefer to
seek medical treatment at private healthcare facilities. The majority of the private
hospitals are JCI-accredited (Mohandas 2011).
In addition to its healthcare facilities, Singapore also has one of the world’s best-developed infrastructures. Its excellent communications, logistics and transportation facilities, together with its vibrant atmosphere, have made it a preferred destination for many international medical conferences and scientific meetings (Pilippone 2012). For example, Singapore has hosted many events in the past, such as the 2005 World Congress of Nephrology, the Asian Pacific Congress of Cardiology, the International Medical Eye Congress, and the 18th WONCA World Conference, Genomics and Family Medicine; and the 1st International Conference on Humanitarian Medical Missions in Oct 2014. With the growing demand for medical tourism, countries’ responses have become more enthusiastic, and governments have become supporters and promoters of medical tourism through national development planning and tourism campaigns. Its global spread has gradually extended as more and more countries and corporations seek to become involved, thus overturning the implicit notions of the territoriality of health care (Connell 2013).

2.3.4 Comparative cost analysis

Cost is an important consideration for many international patients. While prices for medical treatment appear higher in Singapore than in other Asian countries, the final bills patients pay are often comparable due to the shorter hospital stays. The US costs do not apply to insured parties. The Singapore list prices are also not applicable for local and insured parties as they are subsidised by the government. Both prices are ‘list price’ (Ministry of Health Singapore 2014). This applies to non-citizen ‘foreign patients’. In addition to value for money, patients in Singapore are assured of quality treatment, with clinical outcomes similar to those in the United States and Europe. Refer to Table 2.1 Comparative cost analysis below.
### Table 2.1 Comparative cost analysis (US$)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>US costs</th>
<th>Singapore costs</th>
<th>Average costs of Asian countries*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental treatment: root canal</td>
<td>800-1,200</td>
<td>350-900</td>
<td>100-200</td>
</tr>
<tr>
<td>Heart bypass</td>
<td>130,000</td>
<td>18,500</td>
<td>5,000</td>
</tr>
<tr>
<td>Heart valve replacement</td>
<td>160,000</td>
<td>12,500</td>
<td>4,000</td>
</tr>
<tr>
<td>Angioplasty</td>
<td>57,000</td>
<td>13,000</td>
<td>4,000</td>
</tr>
<tr>
<td>Hip replacement</td>
<td>43,000</td>
<td>12,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>20,000</td>
<td>6,000</td>
<td>1,500</td>
</tr>
<tr>
<td>Knee replacement</td>
<td>40,000</td>
<td>13,000</td>
<td>4,000</td>
</tr>
<tr>
<td>Laser eye surgery</td>
<td>3,800</td>
<td>1,700</td>
<td>500</td>
</tr>
<tr>
<td>Spinal fusion</td>
<td>62,000</td>
<td>9,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Stem cell transplant</td>
<td>235,000</td>
<td>72,000-90,000</td>
<td>10,000-20,000</td>
</tr>
</tbody>
</table>

(*Vietnam, Cambodia, Thailand)

**Source:** Ministry of Health Singapore, 2013 and Forgione & Smith 2006.

From the table above, it is useful to note that medical treatment or medical procedures can be carried out in Singapore at a reasonable cost without compromising the quality of services or the time spent by the specialists. The Singapore healthcare system aims to make healthcare affordable to its entire population and encourages individuals to take responsibility for their own health. To ensure affordability, the government requires all healthcare providers to submit their bills according to defined conditions, procedures and ward class (Ministry of Health Singapore 2013). This in turn promotes transparency and competition. Singapore’s public medical institutions also make estimated costs as transparent as possible, according to useful categories, and all details are published on the Ministry of Health’s website.

#### 2.4 LITERATURE CONCEPT MAP

The following literature concept map is a part of the literature review and aims to create a clear picture for this chapter. The two parent disciplines are explored first: the Kano
model and Expectation Confirmation Theory (ECT). These are followed by a review of the immediate discipline of customer satisfaction. The concept map continues with the conceptual framework, the hypotheses and a conclusion. Refer to Figure 2.2 Literature concept map.

**Figure 2.2 Literature concept map**

Source: Developed by the researcher
2.5 PARENT DISCIPLINE

This section assesses the relevant literature of the parent discipline and the past studies that form the foundation of this research and, with supporting literature, defines the academic framework of the thesis.

2.5.1 Expectation Confirmation Theory (ECT)

Expectation Confirmation Theory was first proposed by Oliver (1997a). The result of this effect is channeled through the positive or negative confirmation between expectation and actual performance. If a product outperforms expectations, ‘positive confirmation’ results in post-purchase satisfaction. If a product does not live up to expectations, the term ‘negative confirmation’ is used and the customer is likely to be dissatisfied (Oliver 1980; Spreng, MacKenzie & Olshavsky 1996). Refer to Figure 2.3 Expectation Confirmation Theory.

![Figure 2.3 Expectation Confirmation Theory (ECT)](image)

Source: Expectation Confirmation Theory (Oliver 1980, 1997b)

There are four elements in the model: expectations, perceived performance, confirmation, and satisfaction. Positive confirmation leads to satisfaction, while negative confirmation leads to dissatisfaction (Reimer & Kuehn 2005).
2.5.1.1 **Expectations**

Customers expect a good quality product based on the price they are willing to pay. Their product expectations are clear. However, when it comes to product service their expectations may not match the product expectations. When customers start a relationship with any organisation they will have a specific set of expectations (Fornell 1992). These expectations are based on their perceptions of the service personnel, the company, and the industry (Ojo 2010). These expectations are formed through past personal experience and the experience of others the customer interacts with (Negi 2009). Therefore, customers have already set out their expectations before they come to Singapore for medical treatment.

2.5.1.2 **Perceived performance**

According to Oliver (1997a), perceived performance often differs from objective or technical performance, especially when the medical service is complex and intangible, and particularly when foreign customers are unfamiliar with Singapore’s medical services. Customers may perceive the performance of Singapore’s medical services to be of very high quality on account of the quality brand of Singapore as a country.

2.5.1.3 **Confirmation**

*Confirmation* is the evaluation of perceived performance according to one or more comparisons of quality standards. Confirmation can have a positive effect, which usually results in satisfaction, or a negative effect, which usually results in dissatisfaction or with a zero effect result (Oliver 1980).

2.5.1.4 **Satisfaction**

*Customer satisfaction* is defined within Expectation Confirmation Theory as the result of a cognitive and affective evaluation. If the perceived performance exceeds expectations, customers will be satisfied. Yet if the perceived performance is less than expected, customers will be dissatisfied (Oliver 1997b).
2.5.2 The Kano model

The customer satisfaction model from Professor Noriaki Kano focused on quality management and marketing techniques that can be used to measure client happiness (Kano et al. 1984). The Kano model is a tool that can be used to prioritise the Critical To Quality (CTQ) characteristics or situations, as defined by the Voice of the Customer (VOC). Critical Total Quality (CTQ) is the internal critical quality parameter that relates to the wants and needs of the customer (Kano et al. 1984). According to Yang (2003), CTQ is deemed an important factor when measuring how important service quality is to the customer. The Kano model identifies three main categories:

(i) **Must Be:** This quality characteristic must always be present or the customer will go somewhere else. In other words, this is the minimum quality required to attract the customer.

(ii) **Performance:** The better we are at meeting customers’ needs, the more satisfied they will be. Companies therefore strive to perform at as high a level as possible.

(iii) **Delight:** Qualities which are beyond the customers’ expectations are perceived as a bonus, and consequently satisfy them.

The Kano model is represented as an x-y graph (Figure 2.4). The x-axis indicates how good service providers are at meeting customer expectations with Critical To Quality (CTQ) characteristics. The y-axis indicates the level of customer satisfaction as a result of the service providers’ level of achievement (Spool 2011).
Firstly, the red line on the Kano model represents the **Must be** factors. That is, whatever the quality characteristic is, it must always be present. If the quality characteristic is not met, the customer will go somewhere else. The customer will only care about a product or a service that is present and is doing what it was designed to do.

Secondly, the blue line on the Kano model represents the **Performance**. This line reflects the **Voice of the Customer**. The better the service provider’s performance of meeting customer needs, the more satisfied the customer will be.

Lastly, the green line, which is the most interesting part of the Kano model, is the **Delighter**. This represents the qualities that the customer was not expecting, but received as a bonus.

A study of customer satisfaction, customer loyalty and quality attributes in Taiwan’s medical service industry by Hu et al. (2011) integrated the Kano model and the Customer Satisfaction Index Model. They stated that today’s attractive quality attributes can convert to **Must be** quality attributes and eventually become one-dimensional quality attributes.
The Kano model allows researchers to better address the needs of the customer based on their Critical To Quality characteristics and Voice of the Customer, and to minimise the gap between service quality and customer satisfaction (Kano et al. 1984).

### 2.6 IMMEDIATE DISCIPLINE

This chapter covers a vast pool of past research on customer satisfaction, with the previous sections examining three main categories of the main literature. The current section will continue to review other main literature.

Hong and Goo (2004) noted that service quality is more difficult for consumers to evaluate than product quality. This is due to a lack of tangible evidence associated with services. The difficulty in evaluating service quality is particularly evident for healthcare services because they are very customer-oriented, and this increases the level of variability of the service quality. Their study was further elaborated by Eskildsen and Kristensen (2007), who noted that, although service quality has a significant impact on customer satisfaction and customer loyalty across all industries, it is even more important for healthcare industry services.

#### 2.6.1 Customer satisfaction

According to Cook (2008), unless perceived expectations are met with actual performance, customers will become indifferent or be in a neutral mode. In general, increased customer satisfaction will lead to a higher customer retention rate, increased customer repurchase practice, and will eventually lead the firm to higher profitability. In principle, there are two ways that customers evaluate their satisfaction: transaction-specific satisfaction and cumulative satisfaction. These are explained by Jones and Suh (2000), and supported by a study by Yi and La (2004). *Transaction-specific satisfaction* is a customer’s evaluation of personal experience and reaction to a particular or a specific service encounter (Boshoff & Gray 2004). *Cumulative satisfaction* refers to the customer’s overall evaluation of the consumer experience to the present time (Cook 2008).
However, for more than two decades, customer satisfaction has been an intensively debated subject in the areas of consumer and marketing research. In recent times, customer satisfaction has attracted new attention owing to the shift from transactional marketing to relationship marketing (Gronroos 1990). Relationship marketing refers to all marketing activities directed towards establishing, developing, and constantly maintaining successful relational exchanges (Yi & La 2005). Customer satisfaction depends on the perceived performance of the product relative to the buyers’ expectations. If product performance falls short of expectations, the customer will be dissatisfied. If performance matches expectations, the customer will be satisfied. And if performance exceeds expectations, the customer will be highly satisfied or delighted (Kotler & Armstrong 2006). Customer satisfaction can be defined as the customer getting more benefit from the product or service than it has cost (Liu & Yen 2010).

Outstanding marketing companies try to keep their important customers satisfied all the time. These highly satisfied customers will make repeat purchases and recommend to others by word of mouth the good experience and good service received with the product. The marketing companies’ strategy is to match customer expectations with company performance. Resourceful companies aim to meet their customers’ expectations by promising not only what they can deliver, but also delivering more than they have promised or have committed to (Gronroos 2001).

Oliver (1997b) defined satisfaction simply as a consumer-fulfilled response. It is up to the customer to judge whether a product or a service provides a ‘pleasurable level of consumption-related fulfilment’, including levels of under- or over-fulfilment. Satisfaction is a short-term feeling that can change quickly with changing circumstances. Satisfaction is in the user’s mind and is different to observable behaviours such as choosing a product, complaining, or repeating a purchase (Oh 1999). According to Zeithaml, Rust and Lemon (2001), statistics show that dissatisfied customers complain about their negative experience of poor service to between seven and twenty people, while satisfied customers only tell three to five people about their positive experience.
2.6.2 Traditional models for measuring customer satisfaction

Bitner and Hubbert (1994) offered a different perspective of service quality theories in that their study supported the idea that perceived quality was a separate entity, and different to satisfaction. While the Expectations Confirmation Model has been the dominant model in satisfaction research, another model by Latour and Peat (1979) proposed that consumers compare their pre- with their post-expectations of a product or service, and that this results in their satisfaction or dissatisfaction towards the product or the service. According to Alford and Sherrell (1996) and Morgan, Anderson and Mittal (2005), positive confirmation results in increased consumer satisfaction, whereas negative confirmation results in decreased consumer satisfaction. In a subsequent extension of Oliver’s model, Burke, Kovar and Prenshaw’s (2003) model indicated that both expectation and performance directly influence satisfaction. Their functional equation is as follows:

Figure 2.5 Expectation model

\[
\text{Satisfaction} = \alpha \text{Expectation} + \beta \text{Performance} + \chi \text{Confirmation}
\]

*Source: Burke, Kovar and Prenshaw (2003)*

2.6.3 Proposed model for measuring customer satisfaction

Satisfaction is made up of a lower level (insufficiency or under-fulfilment), and an upper level (excess or over-fulfilment). Many people focus on the lower threshold and neglect the potential for an upper threshold. Using the theories already discussed above will enable the researcher to create a corrected formula for measuring customer satisfaction. Refer to Figure 2.6 Formula for measuring customer satisfaction.
In the healthcare environment, consumers tend to rely on service process functional aspects (e.g. doctors’ and nurses’ attitudes towards patients and procedure waiting time) when evaluating service quality since, in general, patients lack the expertise to evaluate technical quality (e.g. diagnosis accuracy and subsequent treatment and procedures) (Wong 2002). Service quality is a vital antecedent to customer satisfaction (Jabnoun & Al-Tamimi 2003). In turn, customer satisfaction leads to developing and maintaining loyal customers who may become advocates for a firm and promote the organisation further by making positive referrals through credible word-of-mouth communication (Zeithaml et al. 2013). Healthcare staff seeking to maintain or improve medical tourists’ service quality perceptions need to clearly recognise that, only by meeting or exceeding tourist expectations can desired outcomes such as satisfaction and improved financial performance be achieved (Michael et al. 2013; Zeithaml et al. 2009).

Ensuring high-quality services means attending to expectations used by medical tourists as standards for evaluating foreign health service quality (Michael et al. 2013). It is, therefore, important to routinely measure medical tourist satisfaction to understand the state of medical service quality (Michael et al. 2013). By applying the equation to the area of medical tourism, customer satisfaction is influenced by the customer’s perceived quality of the medical service attribute and its features and benefits, and is moderated by customer expectations, regardless of medical services quality. This formula is similar to that of Anderson et al. (2005), who demonstrated that customers who are extremely satisfied with their service experience with a given firm will be most likely to continue to return to that firm at the same, or even at a higher frequency. However, when they are dissatisfied with a service, customers are even more likely to ‘spread the word’ and influence the expectations of others.
2.7 THE RESEARCH QUESTIONS

With the literature in the previous sections having been reviewed, it will be useful to revisit the research objectives and present the research questions.

2.7.1 The research objectives

At the same time as high technology medical hospitals and medical centres are developing, there is also a demand for tourist facilities because medical tourists do not normally travel alone when seeking medical attention. This has created an opportunity to benefit from travellers who accompany medical tourists (Lee 2006). As long as a country develops and supports its tourism industry with proper planning and infrastructure, medical tourism will create an opportunity to concentrate on higher cost products and services that may be more than the average tourists’ expenditure (Enright & Newton 2004). In addition, while diverse conceptualisations of satisfaction have evolved over the past few decades, the general consensus among researchers is that individual satisfaction is an assessment of the overall experience of consumption (Heesup & Hyun 2014). If customers evaluate their overall consumption experiences favourably, it is likely that their satisfaction levels and willingness/readiness to repurchase will increase (Jani & Han 2013). The literature indicates that, while the intricate nature of the relationship between quality and satisfaction exists, quality in general acts as a significant predictor of satisfaction (Ryu & Han, 2010). In particular, Cronin and Taylor (1992) verified that service/product quality affects satisfaction and these constructs contribute to building customers’ behavioural intentions.

In general, customers’ satisfaction with excellent product performances enhances their level of confidence in the provider’s reliability and integrity (Richard & Maxwell 2013). Trust based on such satisfactory experiences acts as a significant determinant of repeat-purchase intention (Lankton, Wilson & Mao 2010). Han (2013) indicated that trust is
particularly significant in a medical tourism context in that poor continuity of care, low-quality medical care, malpractice, and medical accidents are increasingly fretted-over risks in the rapidly expanding international medical industry. Overall, these previous studies have empirically supported the notion that patient customer satisfaction is a significant driving force of trust, and this trust plays an essential role in the formation of behavioural intentions regarding medical care (Heesup & Hyun 2014).

According to Sultan and Wong (2010), medical tourism ventures should provide value-added services. These ventures offer golden opportunities for providing good healthcare and other services to medical tourists as well as to the accompanying family members and friends. In most rapidly developing countries, medical services have grown with demand and have become an essential part of people’s lives. However, it remains to be seen which countries are able to meet growing domestic demand, and which countries with better developed infrastructures can exploit the opportunities (Lee 2006).

To repeat the objective of this study, the current research intends to investigate the relationship between service quality and customer satisfaction in the medical tourism industry, with a focus on service performance. The study will also critically analyse whether service quality has an effect on customer satisfaction, and whether there is a positive relationship between service quality and customer satisfaction. To ensure that levels of customer satisfaction are high, an organisation must know the expectations of their customers and how they can meet such expectations through satisfactory levels of performance (Mohamed & Shirley 2009). Customer satisfaction encouraged customer loyalty and retention (Herrick 2007). The researcher will provide recommendations for healthcare providers to focus more attention on service quality because of its effects on customer satisfaction. Healthcare organisations will then know how to control the costs of attracting new customers while at the same time retaining existing ones. Healthcare providers will also need suggestions and feedback from their customers, and will need to create more service programs to evaluate their organisation’s service quality and customer satisfaction.
2.7.2 Development of research questions

Developing specific and clear research questions is one of the most important parts of the research process. Churchill and Iacobucci (2002) stated that research questions should be aimed at a particular issue, problem, or controversy, and end with a conclusion based on the analysis and interpretation of the collected data. According to Lipowski (2008), there are three steps in formulating a great research question:

- Ask interesting questions.
- Select the best question for research.
- Transform the research question into a testable hypothesis.

Wolcott (1990) provided some useful directions for designing research questions by suggesting that researchers need to focus on, and not to deviate from, the original objectives. The research would otherwise not be completed in time, or even worse, it may not be completed at all.

From the literature review in this chapter and the gaps identified for further research, it is useful to focus on the following list of research questions:

**Research question 1:**
What are the critical factors that attract medical tourists to Singapore?

**Research question 2:**
What are the customers’ expectations of the medical tourism industry in Singapore?

**Research question 3:**
Is there any relationship between service quality and customer satisfaction in the Singapore medical tourism industry?

**Research question 4:**
How does the environment in Singapore, which comprises government support, location, and culture influence the medical tourists’ satisfaction?
**Research question 5:**
How can the satisfaction of medical tourists seeking medical attention in Singapore be measured?

**2.8 KEY FACTORS CONTRIBUTING TO THE CONCEPTUAL FRAMEWORK**

**2.8.1 Independent variable**

**2.8.1.1 Financial considerations**
Given that the main reason for going abroad for medical treatment is usually economic, the potential for saving on medical expenses is clearly significant for medical tourists, insurance companies and corporate firms (Marlowe & Sullivan 2007). Medical tourism presents an opportunity for hospitals to grow by attracting the international patient market. To attract foreign patients, healthcare providers may consider both business and clinical factors (George & Swamy 2006). As a result, healthcare organisations are compelled to provide medical care at competitive rates. For example, Americans visiting countries such as Singapore, Thailand, or even India for their medical needs are lowering the cost of medical care. It is clear that financial considerations are important for medical tourists choosing healthcare services (Enright & Newton 2004).

Two financial issues need to be addressed in this sub-section so that concise hypotheses can be identified and tested later.

**2.8.1.1 Cost factor**
Medical tourism has presented an opportunity for hospitals to grow by tapping the potential of the international patient market (Liu & Yen 2010). Most healthcare organisations have tried to improve service quality and, at the same time in a continuous process, tried to lower their cost through the effort of each department within the organisation. It is possible now for medical tourists to travel abroad and receive medical treatment at a lower cost (Marrakchi, Elouze & Ghadhab 2009). Given that the primary reason for going abroad for medical treatment is usually economic, the potential for
saving on medical expenses is clearly significant for medical tourists, insurance companies and corporate firms (Marlowe & Sullivan 2007). The cost differential for medical treatment between the United States and lower-cost countries could be from 50 percent to 90 percent (Forgione & Smith 2006). The authors identified three primary reasons for this large cost differential: lower labour costs, no malpractice costs, and lower pharmaceutical costs. Further research in this area will uncover the importance of a variety of financial factors in medical tourism.

As the price of healthcare increases in western nations, many of their citizens travel overseas for medical treatment. Moreover, in countries where a significant number of citizens do not have private health insurance, such as the United States, many people travel to India to receive medical services (Forgione & Smith 2006).

2.8.1.1.2 Foreign exchange rate

Destination countries seek foreign exchange as well as new ways of growing their economies. Medical tourism, like other forms of tourism, offers both a source of foreign exchange and opportunities for generating employment (Connell 2013). Some tourists regard favourable exchange rates as an economic factor when planning to visit other countries for medical treatment, and it is natural to go to a country with a favourable exchange rate, especially when going on holiday. Most countries who have engaged in delivering healthcare care to medical tourists do so to increase their level of direct foreign exchange earnings (Lunt & Carrera 2010).

Based on current exchange rates, there will be great financial savings for ASEAN travellers visiting Singapore compared to travellers from the United States or Europe, if it assumed that these countries have the same standard of medical services. Foreign exchange rates are an important consideration, especially if the total cost involved is substantial and includes travel, accommodation and other related costs (Enright & Newton 2004).
Moreover, accommodation in Singapore is not an issue as hotels ranging from budget hotels to medium price hotels offer an extensive range of accommodation facilities to travellers. Madden (2008) highlighted that certain industries such as air travel, local transportation, F&B and hotels should benefit from the growing medical tourism industry. Ernst (2006) reported that, for an average travel itinerary including airfare and a post-operative vacation package, the average saving compared to the United States is about 70 percent for Thailand, and between 50 percent and 75 percent for Latin America. This data and research strongly suggest that exchange rates could be a consideration in attracting medical tourists to a particular country.

2.8.1.2 Service quality

Service quality is a vital antecedent of customer satisfaction (Jabnoun & Al-Tamimi 2003). In turn, customer satisfaction leads to developing and maintaining loyal customers who may become advocates for a firm and promote the organization further by making positive referrals through credible word-of-mouth communication (Zeithaml et al. 2009). In a health care environment, patients tend to rely on the functional aspects of the service delivery process (e.g. doctors’ and nurses’ attitudes towards patients and length of time waiting for a procedure) when evaluating service quality (Guiry & Vequist 2011). Zeithaml et al. (2009) suggest that consumers do not perceive service quality as a one-dimensional concept. Instead, their assessment of service quality includes their expectations and perceptions.

Service organisations must fully understand the service factors that contribute to customer value and lead to customer satisfaction and loyalty (Evans & Lindsay 2010). Service quality is a key factor that affects and influences customers’ decision-making (Schmeida, McNeal & Mossberger 2007). Today, with the competitive global market, more than half of all corporate training dollars are spent on service quality issues (Babakus, Bienstock & Van Scotter 2004). Delivering quality service is one of the major challenges that hospitality managers will face in the coming years as high quality is essential for the success of the emerging and very competitive global hospitality markets (Sutrisno & Lee...
2011). Service quality in the medical tourism industry involves delivering products and customer services consistently and according to expected standards (Jayaraman, Shankar & Hor 2010).

Patient satisfaction depends mainly on three issues of the healthcare quality system: the quality of the healthcare service, the quality of the healthcare service providers, and the quality of the healthcare organisations (Safavi 2006). Medical administrative departments in hospitals must focus on customer demands for consistency, meeting customer needs for clear policies on service quality, and for up-to-date medical treatment and service quality (Harris & Ralph 1999). Furthermore, all of the above can help to improve and increase the loyalty of both customers and hospital staff members.

2.8.1.2.1 Professionalism

According to (Safavi 2006), a focus group interview was undertaken in 2004 to 2005 by the Agency of Health Care Research and Quality and Centres for Medicare and Medical Services to ascertain patients’ perceptions of the quality of healthcare. The findings revealed that patients valued four qualities of healthcare services: responsiveness of hospital staff, cleanliness of the hospital environment, the care shown by nursing staff, and the communication skills of the doctors (Safavi 2006).

In service organisations, human resources not only represent the organisation providing the service (Zeithaml & Bitner 1996), but also reflect their organisation’s image by creating a satisfying service experience for the customer (Bowen & Lawler 1992). Professionalism in Singapore is based on a foundation of clinical competence, communication skills, and ethical and legal understanding. Using this foundation, Singapore has aspired to apply the main principles of professionalism: excellence, humanism, accountability, and altruism (Stern 2005).

Singapore’s medical expertise is recognised throughout the world for its high standards and its medical advances. Its doctors and surgeons study and train at established medical institutions, and continually upgrade their knowledge and skills to be able to deliver the
highest quality medical services to patients (Singapore Medical Tourism 2011). Singapore has sought to compete in the medical tourism market on quality rather than price, putting an emphasis on its superior technology. For instance, Singapore doctors carried out the first separation of conjoined twins in Asia, and the first South East Asian heart transplant (Connell 2006).

In addition, although medical tourists seek highly trained doctors and surgeons, their need for qualified nurses, clinicians, and other healthcare professionals is just as important. The success of the supplier base in Singapore depends largely on the country’s large pool of well-educated workers (Ministry of Education 2000). In terms of quality, Singapore’s universities and academic institutions are among the best in the world. In addition to the universities, vocational institutions in Singapore offer medical technology training (Medtech): specialised training aimed at developing skilled operators to manufacture medical devices. In industry, the Singapore Economic Development Board’s (EDB) Biomedical Sciences Group offers financial incentives for sharing the cost of medical technology companies’ training programs when they set up research and development or manufacturing facilities in Singapore (Yeoh 2008).

2.8.1.2.2 Prompt services
Customers’ waiting time for a service typically represents the first interaction between customers and most service delivery processes. Therefore, the importance of well-managed waiting time is of great interest to most service-oriented businesses (Batalden & Davidoff 2007). The way to improve service quality is to examine and reduce customer waiting times by improving the processes or by adopting prompt service methods. Milstein and Smith (2007) stated that customers’ reactions to waiting in a line affected their perception of the service. For example, customers sitting in a clinic who are unhappy about the long waiting time may complain about the quality of the staff or the doctor, even if the service itself is acceptable.
2.8.1.2.3 Customer expectations and perceived service quality

Customers’ expectations reflect their needs, wants, and any preconceived ideas they might have about the products or services (Kim, Lee & Yun 2004). These expectations are influenced by the customers’ perceptions of the products or services which can be based on previous experiences from advertising, hearsay, an awareness of competitors, and brand image (Andraski 2010). The level of customer service is a critical factor in determining customer satisfaction. Customers may expect quality service from service staff, including efficiency, helpfulness, reliability and confidence, and may see this quality service as the service staff taking a personal interest in the business the customer is bringing in. If customer expectations are met the result will be customer satisfaction (Yap & Sweeney 2007).

Perception determines whether customers choose a particular service or product, and whether they would recommend the supply company to others (Lasser, Manolis & Winsor 2000). The more a company knows about its customers’ perceptions and how they make their purchasing and business decisions, the more successful the company will be. Perception of service quality is defined in several ways. Zeithaml (1988), Edvardsson (2005), and Lee, Lee and Yoo (2000) stated that perceived service quality is the consumer’s judgement about the overall excellence or superiority of a service. Strydom, Jooste and Cant (2000, p. 364) defined customer perception as ‘the process of receiving, organising, and assigning meaning to information or to stimuli detected by the five senses, and believing that it gives meaning to the world that surrounds the customer’.

Customers always compare their perceptions of performance with their expectations when they assess service quality (Jiang & Rosebloom 2005). Therefore, knowing what the customer expects is the first and possibly the most critical step in delivering good quality service. Bebko (2000, p. 12) state that customer expectations are ‘beliefs about service delivery that serve as standards or reference points against which performance is judged’. Not fulfilling what customers want can mean losing business when another company is able to fill the gap.
2.8.1.3 Medical facilities

The importance of attaining distinctive atmosphere has gained growing attention among service managers since it is regarded as one of the key factors in satisfying customers in the service industry (Jang & Namkung 2009; Liu & Jang 2009). The physical environment is an important determinant of consumer satisfaction and behaviour (e.g. patronage) (Kim & Moon 2009). In addition to the service, pleasant physical setting (e.g. subdued lighting, unique colour scheme, ambient odour, spacious layout and attractive service staff) should determine to a large extent the degree of overall customer satisfaction and loyalty (Han & Ryu 2009). Facility aesthetics can be a critical aspect of attracting and maintaining customers to hospitals. Not only can it influence consumer traffic to a hospital, but also can affect the revenue of the hospital as a consequence.

Service organisations recognise and utilise facility aesthetics to capture the market share (Ryu & Heesup 2010). For instance, the Raffles Hospital, Singapore General Hospital and Mount Elizabeth Hospital in Singapore have scenic gardens, atmospheric music with colourful interior design and decorations that aim to positively affect the customers’ perceptions of the place and positively influence their emotions. In addition, the physical environment plays as an important marketing tool by affecting customer responses such as price perception, value and satisfaction (Berry & Wall 2007). Several past studies further revealed that atmospherics may influence a customer’s evaluation of service quality as well as their behavioural responses (Berry & Wall 2007; Jang & Namkung 2009).

Hu, Cheng, Chiu and Hong (2011), in their research into the medical services in Taiwan, observed that modernised systems of treatment and technology had a positive correlation with customer satisfaction. Similarly, the study by Marrakchi, Elouze and Ghadhab (2009) of patient clinics in Tunisia demonstrated that clinics’ reception and comfort were positively related to patient satisfaction. In summary, these studies suggest that medical facilities in healthcare organisations have a profound influence on customers’ choice of facility and the level of customer satisfaction. Refer to section 2.3.3 Singapore medical facilities for more information.
2.8.1.3.1 Advanced facilities
The tiny Asian island of Singapore has gained its reputation as a medical hub for good reasons. At least 17 private hospitals are JCI-accredited and several others, such as the John Hopkins Singapore International Medical Centre, are partnered with well-established medical institutions from developed countries (Mahamad 2011). Furthermore, the medical infrastructure of Singapore is of such superior quality that the country ranks number one in Asia and number six in the world for healthcare infrastructure (World Health Organization 2000).

2.8.1.3.2 Advanced Technology
The medical technology sector is an important part of Singapore’s fast-growing biomedical sciences (BMS) industry. In 2007, this sector contributed more than 7,300 jobs to the Singaporean economy. To date, Singapore has attracted many large medical technology companies who have established commercial operations, research and development centres, and manufacturing facilities (Singapore Medical Tourism 2011). These companies have developed, and now manufacture in Singapore, a wide range of medical products such as contact lenses, research instruments, scientific analytical equipment, medical implants, syringes, catheters, and hearing aids.

As global competition has increased and placed pressure on companies to stay cost-effective, while not compromising on quality, an increasing number of medical technology companies from overseas have explored the outsourcing options that Singapore offers (Kwok & Uncles 2005). Technology advancement has been a priority for providing dedicated contract-manufacturing services, including redesigning medical products and processes (Singapore Medical Tourism 2011). In the interests of public health and safety, medical products in Singapore are subject to stringent regulations. Therefore, a key consideration when medical devices companies assess potential suppliers is to establish whether the supplier meets the quality standards and requirements of international healthcare regulators, such as the US Food and Drug Administration (FDA) and the European Medicines Agency (EMA). With a reputation for compliance and quality, Singapore-based companies and employees have won the confidence of their
global medical technology customers. In fact, more than 15 MedTech companies in Singapore are certified to ISO 13485, the international certification pertaining to quality in the manufacture of medical devices (Ministry of Health Singapore 2013).

Hospitals and medical centres in Singapore have capitalised on the country’s advanced technology infrastructure and the supporting industry that supplies sophisticated equipment and facilities. Fully computerised healthcare systems ensure efficient administration, including the proper storage of patient records, which in turn facilitates integrated treatment (Ministry of Health Singapore 2013), and elevates Singapore to the status of one of the most advanced medical hubs in Asia.

2.8.2 Moderating factors – Environment

In the context of this study, it is hypothesised that the environment in Singapore has a moderating influence on customer satisfaction. The environment factor comprises government support, location, and culture. Indeed, a government that recognises the value of medical tourism as an innovative new business for attracting foreign capital, will seek to support the industry by providing assistance for its growth, development and infrastructure (Williams 2004).

2.8.2.1 Government

India, Thailand, Singapore and Malaysia, given that they contain major airport hubs, have already invested huge sums of money in attracting tourists to this market. Medical tourists also benefit from the favourable exchange rates and other products and facilities that these countries can offer. The Singaporean government continues to promote medical tourism by providing extended visa periods for medical tourists from six months to one year (Wood 2009). Smith (2004) noted that the medical tourism industry can boost a developing country’s GDP and improve investment in healthcare facilities. The author also strongly advises the government to invest more in healthcare services as they not only add value to the service industry but also collectively bring in good revenue for the country as a whole. Furthermore, Cwiek et al. (2007) and Gibson (2005b) stated that governments can create or implement various trade barriers for certain businesses mainly
to protect their own interests. The Singaporean government’s commitment is demonstrated by its favourable policies targeted at the medical tourism industry.

2.8.2.2 Culture
Hofstede (2001, p. 71) defined *culture* as the ‘collective programming of the mind which differentiates one group from another’. Patients travelling to a foreign country for healthcare might face the risk of miscommunication resulting from a lack of familiarity with a foreign culture, from language barriers, and from traditions (Williams 2004). Not only is the language different but also gestures and facial expressions are different. These differences between cultures can present difficulties for medical tourists (Eskildsen, Kristensen & Henrik 2010). Nonetheless, Singapore has achieved a significant degree of cultural diffusion with its unique mix of racial groups. This has given Singapore a rich diversity of cultures, which is an advantage for the medical tourism industry. Porter (2008) pointed out that social and cultural factors influence businesses. Therefore, in this research, it is important to measure the moderating influence of culture on customer satisfaction. Social, cultural and other external environmental factors such as geographical location will be discussed and taken into consideration as variables.

2.8.2.3 Geographical location
Geographical location has been identified as a critical factor influencing customers’ decisions to travel abroad for medical treatment (Thompson, Kyrillidou & Cook 2008). The geographical impact, such as the distance from the point of departure, has implications for both cost and time. Singapore has a reputation for its cleanliness, orderliness and its ultra-high standard of private medical care. While the costs are comparable to those of India or Thailand, medical staff in Singapore invariably converse well in English, and the healthcare infrastructure is easily comparable to that of Western countries. Singapore’s centralised location within South East Asia makes it attractive to medical tourists travelling from countries such as Vietnam, Thailand and Indonesia. This is because both the travelling time and the cost are reduced compared to travelling to Europe or America for medical treatment (Singapore Travel 2012).
2.8.3 Dependent Variable – Customer Satisfaction

For more than two decades, customer satisfaction has been an intensively debated subject in the areas of consumer and marketing research. In recent times, customer satisfaction has attracted new attention within the context of the paradigm shift from transactional marketing to relationship marketing (Gronroos 1990).

*Relationship marketing* refers to all marketing activities directed towards establishing, developing, and constantly maintaining successful relational exchanges (Yi & La 2005). Mutawa, Elbabi and Brinkman (2006) view customer satisfaction as a system that customers go through to receive value for money, while, in some of the literature, customer satisfaction has been defined as the antecedent of loyalty (McAlexander, Kim & Roberts 2003), and is represented by the ratio of customer perception to customer expectation (Lee 2004).

Certainly, in the healthcare sector, customer satisfaction is as important an issue as it is in other service sectors (Shabbir, Kaufmann & Shehzad 2010). Healthcare organisations can achieve patient satisfaction by delivering quality services, keeping in view patients’ expectations, and continuously improving the healthcare services they offer (Zineldin 2006). According to Cook (2008), unless perceived expectations are met with actual performance, customers will have an indifferent or neutral reaction to the service. In general, increased customer satisfaction will lead to a higher customer retention rate, increased customer repurchase practice, and will ultimately steer the firm to higher profitability.

Smith and Swinehart (2000) pointed out a strong relationship between the quality of a product or service and the satisfaction of customers. They pointed out that the customers’ perception regarding the quality of products or services brings about satisfaction in their mind. Healthcare is the fastest growing service in both developed and developing countries (Dey, Hariharan & Brookes 2006). Wadwha (2002) highlights that patients are now regarded as healthcare customers because they consciously choose the services and the providers that best meet their healthcare needs. Related to this, healthcare quality and
patient satisfaction are two significant health outcomes and measures of quality (Zineldin 2006).

Several studies in the literature have identified satisfaction as a super-ordinate construct and regard perceived service quality as an antecedent of satisfaction (Cronin & Taylor 1994; Cronin, Brady & Hult 2000). Some studies on healthcare services have noted a causal relationship between perceived service quality and patient satisfaction (Woodside, Lisa & Robert 1989). In fact, fulfilling the wants of the patient and creating healthcare standards are imperative for achieving high quality (Ramachandran and Cram 2005). As a result, it can be said that the patient is at the centre of healthcare’s quality agenda (Badri, Attia & Ustadi 2007). Scotti, Harmon and Behson (2007) carried out research that supports the argument that perceived quality is one of the determinants of patient satisfaction. Over and above, once customer needs and expectations are identified, customer satisfaction must be monitored with the findings implemented for improvements. Proactively conducting customer satisfaction surveys helps to generate a positive impression on an organisation’s interest (Karten 2006).

2.8.4 Conceptual framework

A number of empirical studies have been conducted on the subject of service quality and customer satisfaction (Cronin & Taylor 1992; Spreng & Mackoy 1996; Jones & Suh 2000; Coyles & Gokey 2002; Ranaweera & Prabhu 2003). Research on this subject showed that most of the studies were conducted in industrialised countries such as the United States, the United Kingdom and Japan. Despite these different contexts and cultures, very little attention has been given to the medical tourism industry. This is partly due to the fact that there have not been many medical tourism activities in the past, and it is only in recent years that we have witnessed a rise in medical tourism (Wood 2009). This research attempts to close this gap by studying the situation of Singapore’s medical tourism industry, and by providing more empirical evidence on the effects on customers’ satisfaction of financial factors, service quality and the medical facilities provided in Singapore.
In the study conducted by Pan and Chen (2014) on the motivations and perceptions of Chinese medical tourists visiting Taiwan, the quality of services and tourism-related factors, such as leisure, fun, relaxation, and travel options, were identified to be critical factors that affect customer satisfaction. Although medical services offered by developing countries have been the focus of considerable research and discussion, few studies have explored the motivational factors for visiting certain countries and level of satisfaction in relation to service quality by medical tourists (Yu & Ko 2012). In previous studies, samples of medical tourists were obtained primarily from developed nations. Among the many medical tourism studies, very few have investigated Asian tourists, especially Singapore.

In addition, while diverse conceptualisations of satisfaction have evolved over the past few decades, the general consensus among researchers is that individual satisfaction is an assessment of the overall experience of consumption (Heesup & Hyun 2014). If customers evaluate their overall consumption experiences favourably, it is likely that their satisfaction levels and willingness/readiness to repurchase will increase (Jani & Han 2013). The literature indicates that, while the intricate nature of the relationship between quality and satisfaction exists, quality in general acts as a significant predictor of satisfaction (Ryu & Han, 2010). In particular, Cronin and Taylor (1992) verified that service/product quality affects satisfaction and these constructs contribute to building customers’ behavioural intentions.

The model presented in this thesis seeks to explain the factors influencing the choices made by medical patients seeking medical treatment in Singapore. The intention is to examine the interplay of these influencing factors during the choice process of the medical patients, and to evaluate them as predictors of customer satisfaction. This understanding will allow the healthcare industry to develop business strategies that correspond to the market demands of medical tourists.

The conceptual framework comprises customer satisfaction as the dependent variable, and financial considerations, service quality, and medical facilities as the main categories of
the independent variables. The relationship between the dependent and the independent variables is moderated by the environment in Singapore, which comprises three factors: the support of the Singapore government, location, and culture. This model is illustrated in Figure 2.7.

### Figure 2.7 Conceptual framework

![Diagram of conceptual framework]

Source: Developed by the researcher

#### 2.9 THE HYPOTHESES

The researchers used two approaches to derive the hypotheses in this thesis: inductive and deductive reasoning. *Inductive reasoning* is usually described as moving from specific to general reasoning, while *deductive reasoning* moves from general to specific reasoning.
(Anderson & Fornell 1994). These two approaches are used to derive a conclusion based on key concepts and reliable information that are usually assumed to be true and correct. Both approaches are used in this research to establish the hypotheses.

As suggested by Lipowski (2008), the next step after constructing clear research questions should be to develop the hypotheses. The research questions lead to the development of specific variables. These are the observable phenomena that will be analysed. A variable can take on different attributes. For example, gender is a variable with two attributes: male or female. An understanding of the variables allows us to comprehend the hypotheses of a study and the relationship between the variables (Marion 2004).

With reference to the conceptual framework in Figure 2.7, the researcher developed the following hypotheses. Hypotheses H1 to H4 capture the key independent variables of financial considerations, service quality, medical facilitaties and Singapore environment. The sub-factors of each independent variable are listed and are to be examined within the hypotheses (for example, H1a for Cost factor, and H1b for Foreign exchange rate). The details of the hypotheses to be tested are listed below:

**Hypothesis 1:**  **The medical tourists’ financial considerations have a direct positive correlation with their level of satisfaction.**

H1a. The presence of a cost factor is highly associated with customer satisfaction.

H1b. Favourable foreign exchange rates positively impact on customer satisfaction.

**Hypothesis 2:**  **The level of service quality in the healthcare organisation has a direct positive correlation with the level of the medical tourists’ satisfaction.**

H2a. Professionalism has a positive impact on customer satisfaction.

H2b. Prompt service has a positive impact on customer satisfaction.

H2c. Performance has a positive impact on customer expectations.
Hypothesis 3:  The state of medical facilities is positively correlated with the medical tourists’ satisfaction.

H3a. The presence of advanced medical facilities is highly associated with customer satisfaction
H3b. Advanced medical technology has a positive impact on customer satisfaction.

Hypothesis 4:  The environment in Singapore, as a moderating variable comprising government support, location, and culture, enhances the impact on the medical tourists’ satisfaction.

H4a. Singapore’s multi-culture has a positive impact on customer satisfaction.
H4b. Singapore’s geographical position has a positive impact on customer satisfaction.
H4c. Singapore’s government is an important factor and has a positive impact on customer satisfaction.

The research hypotheses and propositions are assumptions and statements that possess a high probability of being proven correct. They should be proved through the literature review, be conceptually clear and specific, and be related to a theoretical framework, which defines the techniques to be deployed and used in the research.
## 2.10 SUMMARY OF THE VARIABLES UNDER STUDY

Table 2.2 Summary of the variables under study

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Moedrating variables</th>
<th>Dependent variables</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical professionalism</td>
<td>_</td>
<td>_</td>
<td>Stern 2005</td>
</tr>
<tr>
<td>_</td>
<td>_</td>
<td>Customer satisfaction &amp; customer loyalty</td>
<td>Hu et al. 2010</td>
</tr>
<tr>
<td>_</td>
<td>Service imperative</td>
<td>Service imperative</td>
<td>Brown &amp; Bitner 2007</td>
</tr>
<tr>
<td>Good service</td>
<td>_</td>
<td>Customer satisfaction</td>
<td>Sureshchander, Rajendran, &amp; Anantharaman 2002</td>
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<tr>
<td>_</td>
<td>_</td>
<td>Measurement of service quality</td>
<td>Philip &amp; Hazlett 2003</td>
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<tr>
<td>Quality management in tourism</td>
<td>Quality management in tourism</td>
<td>_</td>
<td>Kapiki 2012</td>
</tr>
<tr>
<td>Customer care excellence</td>
<td>Effectiveness of customer focus</td>
<td>_</td>
<td>Cook 2008</td>
</tr>
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<td>Satisfaction &amp; service quality</td>
<td>Satisfaction &amp; service quality</td>
<td>Satisfaction &amp; service quality</td>
<td>Hu et al. 2010; Bitner &amp; Hubbert 1994</td>
</tr>
<tr>
<td>_</td>
<td>_</td>
<td>Customer satisfaction</td>
<td>Eskildsen &amp; Kristensen 2007</td>
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<td>Customer’s voice</td>
<td>Service quality &amp; customer’s voice</td>
<td>Customer satisfaction</td>
<td>Bitner &amp; Hubbert 1994</td>
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<td>_</td>
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<td>Relationships between service quality and customer satisfaction</td>
<td>Relationships between service quality and customer satisfaction</td>
<td>Relationships between service quality and customer satisfaction</td>
<td>Boshoff &amp; Gray 2004</td>
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<tr>
<td>_</td>
<td>Customer satisfaction</td>
<td>Customer satisfaction</td>
<td>Anderson &amp; Fornell 1994</td>
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<td>Customer classification</td>
<td>Satisfaction benchmarking and customers’ classification</td>
<td>Grigoroudis, Politis &amp; Siskos 2002</td>
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<td>-------------------------</td>
<td>--------------------------------------------------------</td>
<td>----------------------------------</td>
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</tr>
<tr>
<td>Customer perspective &amp; service quality</td>
<td>Customer perspective &amp; service quality</td>
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<td>Service quality delivery</td>
<td>Service quality delivery</td>
<td>Eskildsen et al. 2004</td>
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<td>Customer satisfaction and loyalty</td>
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<td>Customer value and perspective</td>
<td>Customer value and perspective</td>
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<td>Role of cost</td>
<td>Customer-perceived value</td>
<td>Yang &amp; Peterson 2004</td>
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<tr>
<td>Satisfaction decision</td>
<td>Satisfaction decisions</td>
<td>Oliver 1980</td>
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<tr>
<td>Customer retention</td>
<td>Customer retention</td>
<td>Ranaweera &amp; Prabhu 2003</td>
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<tr>
<td>Disconfirmation and expectation</td>
<td>Disconfirmation and expectation</td>
<td>Oliver 1997</td>
<td></td>
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<tr>
<td>Managing customer expectation</td>
<td>Managing customer expectation</td>
<td>Hu et al. 2011; Karten 2006</td>
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</tr>
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<td>Repurchase intention &amp; customer satisfaction</td>
<td>Repurchase intention &amp; customer satisfaction</td>
<td>Yin 2009</td>
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<tr>
<td>Satisfaction-based quality</td>
<td>Satisfaction-based quality</td>
<td>Wicks &amp; Roethlein 2009</td>
<td></td>
</tr>
</tbody>
</table>
2.11 CONCLUSION

It is clear that, in today’s competitive medical market, patients have a wide variety of choices when selecting medical services. As a result, hospitals must continuously strive to sharpen their service quality to increase customer satisfaction, or face the possibility of a gradual loss of competitiveness. Medical tourism has the potential to be an important factor in sustaining the competitive advantage of Singapore in the tourism market, and to be a significant revenue-generating sector. Today’s medical tourism typically involves patients from developing and developed countries being attracted to developed countries. In the context of Singapore, it is a relatively new phenomenon that has received limited research attention. A thorough research-based understanding of consumer behaviour in the context of medical tourism is an area requiring greater research.

A conceptual customer satisfaction model applicable to medical tourism industry is developed in this research. The model presented in this thesis demonstrates how customer satisfaction is dependent on three factors: financial considerations, service quality, and medical facilities. This relationship is moderated by the environment factor, comprising culture, geographical location, and government support. The model uses five important attributes to measure service quality and customer satisfaction when medical services are delivered to medical tourists. These attributes identify the main factors that attract foreign patients to come to Singapore for medical attention.

<table>
<thead>
<tr>
<th>Services staff attitudes</th>
<th>Measuring customer satisfaction</th>
<th>Customer loyalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer expectation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Developed by the researcher
A positive customer-perceived performance results in customer satisfaction and retention. It can be deduced that the success or failure of a business organisation depends on whether customers are satisfied or not. In addition, the outcomes of this thesis show that customer satisfaction remains a key determinant for medical tourists choosing medical treatment abroad. The results from this research indicated that patients are unlikely to be satisfied with the quality of the specific medical services that they receive if the quality of the general services they receive is lacking.

This study aims to contribute new information for bridging the knowledge gap which can potentially find useful applications in the healthcare industry. A theoretical model is suggested to explain the factors influencing the choices medical tourists make when seeking medical treatment in Singapore. The researcher examined how these factors interplay in the choice process of medical patients and as predictors of customer satisfaction. The model presented in this thesis demonstrates how customer satisfaction is dependent on three factors: financial considerations, service quality, and medical facilities. This relationship is moderated by the environment factor, comprising culture, geographical location, and government support.

Chapter 3 discusses the research methodology used in this study.
CHAPTER 3
RESEARCH METHODOLOGY
3.1 INTRODUCTION

Chapter 2 presented a literature review and a conceptual framework, and included the four main research hypotheses. This chapter describes the research methodology and how critical it is for the development of a survey plan. It also discusses the research paradigm, the type of data, and the collection methods, their significance for the research findings, and their potential in further research (Miller 1983).

Based on the literature review, this chapter draws closer to the research objective to allow the researcher to prove the hypothesis that customer satisfaction is vital to any medical organisation. This chapter will (1) describe the research methodology used in this study, (2) explain the data sample, (3) describe the procedures used in designing the research instrument and data collection, and (4) provide an explanation of the statistical procedures used to analyse the data.

This chapter has 12 sections. The introduction in Section 3.1 is followed by the justification for the research paradigms, the mixed research methodology, and the process of the research methodology. Section 3.3 includes the research questions followed by Section 3.4 which describes the conceptual framework and the hypotheses. Section 3.5 elaborates the research design and key aspects of the reliability and validity measurement. Section 3.6 explains the questionnaire design, the development of the measurement scale, and the questionnaire items, and Section 3.7 describes the pilot test of the questionnaire. The reliability and the validity of the measurement scales are discussed in Section 3.8. The sampling design is discussed in Section 3.9, with Section 3.10 focusing on the methods of data analysis. Ethical considerations are elaborated on in Section 3.11, and finally, the conclusion in Section 3.12 closes the chapter.
Figure 3.1 Structure of Chapter 3

3.1 Introduction

3.2 Justification for the research paradigms

3.3 Research questions

3.4 Conceptual framework and hypothesis

3.5 Research design

3.6 Questionnaire design

3.7 Pilot test

3.8 Reliability and validity of measurement scales

3.9 Sampling design

3.10 Methods of data analysis

3.11 Ethical considerations

3.12 Conclusion

Source: Developed for this study
3.2 JUSTIFICATION FOR THE RESEARCH PARADIGMS

The term paradigm refers to the researcher’s philosophical beliefs about the nature of the world. It is this entire system of thinking that determines the methods and techniques used in research, and provides guidelines and principles that are used throughout an investigation (Neuman 2006). The choice of a research paradigm depends mainly on the philosophical belief of the researchers (ontology), the research problems that they encounter (epistemology), and the type of research design that they use (Denzin & Lincoln 2008). As a result, it is critical for researchers to understand their own philosophical beliefs before they carry out their research as this will help them clarify and identify the specific type of research design to be used.

3.2.1 Justifications for the mixed method research

The two central paradigms in social research are known as positivist and interpretive approaches (Veal 2006). These approaches divide the paradigms into different worldviews about reality: one approach is based on the objective view, and the other on the subjective view. The positivist paradigm suggests that reality is independent of the observer and is characterised by natural laws that take the form of ‘context-free generation’ (McMurray 2006). The interpretive paradigm suggests that reality is based on social interactions (McMurray 2006). This paradigm assumes that reality should be seen as different meanings drawn from people’s experiences.

Given this study’s research aims and objectives, a mixed research methodology was chosen to allow the researcher to clarify and cross-validate the findings and the efforts to plan, implement and evaluate intervention strategies. It also enabled the researcher to go deeper into the research and explore the research questions more critically (Neuman 2006). The goal for the researcher in using the mixed methods approach was to draw from the strengths and to minimise the weaknesses of the quantitative and qualitative research approaches. This would enable the researcher to use deductive and inductive analysis within the study. The mixed methods approach provided the researcher with the ability to design a single research study that tackled questions on both the complex nature of the
phenomenon from the participants’ point of view, and the relationship between the measurable variables (Brannen 2004).

Specific to this study, it is important to note that the mixed method applied here is an extension of, rather than a replacement for, the quantitative and qualitative approaches (Johnson & Onwuegbuzie 2004). The quantitative and qualitative research approaches will therefore continue to be useful and important in this research. As the research questions were designed to investigate correlations, a quantitative research methodology was used for several reasons. Firstly, there was a need to understand objectively the interactive effects on customer satisfaction of financial considerations, medical service quality, the support of government, and the environment. These factors exist, with no influence brought about by the researcher. Secondly, in the data collection process, the researcher acted as an independent observer and remained impartial when applying the statistical techniques and when conducting the analyses. Such behaviour made the findings objective. Lastly, a quantitative research methodology was used so that the outcome of this study would be based on research findings rather than on theory.

Overlaying the quantitative method, a qualitative research approach was used to gain depth to the research effort. According to Brannen (2005), the qualitative perspective offers a set of theoretical views which adapt to a specific range of conceptualised research issues. Open-ended questions were used to acquire the perspectives and feelings of the customers about their expectations and how they perceived the level of service quality in their medical treatment (Becker & Bryman 2004). More importantly, the qualitative method was appropriate because individual differences were to be explored and this offered the researcher a set of clear guidelines from which to build an explanatory framework that specified co-relationships between concepts and theory.

3.2.2 Measuring customer satisfaction

Beatson, Lings and Gudergan (2008) stated that measuring customer satisfaction is a relatively new concept for many companies as they have traditionally focused almost exclusively on financial data. Companies in the new global economy recognise that
measuring customer satisfaction is a very important strategy. A customer satisfaction measurement should take into account the following:

- A 5% increase in loyalty can increase profits by between 25% and 85%.
- A ‘very satisfied customer’ is nearly six times more likely to be loyal and to repurchase and/or recommend the product than a customer who is just ‘satisfied’.
- Only 4% of dissatisfied customers will complain.
- Dissatisfied customers eventually tell nine other people.
- Satisfied customers tell five other people about their good experience.

Following from this, the equation in Figure 3.2 was used to measure customer satisfaction.

**Figure 3.2 Formula for measuring customer satisfaction**

\[
\text{Customer satisfaction} = \text{Customer-perceived performance} - \text{Customer expectation}
\]

*Source: Zeithaml & Bitner 2003*

### 3.2.3 Research process

Research methods can either be inductive or deductive. Quantitative research is more concerned with the deductive testing of hypotheses and theories, while qualitative research explores a topic and generates a range of hypotheses and theories (Punch 2005).

A deductive approach typically starts with a hypothesis. The data for evaluating the hypothesis is collected later. In contrast, an inductive approach starts with an observation, and is followed by collecting and analysing the data, and then explaining the findings. This research has adopted a mixed research methodology.

Adapting the research process advocated by Sekaran (2000), this study begins with an observation, a literature review, the hypotheses, data collection, data analysis, and
deduction. It starts by observing the medical tourism industry in Singapore to determine the influence of service quality in selected hospitals visited by medical tourists. Significantly, the level of service quality adversely affects customer satisfaction and the choice of a hospital for treatment. The literature review revealed that customer satisfaction has a profound impact on consumer experience and can help retain customers by providing them with effective employee-customer contact, service delivery, and competitive pricing. A conceptual framework was then formulated for this research. The research design involved an exploratory study to test the four hypotheses. These hypotheses explored the relationship between customer satisfaction and service quality, financial considerations, medical facilities, and government support. A research design was chosen to guide the researcher in collecting and analysing the data with statistical methods.

### 3.3 RESEARCH QUESTIONS

The development of well-designed and concise research questions is the key to a successful research project (Smyth 2004). A research question is essentially ‘a hypothesis asked in the form of a question’ (Rogers 2003, p. 25), and proposes the nature of the relationship between two or more variables. A well-researched and well-thought-out question helps the researcher keep the research objectives in mind and ensure that the collected data is useful for analysis. A well-constructed research question determines what, where, when, and how the data is collected, and links the theoretical and practical components of the research plan.

A three-step approach is necessary to compose an effective research question (Lipowski 2008). These steps are: (1) ask interesting questions, (2) select the best question for research, and (3) transform the research question into a testable hypothesis. Accordingly, the aim of this study was to examine the determinants that influence customer satisfaction in seeking medical treatment in Singapore. In pursuit of this objective, the study investigated and measured the factors that influence patients from other countries selecting Singapore as their preferred destination for medical treatment.
What is the relationship between service quality and customer satisfaction within the medical tourism industry, and how much does service quality influence medical tourists when they select a hospital in Singapore?

• What are the financial considerations that affect customer perception and satisfaction when they seek medical treatment in Singapore?

• What is the relationship between hospital medical facilities and customer satisfaction in the medical tourism industry, with the emphasis on the state of technological advancement and the availability of specialised equipment to diagnose illnesses?

• What is the impact of culture, geographical location and host government support on customer satisfaction for those who seek medical treatment in Singapore?

3.4 CONCEPTUAL FRAMEWORK AND HYPOTHESES

3.4.1 Research model

Figure 3.3 Conceptual framework displays a graphical representation of the conceptual model, showing the key factors and the presumed relationships to be studied (Miles & Huberman 1994). The research model suggests that factors of cost, service quality, and medical facilities have a direct and positive relationship with customer satisfaction, and are moderated by culture, geographical location, and host government support. High customer satisfaction can lead to an increase in customer loyalty and customer retention, which represents a critical factor for business profitability in the medical tourism due to its marketing and operational implications and outcomes.
3.4.2 Hypotheses

Hypotheses are ‘declarative statements that predict the relationship between two or more variables based on statistical considerations’ (Clark, Lotto & Astuto 1994). There are four hypotheses in this research. They were developed with the research questions to capture the key independent variables such as financial considerations, service quality and medical facilities, and dependent variables such as customer satisfaction, and the moderating variable, the Singaporean environment. The details of the hypotheses to be tested are listed below.

**Hypothesis 1:** The medical tourists’ financial considerations have a direct positive correlation with their level of satisfaction.
H1a. The presence of a cost factor is highly associated with customer satisfaction.
H1b. Favourable foreign exchange rates positively impact on customer satisfaction.

**Hypothesis 2:** The level of service quality in the healthcare organisation has a direct positive correlation with the level of the medical tourists’ satisfaction.

H2a. Professionalism has a positive impact on customer satisfaction.
H2b. Prompt service has a positive impact on customer satisfaction.
H2c. Performance has a positive impact on customer expectations.

**Hypothesis 3:** The state of medical facilities is positively correlated with the medical tourists’ satisfaction.

H3a. The presence of advanced medical facilities is highly associated with customer satisfaction
H3b. Advanced medical technology has a positive impact on customer satisfaction.

**Hypothesis 4:** The environment in Singapore, as a moderating variable comprising government support, location and culture, enhances the impact on the medical tourists’ satisfaction.

H4a. Singapore’s multi-culture has a positive impact on customer satisfaction.
H4b. Singapore’s geographical position has a positive impact on customer satisfaction.
H4c. Singapore’s government is an important factor and has a positive impact on customer satisfaction.

### 3.5 RESEARCH DESIGN

The research design offered a guideline and framework for the researcher. The selection of the research design primarily depended on the nature of the research, its objectives, the research questions, and the hypotheses developed (Bryman 2010). It entailed a series of
rational decision-making choices about the research procedures the researcher adopted for answering the research questions (Sheikh 2011). Designing the research is a critical step to ensure that the collected information is the right information for solving the research problems (Bryman & Bell 2011). This research did not use experimental and exploratory research because they were not deemed suitable for this research modelling.

3.5.1 Exploratory research

Since the early 1980s, there has been a dramatic increase of interest in the service sector as academics and practitioners have identified a fundamental shift towards services in advanced economies (Oliver, Rust & Varki 1997). Moreover, exploratory research is sufficient to satisfy both academic and personal interest in the topic (Bryman & Bell 2011). Academics have shown that the service sector has grown to become one of the largest and most important sectors in many countries with advanced economies (Korczynski 2002; Lovelock & Wirtz 2002; Sun, Aryee & Law 2007), and has continued to perform an increasingly important role in the economies of developing countries (Kosonboon 2006; Bitner & Brown 2008). At present, aiming for service excellence is acknowledged to be an essential strategy and an important factor in the success of any business or organisation in both the public and the private sectors (Singh & Gaur 2009). The exploratory research approach starts with a broad focus and narrows its focus to the point where knowledge is gained at a very detailed level. The purpose of this type of research is to find new insights and to examine the phenomena in a new light. Saunders, Lewis and Thornhill (2007) suggested that exploratory research is helpful in understanding and clarifying a problem. Yin (2009, p. 30) stated that an analytical strategy is helpful in a research study since ‘it uses evidence to create a convincing analytical conclusion’.

3.5.2 Experimental research

*Experimental research*, also known as empirical or cause and effect research, is data-based research with a conclusion that can be verified by observation or experiment (Kumar 2011). This kind of research is appropriate when proof is sought for certain variables affecting other variables in some way (Wilson 2006). The experimenter controls
the variables under study and alters one of the variables to study how it affects the other variables. As mentioned by Kothari (2004), evidence gathered through experimental or empirical studies is considered to be the most powerful support possible for a given hypothesis.

### 3.5.3 Descriptive research

According to Saunders, Lewis and Thornhill (2007), a descriptive research approach is beneficial when the researcher does not have answers to the research questions, and is going to carry out research to find those answers. Descriptive studies often represent the first scientific ‘toe in the water’ in new areas of an inquiry. A fundamental element of descriptive reporting is a clear, specific, and measurable definition of the disease or condition in question (Francesco 2007). For example, in newspaper reporting, good descriptive reporting answers the five basic ‘W’ questions of Who, What, Why, When, Where and How. Answers to these questions are always clear and specific. Arturo and Ferric (2008) state that descriptive observations play a vital role in scientific progress, particularly during early explorations which have been made possible by technological breakthroughs. Moreover, a descriptive approach to research can uncover novel phenomena or give rise to novel hypotheses which in turn can be examined by hypothesis-driven research (Grimes & Schulz 2002).

This research used a descriptive research methodology. A survey was administered to select a sample of medical tourists. The term survey is commonly applied to a research methodology which is designed to collect data from a specific population. There are distinct advantages of using a questionnaire survey methodology. Recommended by Kothari (2004), questionnaires are easy to administer, are not expensive, and they allow the participants’ confidentiality to be assured compared with personal interviews.

### 3.6 QUESTIONNAIRE DESIGN

A questionnaire consists of a set of questions presented to a respondent for answers. Respondents read the questions, interpret what is expected of them, and then write down
the answers themselves, Questionnaires are the most common method used for asking simple questions associated with a complex process (Oschman, Stroh & Auriacombe 2006). A good questionnaire is one that is short, simple, accurate and easy to understand. The opinions of respondents can be obtained in a structured manner, making quantification of the information possible. It is also important that questionnaires are pilot-tested before the main survey is carried out (Napaporn 2006). The questionnaire methodology was selected for this study as an instrument for data collection.

3.6.1 Measurement instruments using the Likert scale

The Likert scale was used in this research. The Likert scale is a non-comparative scaling technique and is one-dimensional in nature. Respondents are asked to indicate their level of agreement with a given statement by way of an ordinal scale. The 5-point scale from ‘Strongly disagree’ to ‘Strongly agree’ was used so that the questions could be answered by many respondents within the same categories. The other advantages of scale points suggested by Punch (2005) are that the scale does not take up much space on the page, it is simple for respondents to complete, and easy for researchers to code and analyse. Table 3.1 displays a representation of the Likert Scale.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Likert Scale

3.6.2 Survey questionnaire

For the purpose of this research, 30 questions were developed to measure the independent variables (financial considerations, service quality, and medical facilities), independent variable (customer satisfaction) and moderating variable (environment, KANO and ECT). It is important to understand the effects of the costs factor on customers decision to ops for medical treatment abroad. To attract foreign patients, healthcare providers need to
provide medical care at competitive rates. Given that the key driver for going abroad for medical treatment is usually economic, the potential for saving on medical expenses is clearly significant for medical tourists. In addition, tourists regard favourable exchange rates as one of the economic factors when planning going abroad for medical treatment, particularly to a country with a lower exchange rate. A total of five questions were developed to measure financial considerations. The questions focused on determining how the respondents viewed Singapore as a medical hub from the cost and pricing perspective, the consideration of the foreign exchange rate, pricing of hospital and service quality and the impact of medical cost on the number of medical tourists.

In the measurement of service quality, it is necessary to understand how the respondents perceived the level of service quality and the standard of professionalism among the medical practitioners. Patient satisfaction depends mainly on three issues of the healthcare quality system: the quality of the healthcare service, the quality of the healthcare service providers, and the quality of the healthcare organisations. In addition, although medical tourists seek highly trained doctors and surgeons, their need for qualified nurses, clinicians, and other healthcare professionals is just as important. A total of five questions were developed to measure service quality. The questions focused at seeking how the respondents rate Singapore as a medical hub in Asia, the standard of professionalism among the medical practitioners and waiting time in the hospitals.

Medical facilities in healthcare organisations have a profound influence on customers’ choice of facility and the level of customer satisfaction. The hospitals and medical centres in Singapore have capitalised on the country’s advanced technology infrastructure and the supporting industry that supplies sophisticated equipment and facilities. An advanced state of medical facilities offers confidence and attracts the medical tourists to Singapore. A total of four questions were developed to measure the medical facilities in Singapore. The measurement scales to measure service quality focused at seeking how the respondents viewed Singapore with the latest medical technology and facilities, and their perspective on the importance of medical facilities in healthcare services.
In the healthcare sector, customer satisfaction remains an important issue as it is in other service sectors (Shabbir, Kaufmann & Shehzad 2010). Healthcare organisations can achieve patient satisfaction by delivering quality services, keeping in view patients’ expectations, and continuously improving the healthcare services they offer. Cook (2008) explained that, unless perceived expectations are met with actual performance, customers will have an indifferent or neutral reaction to the service. A total of five questions were developed to measure customer satisfaction. The measurement scales to measure this construct focused at understanding the relationship of good service quality and customer satisfaction, repurchase practice, and their level of satisfaction with Singapore’s healthcare services.

The environment factor comprises government support, location, and culture. The government of Singapore continues to promote medical tourism by investing large sums of money in medical healthcare services and easing the accessibility through the advances of air travel such as providing extended visa periods. As social and cultural factors influence businesses, it is important to measure the influence of culture on customer satisfaction. Travelling time and the cost impact the medical tourist’s decision on the selection of destination for healthcare services. A total of five questions were developed to measure the environment construct. The measurement scales to measure this construct focused at understanding the perception of the respondents on the effectiveness of the Singapore government’s support in healthcare services, the multi-culture benefits and the geo-strategic location of Singapore as an attractive destination for medical tourists.

As mentioned earlier in Section 2.5.2 (Chapter 2), the KANO model is a customer satisfaction model that can be used to measure client happiness. It indicates how effective service providers are at meeting customer expectations with Critical To Quality (CTQ) characteristics. The Kano model identifies three main categories, namely, ‘Must Be’ (i.e. the characteristic must always be present or the customer will go somewhere else. In other words, this is the minimum quality required to attract the customer), ‘Performance’ (i.e. the better we are at meeting customers’ needs, the more satisfied they will be. Companies therefore strive to perform at as high a level as possible) and ‘Delight’ (i.e. qualities which
are beyond the customers’ expectations are perceived as a bonus, and consequently satisfy them. A total of three questions were developed to primarily measure the importance of service quality in the healthcare services in Singapore and the relationship between the level of services received and the impact on customer satisfaction.

In the ECT model (refer to section 2.5.1, chapter 2), there are four elements, namely, expectations, perceived performance, confirmation, and satisfaction. Positive confirmation leads to satisfaction, while negative confirmation leads to dissatisfaction. When customers start a relationship with the healthcare organisation, they will have a specific set of expectations. These expectations are based on their perceptions of the service personnel, the company, and the organisation. If the perceived performance exceeds expectations, customers will be satisfied. However, if the perceived performance is less than expected, customers will be dissatisfied. A total of four questions were developed to primarily measure the customer’s expectations prior to seeking Singapore for medical treatment and the level of satisfaction on the healthcare service standards received in Singapore.

For the purpose of this research, 30 questions were developed to gain feedback from the respondents on the independent variables: financial considerations, service quality, and medical facilities. The Pilot Questionnaires Survey form is found in Appendix 2. Table 3.2 displays the questionnaire design and focus areas.
Table 3.2 Questionnaire design

<table>
<thead>
<tr>
<th>Area of focus</th>
<th>No of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
</tr>
<tr>
<td>Financial considerations</td>
<td>5</td>
</tr>
<tr>
<td>Service quality</td>
<td>5</td>
</tr>
<tr>
<td>Medical facilities</td>
<td>4</td>
</tr>
<tr>
<td><strong>Moderating variables</strong></td>
<td></td>
</tr>
<tr>
<td>Culture, geographical location and host government support</td>
<td>4</td>
</tr>
<tr>
<td><strong>Main literature</strong></td>
<td></td>
</tr>
<tr>
<td>Kano model</td>
<td>3</td>
</tr>
<tr>
<td>Expectation Confirmation Theory (ECT)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Dependent variable</strong></td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

The questionnaires consisted of two parts. The first part contained the socio-demographic characteristics of the selected sample of respondents. A checklist was used to measure the socio-demographic variables, which included gender, age, nationality, marital status, education, occupation, purpose of the trip, and length of stay. The aim of this part was to gain a better understanding of the samples and to explore the correlation with other variables.

The second part comprised questions about service quality and the customers’ satisfaction with respect to their perceptions and expectations, the environment, medical facilities, and financial considerations, and the Kano model and ECT model. The respondents were asked to circle the choice on the Likert scale that best described their perceptions and views.

3.6.3 Ranking questionnaires

Ranking questionnaires allowed respondents to choose from various options and enables the researcher to enter data automatically. There are three ranking questions which survey
the services of doctors, nurses, counter staff, hospital services, and hospital facilities. Refer to the Pilot Questionnaires Survey Form in Appendix 2

### 3.6.4 Open-ended questions

Open-ended questions allowed respondents to answer in their own words. The questionnaire did not contain boxes for the respondents to tick but instead left blank sections for them to express their opinions. This methodology provided a free response and it aims to determine what is on respondents’ minds (Brace 2004). Open-ended questions are suitable to use when the researcher wants to find out more about the respondents’ attitudes or feelings, likes and dislikes, opinions and recommendations. For this research survey, there were six open-ended questions. The questions were kept short and simple for the convenience of the respondents.

### 3.6.5 Secondary data

*Secondary data* is data that is gathered and recorded by someone else prior to the later needs of the researcher. Secondary data is usually historical and does not require access to the respondents or the subjects (Zikmund 2003). This research included all related published studies in addition to articles from books, journals, magazines, and website postings.

### 3.7 PILOT TEST

A pilot study is an important step for testing the draft of the questionnaire prior to conducting the main study. Zikmund (2003) emphasised that a pilot study is a guide for the main study and provides opportunities for refining the practical techniques rather than clarifying a theoretical framework. A pilot test is a small-scale preliminary study conducted to determine an appropriate sample size and to improve on the study design before the full-scale research project. According to Iraossi (2006), the three basic goals of a pilot test are: (1) to evaluate the competency of the questionnaire, (2) to estimate the length of the survey or the time to take the survey, and (3) to determine the quality of the surveyor.
Prior to conducting the pilot study for this research, the questionnaires were reviewed by colleagues who work in the medical tourism hotel industry. Gorard (2003) stressed that the quality of a survey can be assured through a questionnaire review from experts and friends. In the pilot study, the respondents were medical tourists visiting Singapore for medical treatment. The questionnaires were distributed by hand to the participants. Fifty participants completed the surveys voluntarily during the time they were waiting to see doctors. The pilot test survey results were acceptable, and the participants completed the surveys without any difficulty. On average, the respondents took 10 to 15 minutes to complete the survey, a time which was expected in the plan.

Principle component analysis (PCA) and validity and reliability tests were used to test the accuracy of the variables and the consistency of the data. Validity criteria included item-total correlations, while the reliability test used Cronbach’s Alpha values. The results of the pilot survey in Table 3.3 indicate that one item (item 4) was deleted from the service quality variable. The deleted item was not used in the main survey, but the remaining items were retained. Overall, the results of the pilot test were acceptable for the main survey.

<table>
<thead>
<tr>
<th>Composite variable</th>
<th>No of items in pilot test</th>
<th>Rationale for deleted items</th>
<th>Number of items used for main survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial considerations</td>
<td>5</td>
<td>No deleted items.</td>
<td>5</td>
</tr>
<tr>
<td>Service quality</td>
<td>5</td>
<td>No deleted items.</td>
<td>5</td>
</tr>
<tr>
<td>Medical facilities</td>
<td>4</td>
<td>No deleted items.</td>
<td>4</td>
</tr>
<tr>
<td>Environment Factors</td>
<td>4</td>
<td>No deleted items.</td>
<td>4</td>
</tr>
</tbody>
</table>
Cronbach’s Alpha was used to evaluate the reliability of the various dimensions. Hair et al. (1998) stress that a Cronbach Alpha value above 0.70 represents ‘acceptable’ reliability; above 0.80 is ‘good’, and a value above 0.90 indicates ‘excellent’ reliability. In the findings from the pilot test, Cronbach’s Alpha for the financial consideration was high, with a value of 0.839 for all five questions. Service quality was acceptable, with a value of 0.751 for its five questions, and the value for the medical facilities was 0.811, meeting the criteria for good reliability. The government support dimension scored an acceptable value of 0.766 for its four questions. The environment dimension had an acceptable Cronbach’s Alpha value of 0.712, and the Kano model and the ECT scored an average of 0.700 and 0.704 respectively. Finally, the customer satisfaction dimension received an acceptable Cronbach’s Alpha value of 0.751 for its five questions. Table 3.4 Cronbach’s Alpha for various dimensions summarises the results of the reliability test.

Table 3.4 Cronbach’s Alpha for various dimensions

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Cronbach’s Alpha</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial considerations</td>
<td>0.839</td>
<td>A Cronbach Alpha value of more than 0.70 is considered</td>
</tr>
<tr>
<td>Service quality</td>
<td>0.756</td>
<td></td>
</tr>
<tr>
<td>Medical facilities</td>
<td>0.811</td>
<td></td>
</tr>
<tr>
<td>Constructs</td>
<td>Cronbach’s Alpha</td>
<td>Criteria</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>Environment</td>
<td>0.712</td>
<td>acceptable for social research (Hair et al. 1998).</td>
</tr>
<tr>
<td>Culture, geographical location, and host government</td>
<td>0.700</td>
<td></td>
</tr>
<tr>
<td>Kano model</td>
<td>0.732</td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>0.754</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Developed by the researcher

The correlation ($r$) between the studied variables are shown in Table 3.5 Correlations among variables. As presented, there are significant correlations between the variables. The strongest correlation was between government support and environment ($r = 0.674$), and the weakest was between customers and financial considerations ($r = 0.373$).

**Table 3.5 Correlations among variables**

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Financial</th>
<th>Quality</th>
<th>Government</th>
<th>Environment</th>
<th>Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial financial</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>.526**</td>
<td>.527**</td>
<td>.653**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.07</td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>49</td>
<td>50</td>
</tr>
<tr>
<td>Quality-quality</td>
<td>Pearson Correlation</td>
<td>.526**</td>
<td>1</td>
<td>.542**</td>
<td>.527**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>49</td>
<td>50</td>
</tr>
<tr>
<td>Government government</td>
<td>Pearson Correlation</td>
<td>.527**</td>
<td>.542**</td>
<td>1</td>
<td>.674**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>49</td>
<td>50</td>
</tr>
<tr>
<td>Environment environment</td>
<td>Pearson Correlation</td>
<td>.653**</td>
<td>.527**</td>
<td>.674**</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>N</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>Customer customer</td>
<td>Pearson Correlation</td>
<td>.374**</td>
<td>.632**</td>
<td>.521**</td>
<td>.537**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.007</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>49</td>
<td>50</td>
</tr>
</tbody>
</table>

**.** Correlation is significant at the 0.01 level (2-tailed).

**Source:** Developed by the researcher
Correlations can define the relationship between variables. They are used to understand whether the relationship is positive or negative and the strength of relationship. Statistical correlation is measured by what is called the coefficient of correlation \((r)\). Its numerical value ranges from \(+1.0\) to \(-1.0\), giving us an indication of the strength of relationship.

In general, \(r > 0\) indicates a positive relationship, \(r < 0\) indicates a negative relationship, while \(r = 0\) indicates no relationship (or that the variables are independent and not related). Here \(r = +1.0\) describes a perfect positive correlation and \(r = -1.0\) describes a perfect negative correlation. The main result of a correlation is called the correlation coefficient \((r)\). It ranges from \(-1.0\) to \(+1.0\). The closer \(r\) is to \(+1\) or \(-1\), the closer the two variables are related. A correlation report can also show a second result of each test— the statistical significance. In this case, the significance level will indicate how likely it is that the correlations reported may be due to chance in the form of a random sampling error.

### 3.8 RELIABILITY AND VALIDITY OF THE MEASUREMENT SCALES

In quantitative research, the value of the research is measured, using statistics, by the reliability and validity of the information. This approach ensures that the developed instrument accurately measures the variables, and is mapping the concepts that the research has been designed to investigate (Cavana, Delahaye & Sekaran 2001). This is important for the quality of the research as instruments may be imperfectly designed or may measure the variables incorrectly.

#### 3.8.1 Reliability

The difference between the pilot survey and the main study survey indicated a change in the Cronbach’s alpha values. This is because the number of samples for the pilot survey was limited (50) compared to the main study (330). In other words, the larger the acquired samples, the greater the accuracy of the research model.

Reliability represents the concept of consistency. This includes both consistency over time and internal consistency (Punch 2005). Consistency over time refers to the extent to which
a scale produces consistent results if repeated measurements are made. *Internal consistency* is a dominant method for assessing reliability and comprises split-half reliability and inter-item consistency reliability (Cronbach’s Alpha). Cronbach’s Alpha is a useful index of the internal consistency of the items as it has a tendency to indicate the stability of scores in a test-retest approach.

Consistency is the ‘hallmark of reliability’ (Sekaran 2000, p. 112). The reliability of a measuring instrument can also be assessed by computing its internal consistency coefficient. This calculates the strength of the correlation between each of the items making up a particular scale and the summed score of the scale. In this research, a summary score was calculated using Cronbach’s Alpha for the Likert-type scales. To enhance the reliability of the data, a pre-test questionnaire was conducted as a pilot run for the main research.

### 3.8.2 Internal and external validity

*Validity* is an indication of how effective a design is for measuring the data that will be used to address the research questions. Zikmund (2000, p. 87) defined validity as ‘the ability of a scale or an instrument to measure what is intended to be measured’. The validity of information, the extent to which it accurately reflects what it is meant to reflect, is a constant source of concern. In order to show the validity of a particular research study a number of validity issues need to be investigated.

#### 3.8.2.1 Internal validity

*Internal validity* refers to the validity of the findings of a particular study. It is a measure of the extent to which the hypothesis is supported by the available evidence (Salkind 2000). In quantitative studies, internal validity refers to the study’s ability to determine cause and effect, and is a confirmation of the accuracy of the study. Adapted from Zikmund (2003), internal validity can be assured in both quantitative and qualitative studies by running a pilot test of the proposed survey instrument to make sure that it is clear and unambiguous. Pilot-testing instruments is a procedure that helps the researcher modify and refine the instruments.
3.8.2.2 External Validity

*External validity* refers to the capacity of generalising the findings from similar situations and contexts. It is the extent to which the results of the study can be shown to be similar to outcomes elsewhere, and can be generalised to other populations or situations (Zikmund 2000). Regardless of whether a self-designed or a validated instrument is used to collect data, or whether it is a quantitative or qualitative study, the validity of the instrument must be stated. How the study is conducted and reported depends on the validity and reliability of the data and should align with the theoretical framework in Chapter 2. Triangulation of the results adds to the validity of the findings and to the methodology by examining the results from several perspectives (Curwin & Slater 2002).

3.9 SAMPLING DESIGN

The process of *sampling* involves using a small sample from a population to draw conclusions about the whole population (Zikmund 2003). Sampling is the technique of selecting a suitable sample size, or a representative part of a population, which characterises the whole population (Fridah 2000). In essence, it represents the process of choosing the individual units of the target population which are to be included in the study. Zikmund (2000, p. 72) stated that a sample is part of a larger population, and its purpose is to ‘enable researchers to estimate some unknown characteristic of that population’.

Researcher obtained written permission from the General Manager of the Raffles Hospital, and from the Chief Executive Officer of the Singapore Medical Group (SMG) to conduct a questionnaire survey on their foreign patients (Appendix 4 and 5). In order to achieve a representative sample, the surveys were conducted three times a week, with two survey sessions performed on weekdays and one on weekends.

Raffles Hospital is a general hospital and a leading private healthcare provider in Singapore and South East Asia. It is fast gaining a reputation as a destination of choice among international patients. At present, 35% of Raffles Hospital’s patients are
foreigners, and comprise nationals from more than 100 countries. Patients from core markets such as Vietnam, Indonesia, and Malaysia have increased and the hospital has also seen the emergence of new markets like Bangladesh, Myanmar, South Korea, the Indian subcontinent, and the Russian Far East (Raffles Hospital 2014).

Singapore Medical Group (SMG) is a private specialist healthcare provider with a network of 22 specialties and links to almost all hospitals in Singapore. It has a Patient Assistance Centre that operates a 24-hour hotline and offers a one-stop concierge service to facilitate local and international patients. It also offers fuss-free access to medical specialist expertise in SMG’s core specialties and its associated network in Singapore (Singapore Medical Group 2014).

In conclusion, SMG is linked to almost all hospitals in Singapore, and together with Raffles Hospital, is a leading private healthcare provider. This means that the participants (foreign patients) in this survey are drawn from all of the private hospitals in Singapore, making them a reliable and representative sample of Singapore’s medical tourism industry. In short, between them, SMG and Raffles Hospital represent the complete patient sample so it can be safely concluded that the survey amply covers the entire healthcare industry in Singapore. The weaknesses in this sampling method will be covered in the limitations.

3.9.1 Target population

The first step of sampling is to identify the target population; the complete group of specific population elements that is relevant to the research project (Zikmund & Babin 2007). Specifying the target population is a crucial part of the sampling plan. The Singapore government set out to attract 1 million medical tourists, and the Singapore Tourism Board claims that in 2012 there were 850,000 foreign patients – an annual growth of 15%. In addition, the Singapore Tourism Board acknowledged that medical tourism started to pick up in late 2011 and increased in 2012 (Singapore Tourism Board 2012). The population of this study comprised international patients seeking medical
treatment in Singapore, with some patients visiting Singapore just once, and others making multiple visits.

3.9.2 Sample size

Sampling involves identifying survey targets. In general, large samples are more accurate than small samples, but, with proper sampling methods, a small proportion of the total population can still provide a reliable estimate of the whole population (Zikmund & Babin 2007).

In quantitative research, the desirable sample size is determined by the expected variation of the data. According to Hudelson (1994), the more varied the data is, the larger the sample size that is needed to reach the same level of accuracy. For this descriptive study, the sample size should be small enough to allow for the intensive study methods being used, and the researcher should aim for a sample size of at least 300. In addition, according to general statistical guidelines and to help decide on the sample size, Cavana, Delahaye and Sekaran (2001) suggested that the sample size for most research should be greater than 30 and less than 500. This study applied the simple random sample method. Moore and McCabe (2004) defined a simple random sample of size $n$ which consists of $n$ individuals from the population chosen in such a way that every set of $n$ individuals has an equal chance of being the sample actually selected.

The aim of the qualitative method used in this study was to support the results of the quantitative analysis (Salter & Mason 2007). The validity, meaningfulness, and the insights generated from such a study have a great deal to do with the information collected (Hudelson 1994). This study collected data using a face-to-face survey, with participants answering the open questions in writing. A total of 330 respondents participated in the face-to-face survey. For the quantitative research survey, 33 questions were generated. As part of the qualitative method, and to gain depth to the research questions, six open-ended questions were designed. The sample size of 330 medical tourists is considered appropriate given that the population of Singapore’s medical tourism industry stands at 200,000 (Singapore Medical Tourism 2011).
3.9.3 Probability and non-probability sampling

Sampling can be categorised as probability or non-probability sampling. *Probability sampling* is a random sampling method that uses strict probability rules in the selection process. It relates to the concept of random selection in which all elements in the population have an equal opportunity of being selected. Probability sampling encompasses simple random sampling, systematic sampling, stratified sampling, and cluster sampling. Recommended by Cavana, Delahaye and Sekaran (2001), this technique seeks to represent the importance of generalisability in quantitative research.

*Non-probability sampling*, by way of contrast, is less strict than probability sampling. It involves non-random selection of the elements in the population, and encompasses purposive sampling, quota sampling, convenience sampling, and snowball sampling. This technique has the advantage of collecting the information quickly, but generalisations about the population cannot be made with confidence.

The simple random sampling method was adopted for this study. This allowed the researcher to acquire samples from the medical tourism industry population and have the confidence that the sample would efficiently and accurately reflect the population on the basis of the required criteria. As an added advantage, this sampling method required minimum knowledge of the population and is free of possible classification errors.

3.9.4 Survey section

The survey was conducted using a questionnaire survey, undertaken from June 2011 to December 2011. The respondents were randomly selected. A first round of 350 sets of questionnaires were given to medical tourists who were seeking medical treatment in Singapore. The overall response collected was 270 sets of valid questionnaires. Another 100 sets of questionnaires were given out subsequently, 60 of which were valid. Therefore, a total of 450 sets of questionnaires were given to 450 medical tourists who were seeking medical treatment in Singapore. The researcher received back 330 valid responses.
Most of the participants understood English, and this was one reason why they came to Singapore to seek medical attention. If English was not understood, a reliable translator was on hand to render assistance. Most of the time the participants took the survey after their treatment. Records show that, out of 330 participants, 160 (48.5%) had visited Singapore more than three times, compared to 32 participants (9.7%) who were visiting Singapore for the first time.

3.10 METHODS OF DATA ANALYSIS

Data analysis is a process that interprets results and is based on the research design and the research variables. It is an analytical plan that draws conclusions from the collected data and provides answers to the research questions. Data analysis has several stages to guide the researcher in achieving the research goal, including selecting the appropriate analytical software, conducting pre-analytical tests, identifying specific statistical techniques, and presenting the findings (Creswell 2007).

For this research, all valid collected data was coded, computed, and analysed using the Statistical Package for Social Sciences (SPSS). Statistical analyses such as frequency, descriptive analysis, factor analysis, reliability test, correlation analysis, analysis of variance (ANOVA), hierarchical regression and multiple regression were used. Reliability and validity tests were carried out on the data using Cronbach’s Alpha test and correlation analysis. As part of the analysis process, journal articles on medical tourism, the Singapore’s Ministry of Health (MOH) website (online articles and publications) and books were used to compare and contrast the current research findings and verify the research hypotheses. In this study, factors were retained only if they obtained an eigenvalue greater than or equal to 1.0, and a factor loading greater than 0.4.

To test the hypotheses, multiple linear regression was used to describe a linear relationship between a few independent variables and the dependent variables, and to measure the strength of association (the linear relationship) between consumer satisfaction and constraints such as financial considerations, service quality, and the facilities
provided. Multiple regression was used to examine medical tourists’ overall level of satisfaction with the medical services, doctors, nurses, service staff and medical facilities. The dependent variable was regressed against each of the factor scores of the independent variables derived from the factor analysis. The analysis of variance (ANOVA) method was used to identify the differences in the overall satisfaction of medical tourists in terms of their expectations and their perception of service quality.

The details of the data analyses and the outcomes are described in Chapter 4 Data Analysis and Results.

3.11 ETHICAL CONSIDERATIONS

Ethical considerations of research address the protection of participants and the ways of reducing or eliminating the possibility of harm, anxiety, discomfort, or trauma to them (Coup & Schneider 2007). Some authors assert that there are ethical implications at each stage of the research process, from the choice of the research topic, to the selection of a design, and to the final publication of the findings. It is ultimately the responsibility of researchers to protect their participants and to conduct all research in an ethical manner (Dempsey & Dempsey 2000).

The researcher obtained written permission from the General Manager of the Raffles Hospital and from the Chief Executive Officer of the Singapore Medical Group to conduct a questionnaire survey on their foreign patients. See the consent form from the General Manager, Raffles Hospital in Appendix 4, and the consent form from the Chief Executive Officer, Singapore Medical Group in Appendix 5.

There are many ethical issues in participating in a research activity. Cooper and Schindler (2001, p. 58) state that ethics are made up of ‘norms or standards of behaviour that guide moral choices about our behaviour and our relationship with others’. The goal of ethics in research is to ensure that no one is harmed or suffers from adverse consequences due to the research activities. In every discipline, it is considered unethical to collect information without the knowledge of the participant, without their expressed willingness to
participate, and without their informed consent. See the Ethics Approval Letter in Appendix 6, and the Ethics Renewal Letter in Appendix 7. These are approval letters from the Southern Cross University Human Research Ethics Committee (HREC).

Prior to their agreement to participate in the research, the participants were informed about the nature and the objectives of the study, the anonymity of their participation, the freedom to withdraw from the interview at any time, and the procedures to be followed. Participants were also informed that their confidentiality would be protected and that they had the right to withdraw from the research at any time. Informed consent forms were given to participants before they received the questionnaires. See the Consent form to participants in Appendix 2.

3.11.1 Autonomy

Participants were approached and informed about the purpose of the survey before they were given the questionnaire. See the Information Sheet in Appendix 1. The researcher developed a consent form for participants to sign before they engaged in this research. This form acknowledged the participants’ rights and informed them that they would be protected during the data collection process. See the Consent form to participants in Appendix 3. Hunn (2007) advised that consent forms should be clear, concise and easy to understand, with no jargon. Participants should be given clear, unambiguous information regarding the research, they should comprehend the information, and understand that they have the option to voluntarily consent or decline participation (Polit & Beck 2010). Creswell (2003) highlighted that the following information must be included in the consent form:

- The right to participate voluntarily and the right to withdraw at any time, so that the individual is not being coerced into participation.
- The purpose of the study, so that individuals can understand the nature of the research and its likely impact on them.
- The procedures of the study, so that individuals can reasonably anticipate what to expect in the research.
• The right to ask questions, to obtain a copy of the results, and to have their privacy respected.
• The benefits of the study that will accrue to the individual.
• Signatures of both the participant and the researcher agreeing to these provisions.

It is important that the consent should be voluntary and without pressure of any kind. The research should avoid being biased as that is deemed unethical. Bias is a deliberate attempt to conceal information discovered in the study, or to highlight data that is ‘disproportionate to its true existence’ (Seltzer 2005, p. 7).

3.11.2 Beneficence

Beneficence is a fundamental ethical principle of research. Researchers have a responsibility to minimise the harm to, and to maximise the benefits for, the participants (Polit & Beck 2010). During data collection, the researcher needs to be very careful about the sensitivities of the respondents. The questions they ask must be clear and frank, and must allow the respondents, without any influence, sufficient time to decide if they want to participate in the research (Seltzer & Margo 2001). Maintaining participant confidentiality and sharing information about a respondent with others for purposes other than research are both unethical (Kothari 2004). Moreover, any participant who wished to obtain the research report was informed that they could request a copy on the consent form. Refer to the Consent form to participants: Appendix 3.

3.11.3 Fidelity and non-maleficence

Ensuring fidelity and non-maleficence during the research involves building trust between the researcher and the participants. The research should not cause any physical or psychological harm to the participants (Parahoo 2006), and the researcher should always make the safety and well-being of participants a priority during the study. The researcher upheld this principle by ensuring that participants could withdraw from the study at any time, and that, if they withdrew, their information would not be used.
3.11.4 Confidentiality

Maintaining confidentiality is essential for safeguarding the participants’ identities and their responses from public disclosure (Dempsey & Dempsey 2000). The researcher assured all participants in this study that their confidentiality would be respected at all times. The researcher adhered to this understanding at all times.

3.12 CONCLUSION

A combined research method was adopted for this study. This was an appropriate approach for research that examined customer satisfaction in the medical tourism industry in Singapore. More importantly, this method enhanced the depth of the process for collecting the data and for analysing and presenting the findings. The proposed conceptual framework was used to test the relationships between cost factor, service quality, and medical facilities, and customer satisfaction. In addition, the relationships between other factors such as culture, geographical location and the support of the host government provided useful insights into marketing and operational issues for the medical tourism industry. The sampling plan provided guidance to the researcher for selecting the sample population and determining its size.

Questionnaires were designed and based on the theoretical framework discussed in Chapter 2. The aim was to ensure the quality of the research by asking relevant and clearly constructed questions. The Likert-type response scale was used in the questionnaires to rate respondents’ attitudes, beliefs, and opinions. Finally, ethical principles were applied to ensure that the participants were protected and that the research was conducted in an ethical manner.

Chapter 4 Data analysis and results provides an insight into the study’s data analysis and the subsequent findings following the data gathering exercise.
CHAPTER 4
DATA ANALYSIS AND RESULTS
4.1 INTRODUCTION

This chapter consists of eight sections (see Figure 4.1). Section 4.1 outlines the structure of the chapter. Section 4.2 presents the information regarding the respondents’ profile. Section 4.3 analyses and presents the results of the reliability test. Section 4.4 discusses the mean scores in this research, and Section 4.5 explains the testing of the research hypotheses. Section 4.6 presents the qualitative data analysis. Section 4.7 discusses measuring customer satisfaction, and Section 4.8 concludes this chapter.

**Figure 4.1 Structure of Chapter 4**

<table>
<thead>
<tr>
<th>4.1 Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2 Respondents’ profile</td>
</tr>
<tr>
<td>4.3 Reliability test</td>
</tr>
<tr>
<td>4.4 Mean score</td>
</tr>
<tr>
<td>4.5 Testing the hypotheses</td>
</tr>
<tr>
<td>4.6 Qualitative data analysis</td>
</tr>
<tr>
<td>4.7 Measuring customer satisfaction</td>
</tr>
<tr>
<td>4.8 Conclusion</td>
</tr>
</tbody>
</table>

*Source*: Developed by the researcher

This chapter starts with a section summarising the main elements of the previous chapter and outlining what is in this chapter. It does not discuss these findings in relation to the literature since that is the focus of the final chapter. Before conducting a factor analysis
using multiple linear regression, reliability analysis was conducted to establish the consistency and validity of the research questions.

Five steps were used to test the hypotheses.

**Figure 4.2 Five steps to test the hypotheses**

![Diagram of five steps: Step 0: Descriptive Statistics, Step 1: Reliability Analysis, Step 2: Factor Analysis, Step 3: Correlation Analysis, Step 4: Multiple Regression]

*Source:* Developed by the researcher

The analytical model was confined solely to presenting what was found in the data collected for the study. The data is presented in terms of its significance to the research questions, the research objectives, and the research hypotheses, all of which were presented in the earlier chapters. As with previous chapters, this introduction summarises what is set out in the current chapter and then prepares the reader for the next chapter.

The following conceptual framework describes the analytical model and the equation for determining customer satisfaction. The hypotheses were tested using the relevant statistical methodologies outlined in Figure 4.2.
Figure 4.3 Conceptual framework

Source: Developed by the researcher

Figure 4.4 Formula for measuring customer satisfaction

Customer satisfaction = Customer perceived performance – Customer expectation

Source: Zeithaml & Bitner 2003

4.2 RESPONDENTS’ PROFILE

In any survey or study, examination of the data is inevitable. Indeed, it is usually the main purpose of research studies. To discuss data analysis in a research study, it is important to
have a thorough understanding of the basic principles of the analysis such as frequency, percentage, mean value, and standard deviation. In exploratory data analysis, it is common to use a range of techniques appropriate to the level of measurement required. Therefore, descriptive statistics are an essential prerequisite for the more complex analytical procedures.

In this study, demographic analysis was used to analyse the data patterns. The demographic variables were the medical tourists’ gender, age group, income range and experience. Frequency count, valid percentage and bar charts were used to describe and to present the data. To describe categories of data in a graphical form, the researcher used standard bar charts. The bar charts and tables below show the frequency counts and percentages of the variables.

In this study, most of the participants were foreign patients. On several occasions, these respondents were accompanied by their family members or assigned guardians and these people go through the process with the respondents. Therefore, they were familiar with the medical procedures and often performed the paper work on behalf of the respondents.

### 4.2.1 Gender

For the gender factor, a total of 172 females (52.1%) and 158 males (47.9%) out of the 330 participants responded. This is an accurate proportion for the respondents as it reflects the 5:5 (female: male) ratio collected in this study.

**Table 4.1 Statistics of demographic profile – Gender**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>158</td>
<td>47.9</td>
</tr>
<tr>
<td>Female</td>
<td>172</td>
<td>52.1</td>
</tr>
<tr>
<td>Total</td>
<td>330</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: Developed by the researcher*
4.2.2 Age Category:

The respondents who ranged from 31-40 years old were the most responsive to the survey, with a 28.8% response rate (95 out of 330). This could be due to the fact that the respondents in this group are better educated compared to the respondents with lower education profile (i.e. respondents with secondary school and below education) and might be guardians or representatives of their parents. As this statement lacked clarity, the following explanation is offered:

Firstly, the people in this category are actually patients because at this age they are very concerned about their well-being. As a result, they chose Singapore to seek medical attention. Secondly, all participants in the survey were foreign patients. All of them (100%) were involved with the healthcare services and went through the process. They therefore knew the procedures and valued these services. Thirdly, the respondents had agreed to participate in the survey. Finally, the survey was carried out in hospitals. The respondents were in the hospital and were familiar with the operating environment.
For the age category variable, respondents in the range of 31-40 years old were the most progressive in this survey, with a 28.8% response rate (95 out of 330). This could be due to the fact that the respondents in this age group are better educated and might be guardians or representatives of their parents. In contrast, respondents aged 60 years old and above had the lowest response to this survey (9.7%).

Table 4.2 Statistics of demographic profile – Age group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30 years old</td>
<td>66</td>
<td>20.0</td>
</tr>
<tr>
<td>31-40 years old</td>
<td>95</td>
<td>28.8</td>
</tr>
<tr>
<td>41-50 years old</td>
<td>78</td>
<td>23.6</td>
</tr>
<tr>
<td>51-60 years old</td>
<td>59</td>
<td>17.9</td>
</tr>
<tr>
<td>60 years old and above</td>
<td>32</td>
<td>9.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>330</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

Figure 4.6 Respondent demographic profile – Age group

Source: Developed by the researcher
4.2.3 Annual income

The collected data showed 49 respondents with income levels above US$150,000 per annum (14.8%), compared with 25.2% respondents with income levels between US$100,000 and US$150,000 per annum. Respondents with income levels between US$50,000 and US$100,000 per annum accounted for 27.6% of the total sample. Finally, 50 out of the 330 respondents (15.2%) earned annual incomes under US$50,000. This is tailored for foreigners coming to Singapore for medical treatment. They have to be in a high-income category to be able to travel abroad to seek medical treatment.

Another finding in this study was that 57 of the respondents (17.3%) preferred not to mention their annual income. This is a high figure and represents about one in five patients who refused to share the level of their income earnings. From this finding, we concluded that many patients were still sensitive about their own privacy and personal information.

Table 4.3 Statistics of demographic profile – Annual income

<table>
<thead>
<tr>
<th>Annual income</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under US$50,000</td>
<td>50</td>
<td>15.2</td>
</tr>
<tr>
<td>US$50,000 - US$100,000</td>
<td>91</td>
<td>27.6</td>
</tr>
<tr>
<td>US$100,000 - US$150,000</td>
<td>83</td>
<td>25.2</td>
</tr>
<tr>
<td>Above US$150,000</td>
<td>49</td>
<td>14.8</td>
</tr>
<tr>
<td>Prefer not to mention</td>
<td>57</td>
<td>17.3</td>
</tr>
<tr>
<td>Total</td>
<td>330</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher
4.2.4 Visits to Singapore (Experience)

The table below shows the patients’ experience of visiting Singapore in the last five years. From these results, we found that most of the patients visited Singapore more than once in the last five years, meaning that they were familiar with the culture and the regulations of Singapore. Moreover, the results show the level of confidence the patients had in Singapore. From this finding, we were able to confirm the accuracy of the survey and, indirectly, reduce any human errors arising from personality characteristics, disagreement with government policy, political views etc.

The table below (Table 4.4) shows the patients’ experience of visiting Singapore in the last five years. From these results, we found that most of the patients visited Singapore more than once in the last five years, meaning that they were familiar with the culture and the regulations of Singapore. Table 4.4 also shows the frequency of visits by Vietnamese people to seek medical treatment in Singapore. It can be seen that the majority of the patients visited Singapore more than once in the last five years. Those with more than three visits accounted for 48.5%. It is permissible to conclude that the increase
in the frequency of visit indicates the level of confidence that the patients had being medically treated in Singapore. In addition, comprehensive ‘get-to-know’ seminars are conducted for prospective Vietnamese patients to help them to understand the local formalities of using medical services in Singapore.

Table 4.4 Statistics of demographic profile – Visits to Singapore

<table>
<thead>
<tr>
<th>Visits</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st visit</td>
<td>32</td>
<td>9.7</td>
</tr>
<tr>
<td>2nd visit</td>
<td>49</td>
<td>14.8</td>
</tr>
<tr>
<td>3rd visit</td>
<td>89</td>
<td>27.0</td>
</tr>
<tr>
<td>More than 3 visits</td>
<td>160</td>
<td>48.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>330</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

Figure 4.8 Respondent demographic profile – Visits to Singapore

Source: Developed by the researcher
4.2.5 Nationality

From the data collected for the patients’ nationalities, more than one-third of patients (35.5%) were from Vietnam. This is related to the absence of restrictions imposed by the Vietnamese government for Vietnamese seeking medical treatment abroad, the short distance between the two countries, and the fact that the standard of the medical industry in Vietnam is not as high as it is in Singapore.

Moreover, because the researcher is Vietnamese, it is convenient and easy for her to acquire the participants’ support in the survey. The bulk of the respondents were Vietnamese (33.5%). This was because the researcher is Vietnamese and had strong marketing linkages with the healthcare marketing agencies in Vietnam. It also facilitated communications between the respondents and the researcher. Explanations on the survey design and requirements were duly explained to the respondent. This approach enabled the respondent to fully understand their roles and responsibilities in the survey. The researcher was cognisant that respondents participating in the survey should be on a volunteer basis, regardless of their nationalities.

The second highest number of respondents were Indonesian, with 80 patients out of 330 (24.2%), followed by Malaysians with 41 out of 330 (12.4%). The next main nations to seek medical services were Myanmar (formerly Burma) and Cambodia, with 24 patients each (7.3%). The 44 patients from other nations accounted for 15% of the total.

<table>
<thead>
<tr>
<th>Nationality</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnamese</td>
<td>117</td>
<td>35.5</td>
</tr>
<tr>
<td>Indonesian</td>
<td>80</td>
<td>24.2</td>
</tr>
<tr>
<td>Malaysian</td>
<td>41</td>
<td>12.4</td>
</tr>
<tr>
<td>Burmese (from Myanmar)</td>
<td>24</td>
<td>7.3</td>
</tr>
<tr>
<td>Cambodian</td>
<td>24</td>
<td>7.3</td>
</tr>
<tr>
<td>British</td>
<td>8</td>
<td>2.4</td>
</tr>
<tr>
<td>Chinese</td>
<td>6</td>
<td>1.8</td>
</tr>
<tr>
<td>Russian</td>
<td>5</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Table 4.5 Statistics of demographic profile – Nationality
<table>
<thead>
<tr>
<th>Nationality</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>American</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td>Mongolian</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td>Philippino</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>Australian</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Indian</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Korean</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Taiwanese</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Japanese</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Portuguese</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Russian</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Thai</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>United Kingdom (UK)</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>330</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Source:** Developed by the researcher

**Figure 4.9: Respondent demographic profile – Nationality**

---

**Source:** Developed by the researcher
4.3 RELIABILITY TEST

Reliability is an indication of how consistent and how close multiple measurements of a variable are to each other (Hair et al. 2009). A consistency check, commonly expressed in terms of Cronbach’s Alpha (Cronbach 1951), was used in this study to test the consistency of the variables on a summated scale. This is referred to as ‘internal consistency’. Establishing internal consistency ensures that the individual items or indicators of the scale measure a similar construct and will thus be highly inter-correlated.

Cronbach’s Alpha method calculates the correlation between random samples of items from a large number of items. It is also appropriate for generating an index of equivalence. A large alpha value indicates that a large proportion of the variance in the test is attributable to general and group factors. A good reliability score (alpha) should exceed a threshold of 0.70, although a value of 0.60 is acceptable in exploratory research (Field 2005). As seen in Table 4.6, the alpha coefficient for each factor with four or five items was between 0.3 and 0.8. A factor with a Cronbach’s Alpha value of more than 0.6 has items with high internal consistency. A second-tier analysis was conducted on those factors with lower Cronbach’s Alpha values.

### Table 4.6 Reliability statistics

<table>
<thead>
<tr>
<th>Factors</th>
<th>Cronbach’s Alpha</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial considerations</td>
<td>0.69</td>
<td>5</td>
</tr>
<tr>
<td>Service quality</td>
<td>0.37</td>
<td>5</td>
</tr>
<tr>
<td>Facilities</td>
<td>0.78</td>
<td>4</td>
</tr>
<tr>
<td>Other factors</td>
<td>0.73</td>
<td>4</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>0.43</td>
<td>5</td>
</tr>
</tbody>
</table>

*Source: Developed by the researcher*

Item-Total statistics for the service quality factor was further investigated. The service quality factor was segregated into each item with the effect of the scale mean and variance stated accordingly. From Table 4.7 below, Cronbach’s Alpha value shows a satisfaction level of more than 0.6 when the item Quality1 is removed. Moreover, the Quality1 question appeared to be misleading and inconsistent, and was therefore removed.
While the reliability analysis would be good to have above 0.7 to ensure internal consistency, a Cronbach’s alpha between 0.6 and 0.7 is relatively acceptable. This view is supported by Nunnally (1978), who states that Cronbach’s alpha of 0.6 is an acceptable value for research purposes. This is also supported by Fan and Le (2011), who state that Cronbach’s alpha coefficient values above 0.6 are acceptable.

Table 4.7 Item-Total statistics – Service quality factor

<table>
<thead>
<tr>
<th>Items</th>
<th>Scale mean if item deleted</th>
<th>Scale variance if item deleted</th>
<th>Corrected Item-Total correlation</th>
<th>Cronbach’s Alpha if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality1 – Medical services in Singapore are rated as one of the best in Asia.</td>
<td>15.76</td>
<td>4.22</td>
<td>0.12</td>
<td>0.66</td>
</tr>
<tr>
<td>Quality2 – Standard of professionalism in Singapore medical tourism is high.</td>
<td>16.04</td>
<td>8.64</td>
<td>0.37</td>
<td>0.26</td>
</tr>
<tr>
<td>Quality3 – Professionalism will eventually lead to customer satisfaction.</td>
<td>16.05</td>
<td>8.89</td>
<td>0.30</td>
<td>0.29</td>
</tr>
<tr>
<td>Quality4 – Prompt service is a hugely significant factor.</td>
<td>16.25</td>
<td>8.87</td>
<td>0.22</td>
<td>0.32</td>
</tr>
<tr>
<td>Quality5 – Medical service quality is the main attraction of coming to Singapore.</td>
<td>16.01</td>
<td>8.67</td>
<td>0.36</td>
<td>0.27</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

For the customer satisfaction factor, the item-total statistics in Table 4.8 below indicates that item Customer2 should be removed to increase the Cronbach’s Alpha to the acceptable level of more than 0.6. This result may be because of the perception of patients, who are generally demanding. They may not only be expecting the requested service but also may expect the price and quality of the service to enhance their satisfaction level. Therefore, the item Customer 1 was removed.
### Table 4.8 Item-Total statistics – Customer satisfaction factor

<table>
<thead>
<tr>
<th>Items</th>
<th>Scale mean if item deleted</th>
<th>Scale variance if item deleted</th>
<th>Corrected Item-Total correlation</th>
<th>Cronbach’s Alpha if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer1 – Customer's satisfaction is most important</td>
<td>16.14</td>
<td>8.90</td>
<td>0.37</td>
<td>0.34</td>
</tr>
<tr>
<td>Customer2 – Customer's satisfaction depends on service perceived performance</td>
<td>16.01</td>
<td>4.32</td>
<td>0.15</td>
<td>0.72</td>
</tr>
<tr>
<td>Customer3 – If services performance exceeds expectation, the customers will be highly satisfied</td>
<td>16.18</td>
<td>8.66</td>
<td>0.39</td>
<td>0.32</td>
</tr>
<tr>
<td>Customer4 – Satisfied customers will always come back</td>
<td>16.24</td>
<td>8.94</td>
<td>0.30</td>
<td>0.36</td>
</tr>
<tr>
<td>Customer5 – You are satisfied with Singapore medical services quality</td>
<td>16.21</td>
<td>8.71</td>
<td>0.40</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

After removing the two items (Quality1 and Customer2), the reliability became stable and consistent. After conducting the reliability test, the mean value for each factor was computed. The reason for selecting the mean value for each factor was because it was equally important for each item. Therefore, it is appropriate to quantify the coefficient rank using factor analysis.

### Table 4.9 Reliability statistics

<table>
<thead>
<tr>
<th>Factors</th>
<th>Cronbach’s Alpha</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial consideration</td>
<td>0.69</td>
<td>5</td>
</tr>
<tr>
<td>Service quality</td>
<td>0.66</td>
<td>4</td>
</tr>
<tr>
<td>Facilities</td>
<td>0.78</td>
<td>4</td>
</tr>
<tr>
<td>Other factors</td>
<td>0.73</td>
<td>4</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>0.72</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher
4.4 MEAN SCORES

A total of 21 items were used to measure customer satisfaction with first class medical services. These items were grouped under four main dimensions: financial, quality, medical, and others. A five-point scale instrument was used in the data analysis. The mean descriptive statistics are presented in Table 4.10 below, and indicate the mean value for each item that represents the customer satisfaction level towards the first class medical service. There were three independent variables that showed higher importance level, with an average value more than 3.90. The medical factor had the highest mean score (3.99), followed by the other factors (3.98), and quality factor recorded a score of 3.94. The least important factor for customer satisfaction with the medical service was the financial group with a mean value of 3.74.

From this point, we can conclude that the respondents have a similar concern about all of the factors except the financial factor. This might be due to the factors associated with overall customer satisfaction. According to the mean table, the overall average value for each factor was similar to the overall customer satisfaction value, indicating that customer satisfaction might be correlated with the medical factor, the other factors, and the quality factor.

Of all of the factors, the financial factor had the lowest mean score (3.74). This value was lower than the overall customer satisfaction level. In general, the financial factor was expected to be a lower score than the other factors because monetary issues, from a consumer perspective, will always be the main consideration in making decisions. With reference to the financial detailed analysis, the hospital pricing and Singapore’s currency exchange rate were the main consideration for patients and caregivers. Therefore, the quality of the services and the quality of the medical consultants need to be consistent and professional to ensure that customer spending is worthwhile.
Table 4.10 Mean

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial Consideration</strong></td>
<td></td>
</tr>
<tr>
<td>Financial1</td>
<td>3.87</td>
</tr>
<tr>
<td>Financial2</td>
<td>3.64</td>
</tr>
<tr>
<td>Financial3</td>
<td>3.62</td>
</tr>
<tr>
<td>Financial4</td>
<td>3.56</td>
</tr>
<tr>
<td>Financial5</td>
<td>4.03</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td>3.94</td>
</tr>
<tr>
<td>Quality2</td>
<td>3.99</td>
</tr>
<tr>
<td>Quality3</td>
<td>3.98</td>
</tr>
<tr>
<td>Quality4</td>
<td>3.78</td>
</tr>
<tr>
<td><strong>Medical</strong></td>
<td>3.99</td>
</tr>
<tr>
<td>Medical1</td>
<td>4.01</td>
</tr>
<tr>
<td>Medical2</td>
<td>3.96</td>
</tr>
<tr>
<td>Medical3</td>
<td>3.97</td>
</tr>
<tr>
<td>Medical4</td>
<td>4.03</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>3.98</td>
</tr>
<tr>
<td>Others1</td>
<td>3.9</td>
</tr>
<tr>
<td>Others2</td>
<td>4.05</td>
</tr>
<tr>
<td>Others3</td>
<td>3.96</td>
</tr>
<tr>
<td>Factor</td>
<td>Mean</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Others4 – Singapore is one of the best places for medical tourists.</td>
<td>4.02</td>
</tr>
<tr>
<td><strong>Customer</strong></td>
<td>4.00</td>
</tr>
<tr>
<td>Customer1 – Customer’s satisfaction is most important.</td>
<td>4.06</td>
</tr>
<tr>
<td>Customer3 – If services performance exceeds expectation, customers will be highly satisfied.</td>
<td>4.02</td>
</tr>
<tr>
<td>Customer4 – Satisfied customers will always come back.</td>
<td>3.95</td>
</tr>
<tr>
<td>Customer5 – You are satisfied with the quality of Singaporean medical services.</td>
<td>3.98</td>
</tr>
</tbody>
</table>

**Source:** Developed by the researcher

The service measurement was divided into service expectation, service perceived, and a service decisive factor, for different channels: doctors, nurses, counter staff, services, and facilities.

Overall, the results show that customers found that the perceived service was more important than the expectation set, and that they put a higher value on the service from the doctors. The factor service expectation had a mean value of 4.12, while service perceived was 4.18. The mean value on the factor service from facilities in relation to service expectation was 3.97, with the service perceived being 4.13. This result is justifiable because the hospitality industry depends on the quality of the medical staff, technology, and the equipment provided. Therefore, we could be sure of satisfying the respondents by improving the services of the doctors and the facilities.

By way of contrast, the last area on which to focus was counter staff services. The mean results for service expectation was 3.51. However, service perceived scored a mean value of 3.73. This shows that customer satisfaction was minimal for counter staff service in a first class medical service. However, it does not mean the service was not important. Continuous improvement of these services is still needed, but the main focus would be out
of this area. The results showed that other channels (nurses and services) were second-tier considerations for customers.

Table 4.11 Service – Mean

<table>
<thead>
<tr>
<th>Service Expectation</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERV_Expectation_doctors Your expectation of doctors</td>
<td>4.12</td>
</tr>
<tr>
<td>SERV_Expectation_nurses Your expectation of nurses</td>
<td>3.75</td>
</tr>
<tr>
<td>SERV_Expectation_counterstaffs Your expectation of counter staff</td>
<td>3.51</td>
</tr>
<tr>
<td>SERV_Expectation_services Your expectation of hospital services</td>
<td>3.83</td>
</tr>
<tr>
<td>SERV_Expectation_facilities Your expectation of hospital facilities</td>
<td>3.97</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service Perceived</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERV_Perceived_Doctors Your actual services perceived from doctors</td>
<td>4.18</td>
</tr>
<tr>
<td>SERV_Perceived_Nurses Your actual services perceived from nurses</td>
<td>3.9</td>
</tr>
<tr>
<td>SERV_Perceived_counterstaffs Your actual services perceived from counter staff</td>
<td>3.73</td>
</tr>
<tr>
<td>SERV_Perceived_services Your actual services perceived from hospital services</td>
<td>4.08</td>
</tr>
<tr>
<td>SERV_Perceived_facilities Your actual services perceived from hospital facilities</td>
<td>4.13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service Decisive Factor</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERV_Decisive_factors_doctors Doctors/specialists’ effect your satisfaction and consideration of your next visit</td>
<td>4.47</td>
</tr>
<tr>
<td>SERV_Decisive_factors_nurses Nurses’ effect your satisfaction and consideration of your next visit</td>
<td>4.06</td>
</tr>
<tr>
<td>SERV_Decisive_factors_counterstaffs Counter staff affect your satisfaction and consideration of your next visit</td>
<td>3.80</td>
</tr>
<tr>
<td>SERV_Decisive_factors_services Hospital services affect your satisfaction and consideration of your next visit</td>
<td>4.17</td>
</tr>
<tr>
<td>SERV_Decisive_factors_facilities Hospital facilities affect to your satisfaction and consideration of your next visit</td>
<td>4.36</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher
4.5 TESTING THE HYPOTHESES

After conducting the reliability test, a factor analysis using a rotated varimax method was conducted to reduce the 21 statements to five independent variables. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity were used to test the data assumptions.

A KMO value between 0.5 and 1.0 implies that factor analysis is appropriate. A KMO value less than or equal to 0.5 indicates that the correlation matrix is not suitable for factor analysis. Bartlett’s test (Snedecor & Cochran 1989) was used to test the correlation. The correlation matrix is an identity matrix, which indicates how each variable correlates. A perfect correlation ($R$) has a score of 1 while no correlation is indicated as $R = 0$.

Factor analysis aims to explain the pattern of correlations within a set of observed values by identifying the variables and factors that influence those values. This method is often used in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of variables. It is also used to generate hypotheses about the mechanisms of causation, or to screen variables for later analysis. In this study, factor analysis was conducted in three parts. The first part analysed the overall factors (independent and dependent variables). The second and third parts analysed the moderator factors.

4.5.1 Factor analysis Part 1 – Model variables

(Financial considerations, service quality, facilities, Singaporean environment and customer satisfaction)

From Table 4.12 below, the KMO measure of sampling adequacy is 0.858. As such, the KMO value was deemed to be high, indicating that factor analysis could be performed. The Bartlett statistics showed a significant value less than 0.05. This also suggested that factor analysis could be performed.
Table 4.12 KMO and Bartlett’s test

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin measure of sampling adequacy</th>
<th>0.858</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett’s test of sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. chi-squared</td>
<td>1968.402</td>
</tr>
<tr>
<td>Df</td>
<td>210</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

From the total variances explained Table 4.13, the top five components in the table show the initial eigenvalues as more than 1 and form a strong argument for representing the factors. Moreover, the cumulative percentage of variance for the top five components was 55.934%, which indicated that these variances can be explained in this model. In other words, it means that more than 50% of the variances in this model can be explained by these five generated components.

Table 4.13 Total variances explained

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial eigenvalues</th>
<th>Extraction sums of squared loadings</th>
<th>Rotation sums of squared loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of variance</td>
<td>Cumulative %</td>
</tr>
<tr>
<td>3</td>
<td>1.736</td>
<td>8.267</td>
<td>44.878</td>
</tr>
<tr>
<td>4</td>
<td>1.218</td>
<td>5.802</td>
<td>50.680</td>
</tr>
<tr>
<td>5</td>
<td>1.103</td>
<td>5.254</td>
<td>55.934</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

The five main components (eigenvalue more than 1) form the basis for the rotated factor loadings (factor pattern matrix). This indicates that the variables are weighted for each factor, but there is also a correlation between the variables and the factors. The possible value ranges from −1.00 to +1.00. Values lower than 0.30 are regarded as having a low correlation.
<table>
<thead>
<tr>
<th></th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Medical2</strong> – Support from the Singapore government helps to advance medical tourism.</td>
<td>0.784</td>
</tr>
<tr>
<td><strong>Medical3</strong> – Stable government is a significant factor for attracting medical tourists.</td>
<td>0.746</td>
</tr>
<tr>
<td><strong>Medical1</strong> – Singapore is a safe place to visit.</td>
<td>0.713</td>
</tr>
<tr>
<td><strong>Medical4</strong> – Singaporean government policies help medical tourists.</td>
<td>0.699</td>
</tr>
<tr>
<td><strong>Customer3</strong> – If service performance exceeds expectation, customers will be highly satisfied.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Customer5</strong> – You are satisfied with Singapore medical services quality.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Customer4</strong> – Satisfied customers will always come back.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Customer1</strong> – Customer satisfaction is most important.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Others3</strong> – Climatic factors in Singapore suit most medical tourists.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Others2</strong> – Singapore’s geographical location attracts medical tourists.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Others1</strong> – Singapore’s multi-culture benefits medical tourists.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Others4</strong> – Singapore is one of the best places for medical tourists.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Financial2</strong> – Selecting a specific hospital is based on pricing.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Financial4</strong> – Pricing of the hospital’s services is your priority over service quality.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Financial3</strong> – Foreign exchange criteria determine your decision to choose a Singaporean hospital.</td>
<td>-</td>
</tr>
</tbody>
</table>
Financial1 – Cost factor determines travelling to Singapore. | - | - | - | 0.519 | - \\
Financial5 – Price and inflation affect medical tourists. | - | - | - | 0.380 | - \\
Quality5 – Medical service quality is the main attraction of coming to Singapore. | - | - | - | - | 0.676 \\
Quality4 – Prompt service is a hugely significant factor. | - | - | - | - | 0.647 \\
Quality2 – Standard of professionalism in Singaporean medical tourism is high. | - | - | - | - | 0.574 \\
Quality3 – Professionalism will eventually lead to customer satisfaction. | - | - | - | - | 0.517 \\

Source: Developed by the researcher

4.5.2 Factor analysis Part 2 – Moderating variable (ECT model)

From the KMO and Bartlett’s tests in Table 4.15, the KMO measure of sampling adequacy was 0.705, and the Bartlett statistic showed a significant value less than 0.05. This also suggested that it was important to perform a factor analysis on this dataset.

Table 4.15 KMO and Bartlett's test

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin measure of sampling adequacy</th>
<th>0.705</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett's test of sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. Chi-Squared</td>
<td>154.628</td>
</tr>
<tr>
<td>Df</td>
<td>6</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

From the total variances in Table 4.16, the cumulative variance percentage for the single component was nearly 50%. This is the only representative component in this model because 48.234% of the variance can be explained in that component.
Table 4.16 Total variance explained

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial eigenvalues</th>
<th>Extraction sums of squared loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of variance</td>
</tr>
<tr>
<td>1</td>
<td>1.929</td>
<td>48.234</td>
</tr>
<tr>
<td>2</td>
<td>0.788</td>
<td>19.712</td>
</tr>
<tr>
<td>3</td>
<td>0.679</td>
<td>16.967</td>
</tr>
<tr>
<td>4</td>
<td>0.603</td>
<td>15.087</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

The component matrix in Table 4.17 shows the coefficient component for each question. A higher coefficient value means a greater contribution to the question from the component.

Table 4.17 Component matrix

<table>
<thead>
<tr>
<th>Component 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers have a positive effect with a satisfying result and a negative effect with a dissatisfying result.</td>
</tr>
<tr>
<td>Customers perceived a very high standard of medical services performance in Singapore.</td>
</tr>
<tr>
<td>Customers already have a specific set of expectations before they come to Singapore.</td>
</tr>
<tr>
<td>When the perceived performance exceeds expectations, customers will be satisfied.</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

4.5.3 Factor analysis Part 3 – Moderating variable (Kano model)

The KMO for the Kano variable scored a value of 0.654, while the Barlett’s test showed a 95% confidence interval. Factor analysis was performed for the Kano model variable.
Table 4.18 KMO and Bartlett's test

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin measure of sampling adequacy.</th>
<th>0.654</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett's test of sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. chi-Squared</td>
<td>138.772</td>
</tr>
<tr>
<td>Df</td>
<td>3</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

From the total variances shown in Table 4.19, the cumulative variance percentage for the single component was 59.531%. This means that nearly 60% of the variance is explained in the component.

Table 4.19 Total variance explained

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial eigenvalues</th>
<th>Extraction sums of squared loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of variance</td>
</tr>
<tr>
<td>1</td>
<td>1.786</td>
<td>59.531</td>
</tr>
<tr>
<td>2</td>
<td>0.653</td>
<td>21.771</td>
</tr>
<tr>
<td>3</td>
<td>0.561</td>
<td>18.699</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

Table 4.20 below shows the contribution of each of the statements or components in the model.

Table 4.20 Component matrix

<table>
<thead>
<tr>
<th>Delighter: those qualities that the customer was not expecting but received as a bonus.</th>
<th>Component 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance: The better customers are at meeting their needs, the happier the customers are.</td>
<td>0.78</td>
</tr>
</tbody>
</table>
4.5.4 Multiple regression analysis (Analytical model)

Multiple linear regression (MLR) is a method used to define a linear relationship between several independent variables and a dependent variable. In this research, MLR was used to measure the strength of the linear relationship between consumer satisfaction and satisfaction constraints such as finances, service quality, facilities provided, and other related constraints.

Before conducting the multiple regression, a correlation analysis was needed to check the associations between the independent variables, and the associations between the independent variables and the dependent variable. The first step was to test for multicollinearity problems among the independent variables. The second step was to test the associations between the dependent variable and the independent variables. In correlation analysis, the values of multiple correlation coefficients ($R$) range between $-1$ and $+1$. A perfect positive association is reflected as $+1$, and a perfect negative association is reflected as a correlation of $-1$. The absence of an association produces a correlation close to zero. As a result, the coefficient value between the variables should not be more than 0.4.

From the correlation Table 4.21 below, the associations between the variables are significant (less than 0.05), but rather weak because the correlation coefficient is less than 0.4. Therefore, there is no multi-collinearity problem in the proposed model. Moreover, we found that all the factors were significant for customer satisfaction. All the factors were therefore included in the regression analysis.
Table 4.21 Correlations between variables

<table>
<thead>
<tr>
<th></th>
<th>Financial</th>
<th>Quality</th>
<th>Facilities</th>
<th>Others</th>
<th>Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>Pearson correlation</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>330</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Quality</td>
<td>Pearson correlation</td>
<td>0.224</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>330</td>
<td>330</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Facilities</td>
<td>Pearson correlation</td>
<td>0.211</td>
<td>0.384</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>330</td>
<td>330</td>
<td>330</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>Pearson correlation</td>
<td>0.220</td>
<td>0.327</td>
<td>0.296</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>330</td>
<td>330</td>
<td>330</td>
<td>330</td>
</tr>
<tr>
<td>Customer</td>
<td>Pearson correlation</td>
<td>0.222</td>
<td>0.347</td>
<td>0.369</td>
<td>0.326</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>330</td>
<td>330</td>
<td>330</td>
<td>330</td>
</tr>
</tbody>
</table>

**Source:** Developed by the researcher

According to the summary of multiple regressions in Table 4.22, the multiple correlation coefficient $R$ has a value of 0.475. Since $R$ is positive, it therefore showed that there is a positive linear relationship between the satisfaction constraints and consumer satisfaction. The $R^2$ value (coefficient of determination) is a portion of the total variation in the dependent variable that is explained by the variation in the independent variables. Approximately 22.6% of the variance in the satisfaction constraints can significantly explain consumer satisfaction. This finding suggested that besides the satisfaction constraints, there were many other factors that were likely to influence consumer satisfaction.
satisfaction with the medical services. These factors include marketing strategies (product characteristics, pricing strategy, promotions, advertising, and communications) and organisational performances (financial, innovation).

Table 4.22 Model 1 summary

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. error of the estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.475</td>
<td>0.226</td>
<td>0.216</td>
<td>0.58231</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

An analysis of variance (ANOVA) was used to test whether there was a significant linear relationship between the satisfaction constraints and consumer satisfaction. According to Table 4.23, the $p$-value is 0.000, indicating that the factors overall significantly influenced consumer satisfaction.

Table 4.23 Model 1 ANOVA

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Sum of squares</th>
<th>Df</th>
<th>Mean square</th>
<th>$F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>32.100</td>
<td>4</td>
<td>8.025</td>
<td>23.666</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual</td>
<td>110.204</td>
<td>325</td>
<td>0.339</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>142.304</td>
<td>329</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

A coefficient table is another important way to explain the relationship between satisfaction constraints and the four components of consumer satisfaction. Based on the significance (Sig.) column in Table 4.24 below, the $p$-value for each satisfaction constraint is less than 0.05 except for financial constraints. This indicated that most of the satisfaction constraints have significant relationships with consumer satisfaction.
Table 4.24 Model 1 coefficients (β)

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Unstandardised coefficients</th>
<th>Standardised coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>Std. Error</td>
<td>β</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>0.922</td>
<td>0.340</td>
<td>-</td>
<td>2.715</td>
</tr>
<tr>
<td>Financial</td>
<td>0.122</td>
<td>0.066</td>
<td>0.094</td>
<td>1.837</td>
</tr>
<tr>
<td>Quality</td>
<td>0.183</td>
<td>0.055</td>
<td>0.181</td>
<td>3.297</td>
</tr>
<tr>
<td>Facilities</td>
<td>0.266</td>
<td>0.064</td>
<td>0.226</td>
<td>4.169</td>
</tr>
<tr>
<td>Others</td>
<td>0.218</td>
<td>0.064</td>
<td>0.179</td>
<td>3.374</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

The values of the unstandardised β coefficient are also used to formulate the multiple linear regression equation. The multiple regression equation takes the form of:

\[ y = c + \beta_1 + \beta_2 + \beta_3 + \beta_4 \]

β is the regression coefficient representing the amount that the dependent variable \( y \) changes when the corresponding independent variable changes by 1 unit. The value \( c \) is the constant, where the regression line intercepts the \( y \)-axis. This represents the value of the dependent \( y \) when all of the independent variables are zero. The ratio of the \( \beta \) coefficients is the ratio of the relative predictive power of the independent variables.

The multiple regression equation of this study is therefore:

\[ \text{Consumer Satisfaction} = 0.922 + (0.122 \text{ Financial constraints}) + (0.183 \text{ Service quality}) + (0.266 \text{ Facilities}) + (0.218 \text{ Others constraints}) \]

Based on these results, consumer satisfaction with facilities has the most significant impact, as it has the highest \( \beta \) value (0.266). This is followed by consumer satisfaction with others constraints (0.218), and last, financial constraints (0.122). However, the consumer satisfaction of financial constraints value showed no significant impact on the model.
In the next section, correlation analysis and co-linearity statistics are used to support the model’s sustainability. The correlation results below showed that there might be a co-linearity problem, but a detailed check confirmed that this problem was acceptable. For all the factors, especially the financial factor, the analysis revealed that the factors’ correlation values did not drop greatly. This also meant that the variances in customer satisfaction were explained by the other factors.

The co-linearity tolerance was high, thus indicating that it was not directly explained by other factors. The VIF values in Table 4.25 were below the norm of 2.000 therefore it can be deduced that there is no co-linearity problem in this model.

**Table 4.25 Model 1 Correlation coefficients**

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Correlations</th>
<th>Co-linearity statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zero-order</td>
<td>Partial</td>
</tr>
<tr>
<td>Financial</td>
<td>0.215</td>
<td>0.040</td>
</tr>
<tr>
<td>Quality</td>
<td>0.504</td>
<td>0.261</td>
</tr>
<tr>
<td>Medical</td>
<td>0.489</td>
<td>0.304</td>
</tr>
<tr>
<td>Others</td>
<td>0.426</td>
<td>0.251</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

An analysis of the regression residual is important to ensure the stability of the model. With regard to the linear regression model, the residuals in the model should be randomly distributed. A histogram of the residuals was plotted to check the assumption that the error term had a normal distribution, as shown in Figure 4.10 below. The shape of the histogram of the regression residuals should approximately follow the shape of the normal curve, therefore Figure 4.10 was deemed acceptable as it was similar to a normal curve.
From the regression model result, it can be seen that the error of estimates was very low, with a value of 0.58231. The scatter plot shown in Figure 4.11 was generated to display the customer satisfaction variable over the predicted error. The variance of the error plot revealed that the residuals of the predicted values increased as the satisfaction levels increased. Overall, this indicated a good scatter result.
4.5.5 Moderating variable

A *moderation model* is one that aims to identify and explain the observed relationship between an independent variable and a dependent variable. This is done by including a third explanatory variable, known as a moderating variable. In this model, two moderators were tested: the ECT model and the Kano model. For a moderator effect, the standardised coefficient was used to analyse the effects. There are three moderating effects: non-moderator, partial moderator, and total moderator. This analysis was used to conclude the overall testing of the moderating effects.

*Source:* Developed by the researcher
A total moderator effect is defined if the moderator variable reduces the relationship between the dependent and independent variables. A partial moderator effect implies that there is not only a significant relationship between the moderator and the dependent variable, but also some direct relationship between the independent variables and the dependent variable.

**Step 1**: Regression of consumer satisfaction on financial, quality, facilities, and others.

In Step 1, the overall regression model in Table 4.26 below was investigated and the results were compared with the standardised measurement.

**Table 4.26 Model 1 coefficients (β) – Overall regression**

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Non-standardised coefficients</th>
<th>Standardised coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>Std. error</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>0.922</td>
<td>0.340</td>
<td>-</td>
<td>2.715</td>
</tr>
<tr>
<td>Financial</td>
<td>0.122</td>
<td>0.066</td>
<td>0.094</td>
<td>1.837</td>
</tr>
<tr>
<td>Quality</td>
<td>0.183</td>
<td>0.055</td>
<td>0.181</td>
<td>3.297</td>
</tr>
<tr>
<td>Facilities</td>
<td>0.266</td>
<td>0.064</td>
<td>0.226</td>
<td>4.169</td>
</tr>
<tr>
<td>Others</td>
<td>0.218</td>
<td>0.064</td>
<td>0.179</td>
<td>3.374</td>
</tr>
</tbody>
</table>

*Source: Developed by the researcher*

**Step 2**: Regression of consumer satisfaction on financial, quality, facilities, others, and the ECT model.

In Step 2, the measurement of the ECT model was entered into the model and the results displayed in Table 4.27.
Table 4.27 Model 1 coefficients ($\beta$) – ECT model

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Non-standardised coefficients</th>
<th>Standardised coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>Std. error</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.667</td>
<td>0.416</td>
<td>-</td>
<td>4.010</td>
</tr>
<tr>
<td>Financial</td>
<td>0.107</td>
<td>0.066</td>
<td>0.083</td>
<td>1.633</td>
</tr>
<tr>
<td>Quality</td>
<td>0.144</td>
<td>0.056</td>
<td>0.142</td>
<td>2.554</td>
</tr>
<tr>
<td>Facilities</td>
<td>0.211</td>
<td>0.066</td>
<td>0.179</td>
<td>3.213</td>
</tr>
<tr>
<td>Others</td>
<td>0.138</td>
<td>0.069</td>
<td>0.114</td>
<td>2.012</td>
</tr>
<tr>
<td>ECT</td>
<td>0.127</td>
<td>0.042</td>
<td>0.187</td>
<td>3.033</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

Step 3: Regression of consumer satisfaction upon financial, quality, facilities, others and the Kano model.

In Step 3, the ECT model was removed and replaced with the Kano model. The results are displayed in the next table. The impact of the Kano model is evaluated in the next section.

Table 4.28 Model 1 coefficients ($\beta$) – Kano model

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Non-standardised coefficients</th>
<th>Standardised coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>Std. error</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.714</td>
<td>0.401</td>
<td>-</td>
<td>4.279</td>
</tr>
<tr>
<td>Financial</td>
<td>0.092</td>
<td>0.066</td>
<td>0.071</td>
<td>1.399</td>
</tr>
<tr>
<td>Quality</td>
<td>0.141</td>
<td>0.056</td>
<td>0.139</td>
<td>2.528</td>
</tr>
<tr>
<td>Facilities</td>
<td>0.198</td>
<td>0.066</td>
<td>0.168</td>
<td>3.012</td>
</tr>
<tr>
<td>Others</td>
<td>0.156</td>
<td>0.066</td>
<td>0.129</td>
<td>2.381</td>
</tr>
<tr>
<td>Kano</td>
<td>0.144</td>
<td>0.040</td>
<td>0.210</td>
<td>3.572</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher
Moderating effects on the various variable

To examine the effect of the moderating variables (the ECT and Kano models) on the dependent variable, the statistical concept advocated by Preacher, Rucker and Hayes (2007) was used. From that study, we found that the indirect effect was low compared with the direct effect value. We can also conclude that the ECT and Kano models were indicated as non-moderators.

Table 4.29 ECT and Kano Models – Direct and indirect effects

<table>
<thead>
<tr>
<th></th>
<th>ECT model</th>
<th></th>
<th></th>
<th></th>
<th>Kano model</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Indirect</td>
<td>Total</td>
<td>Direct</td>
<td>Indirect</td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial</td>
<td>0.08</td>
<td>0.02</td>
<td>0.10</td>
<td>0.07</td>
<td>0.02</td>
<td>0.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>0.14</td>
<td>0.03</td>
<td>0.17</td>
<td>0.13</td>
<td>0.03</td>
<td>0.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilities</td>
<td>0.17</td>
<td>0.04</td>
<td>0.22</td>
<td>0.16</td>
<td>0.04</td>
<td>0.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>0.11</td>
<td>0.03</td>
<td>0.14</td>
<td>0.12</td>
<td>0.03</td>
<td>0.16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

4.5.6 Hierarchical multiple linear regression

The study confidently concluded that the environment factor was a potential control variable in the model. The main reason for investigating this hypothesis further was to understand whether the environment or the image of Singapore brought any value to customer satisfaction. This analysis helped to enhance the integrity of the final result in determining the relationship between customer satisfaction and other indirect factors such as environment. With regard to the environment factor, Singapore is socially and economically successful in the region. Moreover, Singapore has a strategic geographical location and the government has created a friendly and welcoming culture for foreigners. The data suggests that the impact of this indirect factor (environment) as influenced by culture, location, and government policies. This approach limited the impact of environment factor towards the model result and, therefore, hierarchical multiple linear regression was indicated.
Hierarchical multiple linear regressions are particularly appropriate for research designs with data that varies at more than one level. This technique attempts to improve a standard regression by adding a second stage regression to an ordinary model. It evaluates the relationship between one set of independent variables and the dependent variable, controlling for, or taking into account, the impact of another set of independent variables on the dependent variable.

From this first regression, the researcher accounted for the variance of the corresponding group of independent variables, and then ran another multiple regression on both the original independent variables and a new set of independent variables. This allowed the researcher to examine the contribution of variables other than the first group of independent variables.

In this study, we analysed the factors (financial, service quality, and medical) individually as the independent variables in the first stage of the model, and then compared them with the potential control factors (environment: culture, location, and government) in the second stage of the model. The next sections present the effects of the three independent variables (financial considerations, service quality and medical facilities) on customer satisfaction, with environment as the control factor. Refer to Figure 4.12 for the theoretical framework.
Figure 4.12 Theoretical framework

Source: Developed by the researcher

4.5.6.1 Case 1: The effects of financial considerations on customer satisfaction with environment as the control factor.

In Case 1, the forced entry method controls the way the variable is included in the model. This method is normally used in regression analysis because it allows the variables to contribute their values to the model. In Table 4.30, Model 1 used the financial factor as the variable, whereas both the financial and environment factors are included in Model 2.

Table 4.30 Case 1 – Variables entered/removed

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables entered</th>
<th>Variables removed</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Financial</td>
<td></td>
<td>Enter</td>
</tr>
<tr>
<td>2</td>
<td>Environment</td>
<td></td>
<td>Enter</td>
</tr>
</tbody>
</table>
The overall predictive power of the model is shown in Table 4.31. The percentage variability was accounted for in the $R^2$ measurement. From the results in the table, a change in the $R^2$ value of 0.09 between Model 1 and Model 2 was identified. This means that an increase of predictive power of about 9% was found between the models.

In general, the financial factor influences customer satisfaction, but the financial factor with the environment factor creates greater customer satisfaction. This might be because the Singaporean government’s policies, together with the nation’s strategic location, culture and law, have a greater impact on customer satisfaction.

### Table 4.31 Case 1 – Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. error of the estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.222</td>
<td>0.049</td>
<td>0.046</td>
<td>0.64230</td>
</tr>
<tr>
<td>2</td>
<td>0.361</td>
<td>0.130</td>
<td>0.125</td>
<td>0.61531</td>
</tr>
</tbody>
</table>

From the results of the ANOVA shown in Table 4.32, it can be seen both models were statistically significant with a 95% confidence interval. The significant value generally reflects the independent variables in the model. In other words, at least one significant factor has an effect on or influences the model. From the researcher’s point of view, the impact on environment needs to be clearer. Further investigation continues in the next section.

### Table 4.32 Case 1 – Analysis of variance – ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>6.986</td>
<td>1</td>
<td>6.986</td>
<td>16.934</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>135.317</td>
<td>328</td>
<td>0.413</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td><strong>142.304</strong></td>
<td><strong>329</strong></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Regression</td>
<td>18.498</td>
<td>2</td>
<td>9.249</td>
<td>24.429</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>123.805</td>
<td>327</td>
<td>0.379</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td><strong>142.304</strong></td>
<td><strong>329</strong></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
With regard to the Case 1 coefficients in Table 4.33, all the variables were statistically significant at a 95% confidence level. The $\beta$ coefficient value for the environment factor in Model 2 showed a higher value than in Model 1. This indicated that the environment factor was a potential control variable in the model for Case 1 (financial effect on customer satisfaction). This means that in the model, strategic location, government policies and culture formed part of the patients’ financial decisions. Patients’ satisfaction was not only influenced by financial factors such as payment, but also might be influenced by Singapore’s environment.

<table>
<thead>
<tr>
<th>Model</th>
<th>Non-standardised coefficients</th>
<th>Standardised coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>Std. error</td>
<td>$\beta$</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>2.962</td>
<td>0.264</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Financial</td>
<td>0.288</td>
<td>0.070</td>
<td>0.222</td>
</tr>
<tr>
<td>2</td>
<td>(Constant)</td>
<td>1.866</td>
<td>0.322</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Financial</td>
<td>0.204</td>
<td>0.069</td>
<td>0.157</td>
</tr>
<tr>
<td></td>
<td>Environment</td>
<td>0.354</td>
<td>0.064</td>
<td>0.292</td>
</tr>
</tbody>
</table>

### 4.5.6.2 Case 2: The effects of service quality on customer satisfaction with environment as the control factor

For Case 2, two stages of variables were included in the model. Case 2 sought to investigate whether service quality was indirectly impacted by the Singapore environment. From the consumer perspective, service quality was always associated with customer satisfaction. However, some argued that it might be because of other indirect factors such as product materials, the technology used, country of origin, etc. As a result, we wanted to study service quality with the environment factor to gain further understanding.

In stage 1, the quality variable was included in the model with customer satisfaction, whereas stage 2 included both quality and environment with the customer satisfaction variable.
Table 4.34 Case 2 – Variables entered/ removed

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables entered</th>
<th>Variables removed</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quality</td>
<td>-</td>
<td>Enter</td>
</tr>
<tr>
<td>2</td>
<td>Environment</td>
<td>-</td>
<td>Enter</td>
</tr>
</tbody>
</table>

For the model’s predictive power, Model 2 had a higher $R^2$ value compared to Model 1. This value showed that Model 2 performed better than Model 1, while the greater $R^2$ value (0.171 compared to 0.121) might indicate that the environment factor has a potential control variable in this case. It also means that the quality factor might affect customer satisfaction when influenced by environment considerations.

Table 4.35 Case 2 – Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. error of the estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.347</td>
<td>0.121</td>
<td>0.118</td>
<td>0.61763</td>
</tr>
<tr>
<td>2</td>
<td>0.414</td>
<td>0.171</td>
<td>0.166</td>
<td>0.60050</td>
</tr>
</tbody>
</table>

According to the ANOVA table in Table 4.36, both models were significant at a 95% confidence level. This means that there was at least one significant factor found in both models. Further studies explore the impact of the environment factor in the existing model.

Table 4.36 Case 2 – Analysis of variance – ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>17.183</td>
<td>1</td>
<td>17.183</td>
<td>45.044</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>125.121</td>
<td>328</td>
<td>0.381</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>142.304</td>
<td>329</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Regression</td>
<td>24.385</td>
<td>2</td>
<td>12.193</td>
<td>33.812</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>117.918</td>
<td>327</td>
<td>0.361</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>142.304</td>
<td>329</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
From the Case 2 coefficients in Table 4.37, all the variables included in Model 1 and Model 2 were highly significant at a 95% confidence level. This level of confidence indicated that the environment factor was a potential control variable in Case 2 (the effect of quality on customer satisfaction). This result showed that service quality was indirectly impacted by the environment factor.

This might be because the Singapore government has created an environment in which the public has confidence. Government policies and law enforcement were the main indicators for service quality. They strictly prohibited illegal systems run in the country and ensured that the product met the quality standard. The result was an increase in consumers’ confidence in the quality of Singapore’s products and services.

Table 4.37 Case 2 – Coefficients (β)

<table>
<thead>
<tr>
<th>Model</th>
<th>Non-standardised coefficients</th>
<th>Standardised coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>2.634</td>
<td>0.212</td>
<td>12.428</td>
</tr>
<tr>
<td></td>
<td>Quality</td>
<td>0.351</td>
<td>0.052</td>
<td>0.347</td>
</tr>
<tr>
<td>2</td>
<td>(Constant)</td>
<td>1.800</td>
<td>0.278</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Quality</td>
<td>0.272</td>
<td>0.054</td>
<td>0.270</td>
</tr>
<tr>
<td></td>
<td>Environment</td>
<td>0.289</td>
<td>0.065</td>
<td>0.238</td>
</tr>
</tbody>
</table>

4.5.6.3 Case 3: The effects of medical facilities on customer satisfaction with environment as the control factor

In Case 3, the medical facilities factor was entered into the stage 1 model, whereas environment and medical facilities were entered into the stage 2 model. Some patients regard medical facilities an important factor when thinking about satisfaction levels. High-quality medical services and technologies would convince patients to make a decision to take the services, although some might argue that medical facilities relate to the country’s environment and are a supply and demand issue. The market and the need for high technology medical facilities has been highly supported by the government. Singapore was established as a regional hub for most of the main industries such as
business, telecommunications, retail, medical and education, so this well-prepared environment would indirectly but significantly influence consumers’ thoughts before they made their decision. Therefore, medical facilities and customer satisfaction, moderated by the environment factor, was investigated. The comparison between the models is presented in Table 4.38.

Table 4.38 Case 3 – Variables entered/ removed

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables entered</th>
<th>Variables removed</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medical facilities</td>
<td>-</td>
<td>Enter</td>
</tr>
<tr>
<td>2</td>
<td>Environment</td>
<td>-</td>
<td>Enter</td>
</tr>
</tbody>
</table>

According to this result, the $R^2$, or predictive power, was increased by about 5% after including environment as the second factor into the model. This increased $R^2$ value might indicate medical facilities as a potential control variable in the model for Case 3.

Table 4.39 Case 3 – Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. error of the estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.369</td>
<td>0.136</td>
<td>0.133</td>
<td>0.61229</td>
</tr>
<tr>
<td>2</td>
<td>0.433</td>
<td>0.188</td>
<td>0.183</td>
<td>0.59462</td>
</tr>
</tbody>
</table>

After the predictive power analysis was carried out, an analysis of variance was used to check the overall significance levels for Model 1 and Model 2. With reference to Table 4.40, the significant value is shown as less than 0.05 indicating that both models have at least one significant factor.
Table 4.40 Case 3 – Analysis of variance – ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>19.336</td>
<td>1</td>
<td>19.336</td>
<td>51.578</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual</td>
<td>122.967</td>
<td>328</td>
<td>0.375</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>142.304</td>
<td>329</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>26.685</td>
<td>2</td>
<td>13.343</td>
<td>37.737</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual</td>
<td>115.618</td>
<td>327</td>
<td>0.354</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>142.304</td>
<td>329</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

As indicated in table 4.41, it can be concluded that the environment factor is a potential control variable in the model. This is supported by the significant value (Sig.) shown in the table. This summarises the analysis of Case 3. The influence of the environment factor as a control factor is important in this model. Patients considered that the environment in Singapore indirectly influenced customer satisfaction. A culture of high expectations from medical technology and medical services clearly helped patients to make their decision.

Table 4.41 Case 3 – Coefficients (β)

<table>
<thead>
<tr>
<th>Model</th>
<th>Non-standardised coefficients</th>
<th>Standardised coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>β</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>2.306</td>
<td>0.244</td>
<td>-</td>
<td>9.465</td>
</tr>
<tr>
<td>Medical</td>
<td>0.434</td>
<td>0.060</td>
<td>0.369</td>
<td>7.182</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.488</td>
<td>0.297</td>
<td>-</td>
<td>5.013</td>
</tr>
<tr>
<td>Medical</td>
<td>0.351</td>
<td>0.061</td>
<td>0.298</td>
<td>5.713</td>
</tr>
<tr>
<td>Environment</td>
<td>0.289</td>
<td>0.063</td>
<td>0.238</td>
<td>4.559</td>
</tr>
</tbody>
</table>

Summary

With the three case studies above, we can confidently conclude that the environment factor was a potential control variable in the model. This was shown by the significant
value (Sig.) of less than 0.05 for the variables included in the model. A summary of the analyses is displayed in Table 4.42.

**Table 4.42 Analysis summary**

<table>
<thead>
<tr>
<th>Case</th>
<th>Relationship</th>
<th>Control variable</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Financial consideration : Customer satisfaction</td>
<td>Environment</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Service quality : Customer satisfaction</td>
<td>Environment</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Medical services : Customer satisfaction</td>
<td>Environment</td>
<td>Yes</td>
</tr>
</tbody>
</table>

From this analysis, we can argue that Singapore’s environment influenced customer satisfaction levels. In the current position, we find that the government’s policies have been implemented well in the country and that this has led to enhanced consumer confidence in patients when they choose a service from Singapore. In addition, Singapore has a strategic geographical location given that it is accessible from various regions. People can easily reach Singapore using various modes of transport, and this has created greater convenience for patients when they subscribe to medical services from Singapore.

Lastly, Singapore has an open culture which allows new technologies and systems to be introduced into the country. Singapore is known as a technology-sensitive society, and its government is always encouraging advanced technologies to work in parallel across industries. This will eventually create opportunities for expanding new technologies into the medical industry. With these technological advances, and with increased local demand, the medical services industry will be able to grow properly. This would also help to create higher confidence levels in patients when they make a decision to choose Singapore for medical procedures.
4.5.7 Hypotheses results

With the multiple linear regression of the key factors completed (see Section 4.5.1 Multiple Regression Analysis), the next regression analysis was performed. The purpose was to evaluate the main factors and ensure that the results of the analysis were reliable.

Table 4.45 shows that 10 detailed factors were entered into the regression analysis model, with overall customer satisfaction as the dependent variable.

Table 4.43 Variable entered/removed

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables entered</th>
<th>Variables removed</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cost factor, exchange rate, professionalism, prompt service, performance on customer expectation, advanced medical facilities, Singapore multi-culture, Singapore geographical, Singapore government</td>
<td>-</td>
<td>Enter</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

The summary of the model results in Table 4.46 shows the goodness-of-fit measurement ($R^2$). With reference to the goodness-of-fit measurement ($R^2$) in the model, 36.1% of the variance of the independent variables can be explained by the dependent variable (overall customer satisfaction). As a result, this measurement is deemed to be good.

Table 4.44 Model summary results

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. error of the estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.601</td>
<td>0.361</td>
<td>0.341</td>
<td>0.811</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

In this model, the results show that there is at least one significant factor in the study. The above conclusion is made based on a significance level of 0.05.
Table 4.45 ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of squares</th>
<th>Df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>118.892</td>
<td>10</td>
<td>11.889</td>
<td>18.051</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual</td>
<td>210.108</td>
<td>319</td>
<td>0.659</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>329.000</td>
<td>329</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

If one examines the coefficients’ analysis in Table 4.46, the professionalism factor, advanced medical technology and Singapore’s government policies can be noted as being significant. The remaining factors are observed to be insignificant in this study. These findings are consistent with the literature review discussed in Chapter 2. The professionalism of medical officers (doctors and nurses), medical technologies (medical equipment and applications) and the Singapore government’s policies (law enforcement and political stability) were the main areas of focus for the respondents. In addition, all the factors, except performance on customer expectation, show positive associations. This means that greater satisfaction based on consumer perceptions results in a stronger positive agreement on the factors, while performance on customer expectation remains the same.

Table 4.46 Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Non-standardised coefficients</th>
<th>Standardised coefficients</th>
<th>T</th>
<th>Sig.</th>
<th>Co-linearity statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-5.695</td>
<td>0.474</td>
<td>-12.009</td>
<td>0.000</td>
<td>-</td>
</tr>
<tr>
<td>Cost factor</td>
<td>0.047</td>
<td>0.068</td>
<td>0.033</td>
<td>0.690</td>
<td>0.491</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>0.008</td>
<td>0.062</td>
<td>0.006</td>
<td>0.122</td>
<td>0.903</td>
</tr>
<tr>
<td>Professionalism</td>
<td>0.309</td>
<td>0.071</td>
<td>0.214</td>
<td>4.366</td>
<td>0.000</td>
</tr>
<tr>
<td>Prompt service</td>
<td>0.095</td>
<td>0.064</td>
<td>0.078</td>
<td>1.496</td>
<td>0.136</td>
</tr>
<tr>
<td>Performance on customer expectation</td>
<td>-0.003</td>
<td>0.080</td>
<td>-0.002</td>
<td>-0.041</td>
<td>0.967</td>
</tr>
<tr>
<td>Advance medical facilities</td>
<td>0.099</td>
<td>0.075</td>
<td>0.072</td>
<td>1.315</td>
<td>0.189</td>
</tr>
<tr>
<td>Advance medical technology</td>
<td>0.361</td>
<td>0.077</td>
<td>0.257</td>
<td>4.716</td>
<td>0.000</td>
</tr>
</tbody>
</table>
In summary, the results are significant at the 0.05 level. From this result, the significant factors are identified as professionalism, advanced medical technology, and the Singapore government’s policies. This means that these three factors have the greatest influence on overall customer satisfaction. The values of the non-standardised $\beta$ coefficient are used to formulate the following multiple linear regression equation:

$$y = c + \beta_{11} + \beta_{22} + \beta_{33} + \beta_{44}$$

in which $\beta$ is the regression coefficient, and represents the amount the dependent variable $y$ changes when the corresponding independent variable changes by one unit. The constant $c$ is where the regression line intercepts the $y$-axis. This represents the value of the dependent $y$ when all of the independent variables are zero. The ratio of the $\beta$ coefficients is the ratio of the relative predictive power of the independent variables.

Therefore, the multiple regressions equation of this study is:

$$\text{Overall satisfaction} = -5.695 + (0.047 \text{ Cost factor}) + (0.008 \text{ Exchange rate}) + (0.309 \text{ Professionalism}) + (0.095 \text{ Prompt service}) - (0.003 \text{ Performance on customer expectation}) + (0.099 \text{ Advance medical facilities}) + (0.361 \text{ Advance medical technology}) + (0.143 \text{ Singapore’s Multi-cultural environment}) + (0.056 \text{ Singapore’s geographical location}) + (0.324 \text{ Singaporean government policies})$$

Positive and negative linear associations are displayed in Table 4.47 and in the equation above. A positive association means that greater agreement with the statement increases
the outcome value, and a lower level of agreement with the statement reduces the outcome value. Yet, when the association is negative, the opposite is true.

**Table 4.47 Hypotheses results**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Content</th>
<th>Significance</th>
<th>Direction of relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>The medical tourists’ financial considerations have a direct positive correlation on their level of satisfaction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1a</td>
<td>The presence of cost factor is highly associated with customer satisfaction.</td>
<td>No</td>
<td>Positive</td>
</tr>
<tr>
<td>H1b</td>
<td>Favourable foreign exchange rates positively impact on customer satisfaction.</td>
<td>No</td>
<td>Positive</td>
</tr>
<tr>
<td>H2</td>
<td>The level of service quality in the healthcare organisation has a direct positive correlation on the level of medical tourists’ satisfaction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2a</td>
<td>There is a positive impact of professionalism on customer satisfaction.</td>
<td>Yes</td>
<td>Positive</td>
</tr>
<tr>
<td>H2b</td>
<td>Prompt service has a positive impact on customer satisfaction.</td>
<td>No</td>
<td>Negative</td>
</tr>
<tr>
<td>H2c</td>
<td>There is a positive impact of performance on customer expectations.</td>
<td>No</td>
<td>Positive</td>
</tr>
<tr>
<td>H3</td>
<td>The state of medical facilities is positively correlated with the medical tourists’ satisfaction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3a</td>
<td>The presence of advanced medical facilities is highly associated with customer satisfaction.</td>
<td>No</td>
<td>Positive</td>
</tr>
<tr>
<td>H3b</td>
<td>Advanced medical technology has a positive impact on customer satisfaction.</td>
<td>Yes</td>
<td>Positive</td>
</tr>
<tr>
<td>H4</td>
<td>The environment in Singapore, as a moderating variable, which comprises government support, location, and culture, enhances the impact on the medical tourists’ satisfaction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H4a</td>
<td>Singapore’s multi-culture has a positive impact on customer satisfaction.</td>
<td>No</td>
<td>Positive</td>
</tr>
<tr>
<td>H4b</td>
<td>Singapore’s geographical position has a positive impact on customer satisfaction.</td>
<td>No</td>
<td>Positive</td>
</tr>
<tr>
<td>H4c</td>
<td>Singapore’s government is an important factor and has a positive impact on customer satisfaction.</td>
<td>Yes</td>
<td>Positive</td>
</tr>
</tbody>
</table>

**Source:** Developed by the researcher
After the analysis, it can be concluded that Hypothesis 2 (service quality) is supported by the positive impact of service quality on customer satisfaction. Hypothesis 3 (Medical facilities) is supported because that presence of medical facilities is highly associated with increased medical tourists’ satisfaction. Hypothesis 4 (Environment in Singapore) is supported because the environment in Singapore has a positive influence on medical tourism. However, Hypothesis 1 (Financial consideration) is not supported. There are some reasons for this, which are as follows:

Firstly, this study contributes to the medical tourism industry by exploring and clarifying the relationship between customer satisfaction and service costs. It is better to focus on service quality and customer satisfaction than to focus on cost factors. Secondly, by seeking medical treatment in Singapore, the foreign patients show that they can afford to pay the high costs. This is because this group of respondents have high disposable incomes and are attracted by the high service quality and advanced technologies that Singaporean hospitals offer. Thirdly, previous research by Schmeida, McNeal and Mossberger (2007) shows a strong, positive influence of customer satisfaction and service cost. Once customers are satisfied with the service, they are willing to pay for it. It is permissible to conclude that travellers would prefer to go to a country with a favourable currency exchange rate. Based on current exchange rates, an ASEAN traveller would choose Singapore compared to the United States or Europe for medical treatment as it would result in a greater financial savings.

4.6 QUALITATIVE DATA ANALYSIS

Replies to the open-ended questions were also collected to gain further insights into the hypotheses, and additional comments were sought from the respondents about the medical services. This research design was to encourage full and meaningful feedback from the respondents in order to improve the coverage of the existing close-ended questions. Natural Language Processing (NLP) and an analytical model were used to identify and categorise the data patterns. The feedback was divided into three main categories: Positive/Yes, Negative/No, and Neutral.
Several questions were asked in the survey, which allowed respondents to give their views of areas such as manpower services, product services, and the professionalism of the medical services. For the manpower services, the questions were asked:


‘What experience did you have of the healthcare services in Singapore?’

For service quality, the question proposed was:

‘What do you think medical tourism in Singapore should be?’

For the professionalism of the medical services, the questions were:

‘How satisfied are you with the overall service after your treatment?’

‘Are you happy with the medical services in Singapore?’

The comments and groupings are discussed below.

Providing a high level of service quality was deemed to be the most important area about which a healthcare organisation needs to be cognisant. The main factor enticing customers to visit Singapore for medical treatment was general services (the political view, government, image, professionalism, first class organisation, successful case studies, etc). This result indicated that the respondents were concerned about the country’s reputation and professionalism.

Moreover, doctors’ expertise and the facilities were other important factors that encouraged patients to choose medical treatment in Singapore. Also, a remarkable
proportion of the participants commented that the other services were also important in encouraging them to seek medical services in Singapore.

**Question 1.** What made you choose Singapore for your medical treatment – Professionalism? Medical facilities? Prompt service? Medical service quality? Why?

**Table 4.48 Response to Question 1 – General services**

<table>
<thead>
<tr>
<th>Question</th>
<th>Response to general services</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Professionalism</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Facilities</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Prompt service</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Service quality</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>330</strong></td>
</tr>
</tbody>
</table>

*Source: Developed by the researcher*

**Figure 4.13 Response to Question 1 – General service**
Overall, the respondents perceived that the services processes (general services, professionalism, facilities, prompt services and service quality) were the most impressive aspects of the medical delivery provided by the healthcare organisations in Singapore. The delivery services specifically included administration and help desk services, pre-service services, and customer relationship management.

Moreover, the professionalism of the doctors contributed to the overall positive experience perceived by the customers. In this area, the qualifications and experience of doctors played an important role. Furthermore, we found that the facilities offered by the medical centres were really impressive and this led to the satisfied levels among the medical tourists. This could be due to the patients’ understanding of the medical equipment offered in the medical centres. It follows that medical centres should attempt to organise more promotional campaigns to increase the awareness of the medical tourists.
and to attract more customers. Front-counter employees could also provide better service by keeping up to date with the capabilities of the medical centre.

**Question 2.** What experience did you perceive from the healthcare services in Singapore?

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All services</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Professionalism</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Facilities</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Service quality</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Technology</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>330</td>
</tr>
</tbody>
</table>

*Source: Developed by the researcher*

**Figure 4.14 Response to Question 2 – Service quality**
Comments on service quality
In the hospitality industry, service quality is a key factor in satisfying customers. Feedback will help companies improve and increase the competitive levels in the medical industry. There were various comments provided by the customer for improving the current system, all of which indicates that medical service providers must focus on how to create attractive services that increase customer satisfaction levels and gain customer loyalty (Hu et al. 2011).
**Question 3.** What do you think medical tourism in Singapore should be?

**Table 4.50 Response to Question 3 – Professionalism in medical services**

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do you think medical tourism in Singapore should be?</td>
<td>Better equipment</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Better facilities</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Better service</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Good/ Neutral</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Lower cost</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>More professional</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>More training</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Better reputation</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>330</strong></td>
</tr>
</tbody>
</table>

*Source: Developed by the researcher*

**Figure 4.15 Response to Question 3 – Professionalism in medical services**

*Source: Developed by the researcher*
Comments on professionalism in medical services
When responding to the professionalism of the medical services, almost all the respondents were satisfied with the service after their treatment. They provided positive responses towards the medical service. The current medical services and management direction were therefore deemed to be effective.

Question 4. How satisfied are you with the overall service after your treatment?

Table 4.51 Response to Question 4 – Customer satisfaction

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>How satisfied are you with the overall service after your treatment?</td>
<td>Positive</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>330</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

Figure 4.16 Response to Question 4 – Customer satisfaction

Source: Developed by the researcher
Comments on customer satisfaction

Based on these results, almost all respondents were satisfied with the medical services they received, and only a very small number of respondents gave negative feedback. This means that healthcare providers in Singapore understand that the important issues for healthcare are good service quality and high levels of customer satisfaction. According to Cheng, Yang and Chiang (2003), many studies have developed and applied customer satisfaction as a quality improvement tool for healthcare providers. Patient satisfaction has become an important measurement for monitoring the performance of healthcare plans.

Question 5. Are you happy with the medical services in Singapore?

Table 4.52 Response to Question 5 – Medical services

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you happy with the medical services in Singapore?</td>
<td>Yes</td>
<td>215</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>330</td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

Figure 4.17 Response to Question 5 – Medical services

Source: Developed by the researcher
Comments on medical services
In this question, the happiness of patients was measured. Based on the results, most respondents were happy with the medical services provided. Some respondents felt neutral, and others were unhappy with the medical services provided in Singapore. The rest of the respondents refused to provide their comments to this question.

Question 6. Will you recommend anyone to seek treatment in Singapore?

Table 4.53 Response to Question 6 – Customer loyalty

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will you recommend anyone to seek treatment in Singapore?</td>
<td>Yes</td>
<td>264</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Maybe</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>330</strong></td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

Figure 4.18 Response to Question 6 – Customer loyalty

Source: Developed by the researcher
Comments on customer loyalty

From Table 4.48, most of the respondents would recommend seeking treatment in Singapore. This result indicates that patients were satisfied with all the services provided. According to Hu et al. (2011), loyal customers are not necessarily satisfied customers, but satisfied customers tend to be loyal customers. Singapore healthcare providers should continue to put more effort into ensuring a higher quality of services for customers.

4.7 MEASURING CUSTOMER SATISFACTION

In this section, the overall satisfaction from internal channels (doctor and nurse services) and external channels (counter and facilities services) are tested against the demographic dimensions. The chi-squared statistic was used to determine the association between the factors. A significant chi-squared value indicates an association between the demographic variable and the level of satisfaction. The skewness of the data is indicated by the data frequency counts at the different levels of satisfaction.

The data presented in Table 4.54 (chapter 4) showed that a higher satisfaction level was observed among females than males towards doctors, with the overall significance (sig.) level of 0.629. As a result, male patients were more concerned with the services provided by doctors. It indicated that males had higher expectation level on the medical service quality delivered by the doctors and nurses. Yet it was noted that male patients had higher level of satisfaction with nurses compared to females, with the overall significance (sig.) level being 0.053. It can therefore be concluded that male patient were less concerned with the service quality provided by the nurses compared to female patients. This indicated that females had higher expectation level on the medical service quality delivered by the nurses.

From the results generated and presented in Table 4.54, we found that older patients with a higher level of education and a higher income had higher expectations of the services provided by the different channels. For the satisfaction levels, the significant association
(Sig.) indicated that the overall satisfaction with nurses was strongest with most of the demographic variables. As a result, patients were more concerned with the services provided by nurses, and remained neutral about the services provided by doctors.

Table 4.54 Satisfaction Rates – Doctors and nurses

<table>
<thead>
<tr>
<th></th>
<th>Below expectation</th>
<th>Neutral</th>
<th>Above expectation</th>
<th>Significant (Sig.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall satisfaction with doctors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>46</td>
<td>81</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>42</td>
<td>94</td>
<td>36</td>
</tr>
<tr>
<td>Age group</td>
<td>21-30 years old</td>
<td>9</td>
<td>39</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>31-40 years old</td>
<td>22</td>
<td>53</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>41-50 years old</td>
<td>22</td>
<td>42</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>51-60 years old</td>
<td>25</td>
<td>27</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>61 years old and above</td>
<td>10</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Educational qualification</td>
<td>High school</td>
<td>11</td>
<td>19</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>College</td>
<td>14</td>
<td>26</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>University</td>
<td>44</td>
<td>90</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Postgraduate</td>
<td>19</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Annual income</td>
<td>Under US$50,000</td>
<td>11</td>
<td>28</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>US$50,000 - US$100,000</td>
<td>20</td>
<td>53</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>US$100,000 - US$150,000</td>
<td>26</td>
<td>45</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Above US$150,000</td>
<td>15</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>Overall satisfaction with nurses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>58</td>
<td>71</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>46</td>
<td>100</td>
<td>26</td>
</tr>
<tr>
<td>Age group</td>
<td>21-30 years old</td>
<td>7</td>
<td>43</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>31-40 years old</td>
<td>25</td>
<td>52</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>41-50 years old</td>
<td>29</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>51-60 years old</td>
<td>24</td>
<td>28</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>61 years old and above</td>
<td>19</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Educational qualification</td>
<td>High school</td>
<td>11</td>
<td>23</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>College</td>
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<td>26</td>
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</tr>
<tr>
<td></td>
<td>University</td>
<td>54</td>
<td>91</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Postgraduate</td>
<td>30</td>
<td>31</td>
<td>8</td>
</tr>
<tr>
<td>Annual income</td>
<td>Under US$50,000</td>
<td>4</td>
<td>35</td>
<td>11</td>
</tr>
</tbody>
</table>
For the external channels, patients were least concerned (non-significant chi-squared statistic) about the counter service and the facilities services provided. From this point of view, we found that patients rated their satisfaction levels for both channels in line with what they paid and not with any specific needs or requirements in a particular area. They rated the services from the internal channel (doctor and nurse services) higher than the services from the external channel (counter and facilities provided).

Table 4.55 Satisfaction rate

<table>
<thead>
<tr>
<th>Overall satisfaction with counter staffs</th>
<th>Below expectation</th>
<th>Neutral</th>
<th>Above expectation</th>
<th>Significant (Sig.)</th>
</tr>
</thead>
<tbody>
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<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>60</td>
<td>69</td>
<td>29</td>
<td>0.715</td>
</tr>
<tr>
<td>Female</td>
<td>63</td>
<td>82</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-30 years old</td>
<td>10</td>
<td>43</td>
<td>13</td>
<td>0.001</td>
</tr>
<tr>
<td>31-40 years old</td>
<td>31</td>
<td>46</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>41-50 years old</td>
<td>37</td>
<td>30</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>51-60 years old</td>
<td>31</td>
<td>20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>60 years old and above</td>
<td>14</td>
<td>12</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Educational qualifications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>8</td>
<td>23</td>
<td>11</td>
<td>0.032</td>
</tr>
<tr>
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<td>25</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>University</td>
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<td>79</td>
<td>28</td>
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</tr>
<tr>
<td>Postgraduate</td>
<td>36</td>
<td>24</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Under US$50,000</td>
<td>13</td>
<td>27</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Annual income</td>
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<td></td>
<td></td>
</tr>
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<td>US$100,000 - US$150,000</td>
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<td>12</td>
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<tr>
<td>Above US$150,000</td>
<td>23</td>
<td>17</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Overall satisfaction with hospital services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>73</td>
<td>56</td>
<td>29</td>
<td>0.282</td>
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<tr>
<td>Female</td>
<td>90</td>
<td>47</td>
<td>35</td>
<td></td>
</tr>
</tbody>
</table>

Source: Developed by the researcher
<table>
<thead>
<tr>
<th>Age group</th>
<th>Below expectation</th>
<th>Neutral</th>
<th>Above expectation</th>
<th>Significant (Sig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30 years old</td>
<td>41</td>
<td>9</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>31-40 years old</td>
<td>46</td>
<td>23</td>
<td>26</td>
<td>0.001</td>
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<tr>
<td>41-50 years old</td>
<td>36</td>
<td>32</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>51-60 years old</td>
<td>27</td>
<td>26</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>60 years old and above</td>
<td>13</td>
<td>13</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Educational qualifications</td>
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<td>High school</td>
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<td>University</td>
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</tr>
<tr>
<td>Postgraduate</td>
<td>31</td>
<td>25</td>
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</tr>
<tr>
<td>Annual income</td>
<td></td>
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<td></td>
<td></td>
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<td>13</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Above US$150,000</td>
<td>25</td>
<td>17</td>
<td>7</td>
<td></td>
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<tr>
<td>Overall satisfaction with hospital facilities</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
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<td>65</td>
<td>32</td>
<td>0.707</td>
</tr>
<tr>
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<td>67</td>
<td>76</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-30 years old</td>
<td>10</td>
<td>39</td>
<td>17</td>
<td>0.000</td>
</tr>
<tr>
<td>31-40 years old</td>
<td>34</td>
<td>42</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>41-50 years old</td>
<td>36</td>
<td>28</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>51-60 years old</td>
<td>35</td>
<td>20</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>61 years old and above</td>
<td>13</td>
<td>12</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Educational qualifications</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>High school</td>
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<td>21</td>
<td>11</td>
<td>0.059</td>
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<tr>
<td>College</td>
<td>17</td>
<td>26</td>
<td>6</td>
<td></td>
</tr>
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<td>University</td>
<td>76</td>
<td>60</td>
<td>34</td>
<td></td>
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<tr>
<td>Postgraduate</td>
<td>25</td>
<td>34</td>
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<td></td>
</tr>
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<td>Under US$50,000</td>
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<td></td>
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<tr>
<td>Above US$150,000</td>
<td>23</td>
<td>20</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Source: Developed by the researcher

4.8 CONCLUSION

In conclusion, this research aimed at investigating patients' satisfaction behaviour towards first-class medical services in Singapore. From the research findings, it is clear that product quality and the facilities, among other factors, were the key drivers of patients’
satisfaction levels. Among the significant factors, the facilities factor was ranked as the most important determinant of patients’ satisfaction behaviour. From this, it can be concluded that respondents did not view price as their first consideration, but regarded medical facilities as the most important factor in their decision-making. This is a positive insight as it indicated the maturity of the consumer in purchasing or subscribing to a service. The quality of the medical facilities mainly refers to the subscribed service.

The results of this study indicate that most of the participants have a high income and that cost does not affect their satisfaction. The participants are relatively wealthy. Therefore, by seeking medical treatments in Singapore, they show that they can afford to pay the high costs. However, some respondents (e.g. from the United States) may have come to Singapore because of the lower costs. Other patients (e.g. from Indonesia or Vietnam) come to Singapore strictly for the high service quality and advance technology, and are prepared to pay the higher costs. The findings of this study further confirm previous research by Forgione and Smith (2006), who stated that most people in healthcare and its related industries were convinced that higher quality means higher cost and that, if consumers want better healthcare, they should be willing to spend more.

Moreover, service quality showed a significant influence on the satisfaction levels of the respondents. Service quality was seen as providing a sense of customer satisfaction’. Refer to Figure 4.15 (Response to Question 2 – Service quality). A total of 112 out of 330 participants’ answers were recorded, which showed that service quality was important and led to customer satisfaction with medical tourism in Singapore. The findings were consistent with Hu et al. (2011), who stated that, in the hospitality industry, service quality is a key factor in satisfying customers. To consumers, service quality was seen as providing sense of assurance. We can therefore conclude that customers consistently used service quality as their key criterion when making decisions about the location of their medical treatment. There has been an increasing focus on, and interest in, research into first-class quality medical management.
First class quality medical management is defined as a highly personalised luxury service provided by excellent medical professionals with access to excellent medical facilities. From the attitudinal and behavioural perspective, Dubois, Czellar and Laurent (2005) discovered that consumer attitudes towards the concept of luxury-branded goods varied considerably. Their research found that consumers simultaneously revealed strong positive and negative feelings towards luxury services, with the positive feelings being felt after the service, and the negative feelings relating to their disappointment in the brand quality. Therefore, it can be concluded that consumers always relate luxury service with service quality.

Researchers also believe that other factors, such as political issues, the country’s policies and its red tape, and the level of social and community support, will always affect the consumers’ decisions. In this research, these other factors were found to be significant, but were less important for the consumers’ decisions. From this point of view, most of the respondents would continue to consider Singapore as one of their preferred destinations for medical treatment owing to its political stability and excellent reputation. In contrast, these results showed that financial factors did not impact the respondents’ levels of satisfaction. Finance will always be a key factor influencing customers’ decisions. Specific to this research, a non-significant result was observed based on the data analysis and, although product price might be important, it is not the main factor influencing customers’ decisions.

This chapter discussed the data analysis of the study and described the results of this research. The next chapter, Chapter 5 Conclusions, provides a summary of the thesis, with findings and recommendations.
CHAPTER 5
CONCLUSIONS
5.1 INTRODUCTION

This thesis investigates the relationship between service quality and customer satisfaction in the medical tourism industry by focusing on service performance and the factors that attract foreign patients to Singapore for medical treatment. This chapter summarises the previous four chapters and discusses the key research outcomes, implications, limitations, and the study’s contribution to new knowledge. There are seven sections in this chapter.

Beginning with an introduction in Section 5.1, a summary of the study is described in Section 5.2, followed by a discussion in Section 5.3 of the conclusions derived from the research results. The highlights of the implications and the contributions to theory and practice are discussed in Section 5.4. The chapter continues with a discussion of the research limitations in Section 5.5, and provides suggestions for future research directions in Section 5.6. Finally, a conclusion is provided in Section 5.7. The structure of Chapter 5 is shown in Figure 5.1.
5.2 SUMMARY OF THE STUDY

This study focuses on the key factors influencing customer satisfaction, and on the factors that attract foreign patients to Singapore for medical treatment. It identifies medical tourists’ characteristics, and investigates the relationship between the medical attributes and medical tourists’ satisfaction. This research effort will give tourism practitioners and planners a better understanding of medical tourists, and enable them to formulate effective strategies to enhance service quality for medical tourists and to maintain business success.

5.2.1 Purposes of the study

The purposes of the study were to identify the critical factors attracting medical tourists to Singapore. These factors include:

- Financial consideration, including cost factors and the foreign exchange rate.
- Medical service quality, focusing on professionalism, prompt service, customer expectations, customer-perceived performance, and customer satisfaction.
• Medical facilities and advanced medical technologies.
• Singapore’s geographical location, culture, and government.

The research seeks to measure customer satisfaction levels in the medical tourism industry in Singapore. In the same vein, the research also extends the Expectancy Confirmation model (ECT) to examine the role of consumers’ attitudes towards medical professionalism, facilities, and service quality. It also identifies gaps in service quality in the medical tourism industry, and defines the important perceived service quality dimensions which influence customer satisfaction in Singapore’s medical tourism industry.

5.2.2 Research participants

A total of 170 female respondents (52.1%) and 158 male respondents (47.9%) participated in this survey. Respondents in the range of 31-40 years old were the most progressive respondents, with a 28.8% response rate (95 cases out of a total of 330). In contrast to this group, respondents aged 60 years and older recorded the lowest response to this survey, with a 9.7% response rate.

The collected data shows 49 respondents with income levels above US$150,000 per annum (14.8%), compared with 25.2% respondents with income levels between US$100,000 and US$150,000 per annum. Respondents with income levels between US$50,000 and US$100,000 per annum account for 27.6% of the total sample. Finally, 50 out of the 330 respondents (15.2%) earn annual incomes under US$50,000.

For the patients’ nationalities, more than one-third of patients (35.5%) were from Vietnam. The second highest number were from Indonesia with 80 patients (24.2%), followed by Malaysia with 41 patients (12.4%). The next highest number of patients to seek medical services came from Myanmar (formerly Burma) and Cambodia, with 24 patients each (7.3%). The 44 patients from other nations accounted for 15% of the total.
Finally, it was observed that the majority of the foreign patients had visited Singapore more than once. This shows that the respondents were familiar with the culture and the protocols of Singapore. It also indicates that the service quality of medical treatment offered in Singapore is good.

5.3 RESEARCH RESULTS

5.3.1 Research Question 1 – Critical factors

What are the critical factors that attract medical tourists to Singapore?

Medical tourism offers an opportunity for Singapore’s healthcare industry to fuel growth by tapping the potential of the international patient market. This research indicates that doctors, nurses, medical facilities and advanced medical technologies are key drivers for attracting medical tourists to come to Singapore for medical treatment. In addition, from their responses to the open-ended questions, the respondents were more concerned with the country’s reputation and professionalism. They comment that the doctors’ expertise and the facilities are important factors for encouraging them to choose medical treatment in Singapore. The following paragraphs are linked to theories and past studies which support this statement.

To attract foreign patients, healthcare providers may consider leveraging both business and clinical considerations (George & Swamy 2006). Price and service quality are major factors affecting and influencing customer decision-making (Schmeida, McNeal & Mossberger 2007). This research finds that the price is not the issue because the participants are from a high-income group who can afford to travel to the overseas to seek medical treatment. It follows that, if consumers want better healthcare, they should be willing to spend more. In service organisations, human resources are probably the most important resources for an organisation’s success (Guest 1997). Human resources represent the organisation in providing its services (Zeithaml & Bitner 1996), carry the responsibility of projecting their organisation’s image, and create a satisfying service experience for the customer (Bowen & Lawler 1991). Furthermore, according to Stern
(2005), professionalism in Singapore is built on a foundation of clinical competence, communication skills, and ethical and legal understanding.

5.3.2 Research Question 2 – Customer expectations

What are the customer expectations of the medical tourism industry in Singapore?

This research indicates that foreign patients have confidence in Singapore’s medical services reputation. They place a high value on the services received, and they expect excellent medical service quality to be provided by the doctors and nurses. This is consistent with the findings of Seth and Deshmukh (2005), who stated that emphasis needs to be placed on understanding the role of customer expectations, that consumers’ expectations of quality are increasing, and that people are becoming more discerning and critical of the quality of the service that they experience.

Several studies (Jabnoun & Khalifa 2005; Saravanan & Rao 2007; Shahin & Samea 2010; Hung et al. 2003) have found that providing excellent service quality and high customer satisfaction is one of the most important issues challenging today’s service industry. According to Yap and Sweeney (2007), customers may expect to experience efficiency, helpfulness, reliability and confidence from service staff as an indication of the staff’s personal interest in their patronage. If customers’ expectations are met, customer satisfaction is the result.

This research posits that, if customer perceptions are higher than customer expectations, the service will be regarded as excellent. If perceptions are the same as their expectations, the service will be considered good and, finally, if expectations are not met, the service will be considered bad. This is similar to earlier research (Oliver 1997b) that stated that satisfaction can also be described as a fulfilment response to service, and an attitude change as a result of consumption. The study by Eskildsen et al. (2004) indicated that perceived value, customer satisfaction and customer loyalty are driven by company image, customer expectations, product quality and service quality. The findings in the current study indicate that the differences between customers’ expectations and the perceived performance are not significant. This means that, whatever customers expect,
the actual service that they receive just meets their needs. Therefore, medical tourism management should seek to improve overall services to deliver a higher level of service performance to customers.

The results in Chapter 4 Table 4.11 reveal that the service perceived is more important than the expectation set. This is indicated by the higher scores noted in the service perceived factor (4.18) compared to the service expectation factor (4.12) from the doctors. Similarly, the service perceived factor for the medical facilities scored higher (4.13) in comparison to the service expectation factor (3.97). It was observed that counter staff scored lowest on expectation (service expectation 3.51, service perceived 3.73, and service satisfaction 3.8). These results mean that the customer satisfaction levels for the first-class medical service are minimal for the counter-staff service. However, it does not mean that this service is not important. Continuous improvements in the services still need to be made.

Healthcare management has to strive to bridge these gaps to improve service quality and increase customer satisfaction, and attempt to promote customer loyalty, which in turn would impact business performance. According to Berry and Parasuraman (1991), there is a range of service performances that a customer regards as satisfactory. Customers may accept variation within that range, but any increase in performance within the range would only have a marginal effect on perceptions. When performance goes outside the range, it has an impact on the perceived service quality (Liljander & Strandvik 1995).

5.3.3 Research Question 3 – Service quality and customer satisfaction

Is there any relationship between service quality and customer satisfaction in Singapore’s medical tourism industry?

The empirical findings of this study show that medical service quality is needed for creating customer satisfaction and customer-perceived service quality. There is a close relationship between customer perceptions and customer expectations. In other words, the results show that a clear relationship exists between perceived service quality and
customer satisfaction. If customers perceive that the actual service is not of a high standard, they are not satisfied. Previous research by Harr (2008) indicated a causal relationship between customer satisfaction and service quality, and that service quality is a prerequisite for customer satisfaction. Ah and Wan (2006) stated that customers must perceive the outcomes to be fair or just if they are to be satisfied with the service provider’s attempts at service recovery. Hence, their perceptions centre on the service recovery itself, the outcomes relating to the recovery strategy, and the interpersonal behaviours during the recovery process and during the delivery of the outcomes.

The results of research into the banking industry carried out by Mosahab, Mahamad and Ramayah (2010) showed that, in all aspects, customers’ expectations were higher than their perceptions of a bank’s operation, and the quality of the services offered was low. Besides, the research findings indicated that customer satisfaction plays the role of a mediator in the effects of service quality on service loyalty. Moreover, Gibson (2005a) confirmed that satisfied customers are likely to be loyal customers, and that they are also likely to spread their positive service experience by word of mouth. Furthermore, Wang, Huang and Wang (2011) found that the perceived service curve changes slowly with the change in satisfaction levels. The authors recommended that companies should keep customer satisfaction at a certain level, rather than attempting to promote it all the time.

5.3.4 Research Question 4 – Environment

How does the environment in Singapore, comprising government support, location, and culture, influence medical tourist satisfaction?

Based on the results obtained in this study, the environment factors have the greatest impact on customers’ satisfaction with medical services, with the highest mean score of 4.01. This is followed by medical facilities with a mean value of 3.99. Customers’ satisfaction with other factors, such as Singapore’s culture, geography and government, score a mean of 3.98. Finally, the financial consideration factor, with a mean value of 3.07, does not have a significant impact on customer satisfaction.
Other results, with a mean score of 4.26, show that customers agreed that Singapore has one of the best medical services in Asia. Customers expect good service from doctors (a mean score of 4.12), and they rate the actual service from doctors with a mean value of 4.18. These results mean that customers are satisfied with the service they received from doctors. This is the most important dimension that influences customer satisfaction in Singapore’s medical tourism industry. For more details see Section 4.5.1 Multiple Regression Analysis in Chapter 4.

Previous studies by Devlin and Dong (1994) noted that, in an increasingly competitive environment, service quality is critical for corporate success. In their study, they linked the notion of service quality to customer satisfaction. Ultimately, it is customer satisfaction that leads to a larger market share and higher profitability. Geographical location has been identified as one of the critical factors that springs to customers’ minds immediately before they decide to travel overseas (Thompson, Kyrillidou & Cook 2008). Geographical factors, such as the distance from the point of embarkation, will affect travel costs and travel time.

Based on the findings in this research, most of the respondents would continue to consider Singapore as one of their preferred destinations for medical treatment. This is due to the stability and reputation of Singapore. Moreover, Singapore is well known for its cleanliness, orderliness, and its ultra-high standard of private medical care.

5.3.5 Research Question 5 – Measurement of customer satisfaction

How can the satisfaction of medical tourists seeking medical attention in Singapore be measured?

Customer satisfaction should be translated into a number of measurable parameters. Customer satisfaction measurements may be considered as the most reliable kind of feedback, providing clients’ preferences and expectations in an effective, direct, meaningful, and objective way (Grigoroudis, Politis & Siskos 2002).
In this study, customer satisfaction measurements are categorised into customer expectations, customer-perceived performance, and customer satisfaction with various channels (doctors, nurses, counter staff, services, and facilities). The formula for measuring customer satisfaction is shown in Figure 5.2.

**Figure 5.2 Formula for measuring customer satisfaction**

\[
\text{Customer satisfaction} = \text{Customer-perceived performance} - \text{Customer expectation}
\]

*Source: Zeithaml & Bitner 2003*

**Table 5.1 Research results – Service channels**

<table>
<thead>
<tr>
<th>Service channels</th>
<th>Customer satisfaction</th>
<th>Customer expectation</th>
<th>Customer-perceived performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>4.47</td>
<td>4.12</td>
<td>4.18</td>
</tr>
<tr>
<td>Nurses</td>
<td>4.06</td>
<td>3.75</td>
<td>3.90</td>
</tr>
<tr>
<td>Counter staff</td>
<td>3.80</td>
<td>3.51</td>
<td>3.73</td>
</tr>
<tr>
<td>Hospital services</td>
<td>4.17</td>
<td>3.85</td>
<td>4.08</td>
</tr>
<tr>
<td>Hospital facilities</td>
<td>4.36</td>
<td>3.97</td>
<td>4.13</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>4.17</strong></td>
<td><strong>3.84</strong></td>
<td><strong>4.00</strong></td>
</tr>
</tbody>
</table>

*Source: Developed by the researcher*

Overall, the data presented in Table 5.1 indicated that customer satisfaction had the highest mean score (4.17) compared to customer expectation (3.84) and customer-perceived performance (4.00). Notably, customers’ expectations of doctors record the highest score (4.12), with a satisfaction score of 4.47. This finding indicates that the respondents are satisfied with the service that they received from the doctors. Overall, counter-staff service records the lowest score among the channels of service (3.80). Customer expectations and customer-perceived performance are the lowest within their categories, registering scores of 3.51 and 3.73 respectively. These results are consistent with results from Hu et al. (2011), Chaska (2006), Moliner (2009), and Naidu (2009).
The research by Hernon and Whitwan (2001) defined customer satisfaction as a measure of how the customer perceives service delivery. To ensure that customer satisfaction levels are high, it is important that organisations understand the expectations of customers and how they can meet such expectations through a satisfactory level of performance. In this context, customer satisfaction helps with customer loyalty and with customer retention (Herrick 2007). Building on the research by Hernon and Whitwan (2001), Yang and Peterson (2004) demonstrated that customer loyalty, through both satisfaction and perception, would have moderating effects. Organisations should focus primarily on customer satisfaction and perceived value.

Delivering quality service is an enduring major challenge for hospitality managers. The ability to deliver a quality service remains an essential condition for success in the emerging and keenly competitive global hospitality markets. There are various tools that measure and improve quality service, as well as mechanisms for quality recognition in the tourism and hospitality industry (Kapiki 2012). Examples are described in the next two sections.

5.3.5.1 Tools to measure and improve quality service

According to Postma and Jenkins (1997), perceived quality needs to be measured both internally and externally. The perceived quality service model by Gronroos (1990) is a helpful tool to understand factors that affect customers’ perceived quality of a company’s service. Furthermore, the five-gaps quality service model introduced by Parasuraman, Zeithaml and Berry (1994) is a helpful instrument for defining the objectives of quality management.

5.3.5.2 Mechanisms for quality recognition in the tourism and hospitality services

Firstly, the use of quality labels (European Parliament 2007) is one of various mechanisms aimed at delivering quality in tourism services. Two forms of measurement are commonly used: physical measures and quality of service. Secondly, the Malcolm Baldrige National Quality Award is the highest level of national recognition for quality
products and services that a US company can receive. This award promotes an understanding of quality excellence, a greater awareness of quality as a critical element in competition, and the sharing of information about, and strategies for, achieving quality outcomes (Walker 2010). Finally, recognition from the Leading Hotels of the World (LHW), based on hundreds of separate, stringent criteria, is regarded as one of the most prestigious quality awards in the hotel industry (Laloumis & Katsoni 2010).

5.3.6 General results

A total of 21 questions are used to measure the features of customer satisfaction level towards first class Singapore medical services. These items are divided into four main dimensions: financial consideration, service quality, medical facilities, and other factors. A five-point scale measures the respondents’ perceptions. The service quality factor has the highest mean score of 4.01, followed by the medical facilities factor with mean value of 3.99. Other factors record a score of 3.98, while the least important factor affecting customers’ satisfaction with the medical service is the financial factor, with a mean value of 3.07. The highest scoring of all factors is Singapore’s medical services, with a mean score of 4.26. The customer expectations factor has a mean score of 4.18, and service perceived a mean score of 4.18, thus indicating the close agreement among all the statements. Based on the above results, this researcher can conclude that:

Firstly, this study contributes to the medical tourism industry by exploring and clarifying the relationship between customer satisfaction and service costs. It is better to focus on service quality and customer satisfaction than to focus on cost factors. Secondly, by seeking medical treatment in Singapore, the foreign patients show that they can afford to pay the high costs. This is because this group of respondents have high disposable incomes and are attracted by the high service quality and advanced technologies that Singaporean hospitals offer. Thirdly, previous research by Schmeida, McNeal and Mossberger (2007) shows a strong, positive influence of customer satisfaction and service cost. Once customers are satisfied with the service, they are willing to pay for it.
Medical service quality, doctors, nurses, counter staff, facilities, and advanced technology are key drivers of the satisfaction levels of medical tourists. Notably, facilities rank as the top determining factor influencing medical tourists’ satisfaction behaviours. In addition, service quality proves to be a critical factor with a direct impact on medical tourists’ satisfaction levels. The political environment factor is the least important in consumers’ decision-making. In terms of choice, most respondents regard Singapore as a medical treatment destination primarily owing to its political stability and its excellent reputation.

Usually, financial factors are the main considerations for consumers. On the contrary, this research finds that financial factors do not have a great impact on satisfaction levels. Respondents do not rate pricing and monetary factors as their main considerations, but instead rate medical facilities as the most important factor for making their decision. Finally, this research reaffirms that older patients with higher education and income levels tend to have higher expectations of the services provided by the different channels. They are more particular about the services provided by the nurses than they are about the services provided by the doctors.

This research emphasises the positive influences on the service quality perceived by patients when seeking medical treatment in Singapore. Examination and analysis of the study will help the healthcare tourism industry to improve the quality of its medical services. This in turn will stimulate and thus improve customers’ behaviour towards choosing Singapore as a destination for medical treatment.

Hypothesis 1: The medical tourists’ financial considerations have a direct positive correlation on their levels of satisfaction.

H1a. The presence of a cost factor is highly associated with customer satisfaction.

H1b. Favourable foreign exchange rates positively impact on customer satisfaction.

Hypothesis H1a states that the presence of a cost factor is highly associated with customer satisfaction. This means that the cost factor indicates both high costs and low costs. The statement that “highly associated with” seeks to ascertain if high or low costs strongly influence the customer satisfaction. For example, choosing Singapore for medical
treatment indicates that those foreign patients can afford to pay the high costs. However, some patients (e.g. from the United States) may visit Singapore strictly for the high quality of the medical services they receive. Hypothesis 1 aimed to measure whether financial considerations (costs) have a direct and positive effect on the level of customer satisfaction. Following from this main hypothesis, hypothesis H1b was developed to test if foreign exchange rates positively affected customer satisfaction of foreign patients coming to Singapore.

With reference to the hypotheses described in the previous chapter, hypothesis 1 is not supported by this research because patients understood that financial problems were not associated with satisfaction levels. That said, most organisations are trying to improve service quality while at the same time lowering their costs through a continuous process involving the efforts of each department within the organisation. Therefore, patients travelling abroad to seek medical treatment at a lower cost is now possible. Dayrit (2004) found that lowering the cost of healthcare while still maintaining a very high level of service quality is the best way for the healthcare industry to attract foreign patients. As the price of healthcare increases in Western nations, many of their citizens will increasingly travel overseas for medical treatment.

Previous research by Schmeida, McNeal and Mossberger (2007) concluded that service quality and price are major factors affecting and influencing customer decision-making. However, service quality and customer satisfaction are the most important factors. Findings by Homburg, Koschate and Hoyer (2005b) showed a strong, positive influence of customer satisfaction on their willingness to pay. Customers who have been very satisfied with a service in the past will not only choose the same service provider again in the future, but are also willing to pay a premium price for that service.

In sum, it is permissible to conclude that countries with favourable currency exchange rate will continue to be attractive destinations for medical tourists. This study contributes to the medical tourism industry by exploring and clarifying the relationship between service
quality and financial considerations. It is better to focus on service quality and customer satisfaction than it is to focus on cost factors.

Hypothesis 2: The level of service quality in the healthcare organisations has direct positive correlation on the level of medical tourists’ satisfaction.

H2a. There is a positive impact of professionalism on customer satisfaction.

H2b. Prompt service has a positive impact on customer satisfaction.

H2c. There is a positive impact of performance on customer expectations.

Hypothesis 2 (service quality) is supported by this research. In many service offerings, satisfaction levels are directly related to financial measurements: higher costs translate into a better service. In high-end medical services, however, customer expectations and customer satisfaction might not follow this rule.

The findings of the current research expand on the results of studies of previous researchers. For instance, Grewal, Das and Kishore (2012) found that medical tourists’ satisfaction with services is an essential indicator of the quality of the healthcare that they received. In their study, many of the factors of customer satisfaction were graded excellent and very good. These factors included services from courteous staff in reception, promptness to attend to queries, the admission procedures, waiting time, nursing staff, and promptness to attend to calls.

High-spending consumers would expect high-quality services and the best facilities for the price that they paid. The professionalism of front-line workers such as nurses and receptionists as well as the professionalism of the doctors and counsellors, increased the levels of satisfaction. Proper training needs to be given to all employees to ensure that service quality is achieved. Moreover, Eskildsen and Kristensen (2007) found that, although service quality has a significant impact on customer satisfaction and customer loyalty across all industries, it is even more important for the healthcare industry.
This study explores the importance of service quality teams and their potential to influence customer satisfaction. The results presented herein show that service quality is positively related to customer satisfaction. Improving patient satisfaction and loyalty starts with perceived quality. Improving perceived quality concentrates mainly on improving hardware, and improving the staff’s abilities, knowledge, and levels of service. These findings closely correspond with the results of Hu et al. (2011) and Yesilada and Direktor (2010).

Hypothesis 3: The state of medical facilities is positively correlated with the medical tourists’ satisfaction.

H3a. The presence of advanced medical facilities is highly associated with customer satisfaction.

H3b. Advanced medical technology has a positive impact on customer satisfaction.

Hypothesis 3 (Medical facilities) is supported because patients expect better technology, better facilities, and quality services and environment, all provided at a cost which meets their levels of satisfaction. These expectations are not surprising in a high-end service industry because the majority of the customers are in the higher spending group and would have had high levels of expectation. The finding of the H3a and H3b were supported because patients expect advanced technology and advanced facilities that meet their levels of expectation and satisfaction.

Singapore has attracted various large medical technology companies to establish commercial operations, research and development centres, as well as manufacturing facilities in this South East Asian territory (Singapore Medical Tourism 2011). Hospitals and medical centres in Singapore have capitalised on the advanced technology infrastructure and the supporting industries that supply sophisticated equipment and facilities within Singapore (Ministry of Health Singapore 2013). This has elevated Singapore to the status of one of the most advanced medical hubs in South East Asia. In addition, high-end consumers want the best medical technologies they can afford.
Therefore, the results of this study suggest that medical technology companies need to keep up to date and conduct research in order to continuously improve their technologies.

Hypothesis 4: The environment in Singapore, as a moderating variable, which comprises government support, location, and culture, enhances the impact on the medical tourists’ satisfaction.

H4a. Singapore’s multi-culture has a positive impact on customer satisfaction.
H4b. Singapore’s geographical position has a positive impact on customer satisfaction.
H4c. Singapore’s government is an important factor and has a positive impact on customer satisfaction.

Hypothesis 4 (Environment in Singapore) is supported by this study. Previous research by Eskildsen, Kristensen and Henrik (2010) stated that Singapore has achieved a significant degree of cultural diffusion with its unique mixed of racial groups, and this has given it a rich cultural diversity, which is an advantage for medical tourism. Singapore’s centralised location within South East Asia makes it attractive to medical tourists travelling from Vietnam, Thailand, and Indonesia as it reduces travelling time and costs in comparison with travelling to Europe or the United States for medical treatment. Geographical location has been identified as one of the critical factors that customers consider before they decide to travel overseas (Thompson, Kyrillidou & Cook 2008).

This study has determined that Singapore’s multi-culture and geographical position creates a positive impact on customer satisfaction. Singapore’s government is an important factor and has a positive impact on customer satisfaction. For example, according to Wood (2009), the Singaporean government is aggressively promoting medical tourism by providing extended visa periods for medical tourists from six months to one year.

A previous study by Lee (2006) stated that, in most rapidly developing countries, medical services grow in response to demand and become an essential part of people’s lives. However, it remains to be seen which countries are able to meet the growing domestic
demand for medical services, and which countries with better developed infrastructure can exploit these opportunities. The Singaporean government has invested heavily in education, including the expenditure of more than 3% of its GDP, and in successful promotional efforts that have led top global universities to set up schools in the region (Singapore Travel 2012). Previous research by Eskildsen, Kristensen and Henrik (2010) state that Singapore has achieved a significant degree of cultural diffusion with its unique mixed of racial groups, and this has given it a rich cultural diversity which is an advantage for medical tourism. The Singaporean government continue to play a major role in maintaining racial harmony and social equity among the various ethnic groups.

This study has determined that Singapore’s environment has a positive effect on medical tourism; Singapore’s multi-culture creates a positive environment for medical tourists; Singapore’s geographical position benefits medical tourism, and Singapore’s government is an important factor in attracting medical tourists. However, it is difficult to predict the trend into the future. If these neighbouring countries (Vietnam and Indonesia) are able to improve their service quality, they have the potential to replace Singapore as a medical hub.

5.4 RESEARCH CONTRIBUTIONS

5.4.1 Theoretical contributions

This thesis provides several noteworthy contributions to knowledge. Firstly, it develops a new conceptual medical service quality model applicable to the medical tourism industry. Secondly, it extends the Kano and ECT models to measure service quality in the medical tourism industry. Lastly, it successfully tests the service quality questionnaires which were specifically developed for this research, and which led to useful empirical findings.

5.4.1.1 New conceptual customer satisfaction model

In this research, a new conceptual customer satisfaction model applicable to the medical tourism industry is developed. The model is based on the findings from this current research and three supported hypotheses. The outcomes and major contribution of the
research show that customer satisfaction remains a key determinant for medical tourists choosing medical treatment abroad. The details of the research contributions are elaborated in section 5.4.2.

The new model for medical tourism customer satisfaction uses three important attributes, which were tested through questionnaire survey such as Service Quality; Medical Facilities and Environment. These attributes identify the main factors that attract medical tourists to Singapore for medical attention. A positive customer-perceived performance results will result in customer satisfaction and retention. This operationalised model (see Figure 5.3) provides a useful framework for further theoretical and empirical research to further understand and strengthen medical tourist satisfaction in the medical tourism industry.

**Figure 5.3 Medical Tourism Industry – Customer Satisfaction Model**

Source: Developed by the researcher
5.4.1.1 Service Quality

As discussed in Chapter 2, this research explores the importance of service quality teams and their potential to influence customer satisfaction. The findings suggest that the level of service quality in the healthcare organisations has a direct positive correlation on the level of medical tourists’ satisfaction. Yesilada and Direktor (2010) argued that, although service quality has a significant impact on customer satisfaction and customer loyalty across all industries, it is even more important for the healthcare industry. In conclusion, the level of professionalism of frontline employees, such as receptionists and nurses, as well as the competency of the doctors and counsellors, remain key drivers that affect the level of patient satisfaction. To this end, proper employee training needs to be given to ensure that a high customer-contact service delivery is maintained.

5.4.1.2 Medical Facilities

As detailed in Chapter 2, a key objective of this study was to determine the influence of medical facilities on the medical tourists’ satisfaction. The findings indicated that the presence of advanced medical facilities is highly associated with a high level of healthcare services, and that this influences the level of tourists’ satisfaction. Indeed, patients expect better technology, better facilities and quality services and environment, all provided at a cost which meets their levels of satisfaction. In conclusion, these expectations are not surprising in a high-end service industry because the majority of the customers are in the higher-spending group and would have had high levels of expectation. Importantly, hospitals and medical centres in Singapore need to continue conduct research and development, and capitalise on the advanced technology in the market to satisfy customers and sustain customer loyalty.

5.4.1.3 Environment

Another objective of the study was to determine how the environment in Singapore, which comprises government support, location, and culture influence the medical tourists’
satisfaction. The findings indicate that Singapore’s environment positively influences customer satisfaction. Medical tourists are confident with the social, political and economic environment created by the Singaporean government. The Singaporean government is seen as an effective government that has successfully projected a good image to the world. Previous research by Eskildsen, Kristensen and Henrik (2010) state that the Singaporean government has been effective in maintaining social stability within the country, given the diverse ethnic backgrounds of the population. Wood (2009) states that the Singaporean government continues to be aggressive in promoting medical tourism by providing extended visa periods for medical tourists from six months to one year. In sum, this research suggest that the Singaporean government needs to continue creating a palatable environment to attract medical patients from overseas.

5.4.1.4 Positive Perceived Performance

Perception determines whether customers choose a particular service or product, and whether they would recommend the supply company to others (Lasser, Manolis & Winsor 2000). A positive customer perceived performance means customers exceed their expectations. The gap between expectation and perceived performance is related to consumer satisfaction/dissatisfaction. The proposed model reveals that customer satisfaction is significantly related to customer perceived performance. If management wants to enhance customers’ satisfaction, it would be more beneficial to influence customers’ perceptions of the service performance rather than altering their expectations. Based on the findings, managers and staff in the medical departments in hospitals must focus on customer demands for consistency, meet customer needs for clear policies on service quality, and provide up-to-date medical treatment and service quality.

5.4.1.5 Customer Satisfaction

The empirical findings of this study show that service quality, medical facilities and Singapore’s environment have created a positive customer perceived performance and customer satisfaction. The new customer satisfaction model will benefit the medical
tourism industry. Organisations should focus primarily on customer satisfaction and perceived performance. Hu et al. (2011) stated that customer satisfaction is a measure of how the customer perceives performance. To ensure that customer satisfaction levels are high, it is important that organisations understand the expectations of customers and how they can meet such expectations through a satisfactory level of performance. In this context, customer satisfaction helps with customer loyalty and with customer retention.

5.4.2 Practical contributions

Singapore is one of the major medical tourism destinations of the world, and the managers of Singapore’s hospitals must broaden their perspectives and continuously analyse their competitors’ marketing activities to compete successfully in this market. As a result, managers of hospitals must be aware of the importance of those factors that influence consumers’ decisions. It is critical for managers to continuously improve themselves professionally.

The results in this study provide useful directions for the management and marketing of healthcare services. The results suggest that customers’ overall quality perceptions are almost at a level of being satisfied. Healthcare organisations should therefore aim to maintain their existing customers. With this in mind, the results highlight the importance of providing high-quality services. As indicated, customers’ perceptions of service quality have a significant impact on customers’ satisfaction.

By concentrating on both customer expectations and perceptions, managers are able to understand customer satisfaction better. As a consequence, such information allows them to make informed decisions and to adopt appropriate strategies and policies. It is imperative that managers and decision-makers not only focus on what is important for customers, but also they must focus on the satisfaction levels of the actual services delivered.

Service quality is intangible and difficult to evaluate. There is a need for healthcare management to understand the factors that affect customers’ perceived quality of a
company’s service. These findings also indicate the importance for Singapore’s healthcare organisations to continuously boost customer satisfaction so as to retain current customers and to attract new customers, all the while keeping operating costs to a minimum. Cacioppo (2012) states that it costs five to eight times more to gain new customers than to retain existing ones. The key is to understand the drivers and to start benchmarking and tracking customer satisfaction.

According to Singh and Srivatava (2013), the new global economy recognises that measuring customer satisfaction is a key to a successful business. Only by doing this can they hold on to the customers they have, and understand how to attract new customers more effectively. Organisations will be successful if they can recognise that customer satisfaction is a critical strategic weapon that can increase market share and increase profits. Expected service quality is directly influenced by the methods of marketing the total tourism experience within an enterprise, by the image created of a tourism product, by the influence of word-of-mouth advertising, and by customers’ requirements and needs.

This study emphasises the positive impact that perceived service quality has on customers’ satisfaction when they seek medical treatment in Singapore. Healthcare management should then make efforts to improve customers’ levels of satisfaction with the medical services that they receive, as this would positively influence the perceived quality of the relationship, and thus positively influence customer behaviour. This research contributes to the knowledge in the current field of interest. It also helps healthcare management in its attempts to understand medical tourism services better. In order to create effective marketing strategies for products and services in Singapore’s medical tourism industry, a better understanding of medical tourist’s needs and expectations is advised.

Moreover, this research contributes to the knowledge in the current field of interest. It also helps healthcare management in its attempts to understand medical tourism services better. In order to create effective marketing strategies for products and services in
Singapore’s medical tourism industry, a better understanding of medical tourist’s needs and expectations is advised. Singapore is one of the major medical tourism destinations of the world, and the managers of Singapore’s hospitals must broaden their perspectives and continuously analyse their competitors’ marketing activities to compete successfully in this market. As a result, managers of hospitals must be aware of the importance of those factors that influence consumers’ decisions. Hence, is it necessary that managers seek to improve their professional skills so as to remain effective in their jobs.

The results in this study provide useful directions for the management and marketing of healthcare services. The findings highlight the importance of providing high-quality services. As indicated, customers’ perceptions of service quality have a significant impact on customers’ satisfaction. By focusing on both customer expectations and perceptions, managers are able to understand customer satisfaction better. As a consequence, such information allows them to make informed decisions and adopt appropriate strategies and policies. It is imperative that managers and decision-makers not only focus on what is important for customers, but also must also focus on the satisfaction levels of the actual services delivered. Service quality is intangible and difficult to evaluate. There is a need for healthcare management to understand the factors that affect customers’ perceived quality of a company’s service, benchmark and track customer satisfaction.

According to Phiri and Mcwabe (2013), the new global economy recognises that measuring customer satisfaction is a key to a successful business. Only by doing this can they hold on to the customers that they have, and understand how to attract new customers more effectively. Organisations will be successful if they can recognise that customer satisfaction is a critical strategic weapon that can increase market share and increase profits. Expected service quality is directly influenced by the methods of marketing the total tourism experience within an enterprise, by the image created of a tourism product, by the influence of word-of-mouth advertising, and by customers’ requirements and needs.

This study emphasises the positive impact that perceived service quality has on
customers’ satisfaction when they seek medical treatment in Singapore. Healthcare management should then make efforts to improve customers’ levels of satisfaction with the medical services they receive, as this would positively influence the perceived quality of the relationship, and thus positively influence customer behaviour. To conclude, this study helps healthcare management to understand medical tourism services better. In order to create effective marketing strategies for products and services in Singapore’s medical tourism industry, a better understanding of medical tourist’s needs and expectations is needed.

5.5 LIMITATIONS OF THE STUDY

While this study has made substantial contributions to new knowledge in the healthcare industry, it has several limitations. Suggestions for future research therefore need to be mentioned.

The main limitation of this research is that the participants of the in-depth survey were selected from foreign patients who chose Singapore for medical treatment. The limitation lies in the thinking that, having chosen Singapore, these foreign patients were already biased towards Singapore for their healthcare, and that their measure of perceived quality and customer satisfaction were more likely to show positive results. For this reason, the researcher states that it is important to develop a customer relationship quality measurement scale through the medical healthcare services.

Another major research limitation is the high income of the respondents. This could impact the medical tourists’ levels of satisfaction. The participants were from different regions or countries with high income. Their expectations may be higher than those of others.

The concepts of the questionnaires, which were developed in this research to measure customer satisfaction, are a limitation of the research, as well as of the proposed model. In addition, although standard questionnaires for measuring customer satisfaction on medical
service quality exist, based on the Kano and ECT models, the design of the questionnaires still requires further investigation.

5.5.1 Samples and participant profile

The sample size for this study consisted of 330 respondents, with 60% drawn from Vietnam and Indonesia. As a result, it may not represent all the customers’ levels of satisfaction and expectation. In other words, the findings cannot be generalised across the medical industry in Singapore.

According to the tests, the content, and the conceptual convergent and discriminant validity of the scale, are adequate. However, the predictive validity of the model is not examined. Also, new and repeated research could extend this analysis, thereby proving the validity of the model. The following is the list of participant profile limitations:

- Respondents may be reluctant to answer questions from unknown interviewers about things that they regard as private.
- Busy people may not want to take the time to participate.
- Respondents may try to help by giving answers to please the researcher.
- Participants are unable to answer because they cannot remember, or never gave a thought to, what they did and why.
- Participants may answer in order to look smart or well informed.

Moreover, the participants were from different regions or countries, and their understanding of the language or the culture would influence their answers. Therefore, language preference and a lack of understanding of the culture would be other limitations of this study. The respondents might have found it hard to understand the culture and policies in Singapore. The sample data collected from the patients, especially the patients from different regions and countries, therefore presents difficulties. That said, the survey was conducted in a peaceful environment which ensured that the patients’ medical progress was not affected.
While the researcher had discussed several drivers to account for the respondents repeat visit to Singapore, the questionnaire design did not seek to enquire if the respondents were familiar with Singaporean government policies and culture. Future research questions should include questionnaires that seek to solicit if participants are familiar with Singapore’s regulations and culture. These factors can influence the respondent’s decision to seek medical treatment in Singapore or elsewhere. Similarly, a more balanced distribution of respondents from various regional countries could be adopted for future research to minimise sample bias.

The population sample obtained for the survey instrument also presents some challenges on account of insufficient information. This limitation results from a one-time collection of the data, a limited questionnaire, and the timing of the survey. As a result, the sample was not representative enough for the researcher to be able to gather more in-depth information about the questions being asked.

5.5.2 Limitations of time

The research is based on only 330 medical tourists as the time available to conduct the study was limited. The study did not obtain longitudinal data (data collected at different points in time), but relies on cross-sectional data (data collected at one point in time).

In addition, owing to constraints of time, the questionnaire was designed only for patients from the previous six months, and could not accommodate more questions that may have captured more information. Even though there was a high response rate to this study, it only focused on foreign patients in the previous six months.

5.5.3 General limitations

Firstly, the researcher uses self-reported data, which relies on the perceptions of respondents who may have misunderstood the questions or may have exaggerated their answers. However, this limitation is usually accepted because a self-reporting survey is regarded as the most feasible way of collecting data, and represents the attitudes and behaviours of the respondents. Secondly, a small sample from the population may not represent all customers’ perceptions. In this study, there are 330 respondents in the
sample. This rather small sample size is due to the customers’ lack of willingness to respond and to the sensitivity of the information. However, a sample size of 330 should be valid because statistical analysis indicates that a minimum sample size of 30 is acceptable. Thirdly, the attributes chosen as independent variables could be a limitation because other attributes, which were not used in this study, could impact the medical tourists’ levels of satisfaction. Finally, another limitation of the study lies in differentiating expectations and satisfaction in the minds of the respondents. Since the study does not conduct a post-evaluation of the attributes, respondents may have given similar answers about both their expectations and their satisfaction, thus making differentiation between the two attributes less possible.

Nevertheless, it is hoped that such limitations might suggest guidelines and might encourage additional directions for future studies.

5.6 RECOMMENDATIONS FOR FUTURE RESEARCH

This study provides a general picture of the relationship between Singapore’s medical tourism providers and tourists’ overall satisfaction with the industry. However, the study does not mention in detail the relationship between medical tourists’ satisfaction and their intention to revisit Singapore. Future research should investigate this relationship further because repeat visits are an important issue for medical tourism marketers and for researchers.

Future studies of other destinations could be made using a similar research method so that a competitive analysis of those destinations could be carried out. Also, more refinement is needed in selecting the attributes as some respondents felt there was some ambiguity in the questionnaire items. Therefore, the proposed model provides a great opportunity for researchers to investigate further the development and enhancement of the service quality models, as well as the approach to measurement.

As this thesis highlights, the number of studies investigating the concept of quality in the context of the relationship between service quality and customers satisfaction is limited.
Furthermore, this study makes a contribution to the knowledge of the research topic by proposing two service quality scales that are based on the results of the qualitative research. Hence, the scales developed here that measure customers’ perceptions of the medical services industry are different to those used for other industries such as education, banking, or the airline industry.

Future work could explore how generic satisfaction measures perform on those dimensions, and perhaps could explore boundary conditions. Future work could also examine whether increasing the number of scale points could significantly improve the quality of other single-item satisfaction scales. However, increasing the number of scale points is less likely to improve the already more finely-grained multi-item scales.

5.7 CONCLUSION

Understanding customer expectations is a prerequisite for delivering superior service. Customers always compare their perceptions of performance with their expectations and use these reference points when evaluating service quality. Therefore, knowing what the customer expects is the first, and possibly the most critical, step in delivering good quality service.

It has been recognised that service organisations face considerable challenges which affect the performance of their operations. For this reason, healthcare organisations should attempt to deliver superior service quality to their customers. It has generally been acknowledged that measuring service quality is of great importance as a competitive advantage for service organisations, and enables them to monitor and control the efficiency and effectiveness of their operations and processes.

Customers have an entirely different perception of service quality, a perception that ultimately determines whether they choose an organisation’s service or product, and whether they would recommend that company to others. The more a business organisation knows about its customers’ perceptions, what satisfies its customers, how customers make
their purchasing decisions, and what factors attract customers to make those final decisions, the more successful that business will be.

The findings of this research may assist in creating specific marketing and healthcare management strategies by focusing on the factors that influence customer satisfaction. An understanding of the factors that influence customer satisfaction, and how much they influence customer satisfaction, will facilitate healthcare organisations to design and deliver tailored services that correspond to the market demands of the medical tourists. The outcomes of the research provide further empirical evidence for the idea that deciding to travel to Singapore for medical treatment influences medical tourists’ ratings of customer satisfaction and service quality. Financial considerations and the Singapore government were not major factors affecting customers’ decisions. However, medical service quality, advanced medical facilities and doctors’ skills do appear to be important factors for foreign patients making the decision to visit Singapore for medical treatment.

As the healthcare industry becomes more and more competitive, service quality and customer satisfaction become of paramount importance. These two factors are the drivers of customer loyalty, positive word-of-mouth recommendations, reduction in customer complaints, and improved customer retention rates. Ultimately, improved service quality and customer satisfaction result in improved performance and profitability for Singapore healthcare providers (Yavas, Benkenstein & Stuhldreier 2004). Therefore, the model proposed in this research offers an excellent opportunity for researchers to conduct further investigations into the development and enhancement of service quality models, as well as into the measurement approaches for applying the model to other countries besides Singapore such as Vietnam, Laos, Cambodia and Philippines.

However, these neighbouring countries will not pose a threat to Singapore for several reasons. Firstly, it will take a long time for the Viet-French Hospital to become a world-class medical centre. Statistics show that at least US$2 billion were spent by Vietnamese patients going overseas for medical care (Thanhnien News 2013). The Viet-French Hospital will not have the capacity to accommodate these high-income patients. Secondly,
high-income people in neighbouring countries such as Laos, Cambodia and the Philippines will continue to visit Singapore for medical treatment. Thirdly, the medical tourism industry in Singapore will continue to attract people from the United States, the United Kingdom, and developing countries. It can be concluded that the medical tourism industry in Singapore can and will be sustained in the long-term.
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APPENDIX 1: Information sheet

INFORMATION SHEET

Dear Sir/Madam,

My name is Pham Thi Huyen, I am conducting research as part of my Doctoral degree in Business Administration with Southern Cross University.

Name of project: **A Study of the Determinants Influencing Customer Satisfaction in Medical Tourism Industry in Singapore**

Understanding the reasons why people travel overseas for medical attention. What is in their mind, what are they thinking when they are in a foreign land, their feeling of the environment, their selection of that particular country as opposed to other countries. How the tourist patient is influenced by his or her thinking based on culture, religion, language, government policies and the quality of healthcare services provided in Singapore. These are interesting areas for research.

It is established that, when investing in medical tourism ventures, it will not only provide a value-added service for medical tourists but also create a golden opportunity for medical organisations. Medical tourism will certainly become more significant in the near future. Based on conceptual framework, the researcher will create own model and deeply analyse the customer’s expectation, reception, perception, satisfaction and customer decision-making. The result will eventually benefit and improve the service quality within the medical tourism industry.

This research involves the completion of an anonymous survey that will be conducted with foreign patients/customers at Raffles Hospital during their first visit. On their second visit, a personal interview will be conducted with their consensus. There will be no personal data collected during this initial survey, unless required after the completion of this thesis. This is to protect the confidentiality of the people who participate in this survey.
The results of this study may be published in a peer-reviewed journal and presented at conferences and group data will only be reported.

All completed survey forms will be stored in a secured location with a retention period of 7 years.

If you have any enquiries you may contact the undersigned:

Researcher: Pham Thi Huyen
Phone No.: +65-8388 4801
Email address: vlif408@yahoo.com
Supervisor: Dr. Lim Cheng Hwa
Phone No.: + 65-9757 5362
Email address: chlim@trans-i-consulting.com

If you have concerns about the ethical conduct of this research or the researchers, the following procedure should occur.
Write to the following:
The Ethics Complaints Officer
Southern Cross University
PO Box 157, Lismore NSW 2480
Email: ethics.lismore@scu.edu.au

All information is confidential and will be handled as soon as possible.
APPENDIX 2: Pilot questionnaires survey form

Survey form

Section A:
Background:

Name: ______________________________________________________________
Email: ______________________________________________________________
Contact: ______________________________________________________________
Nationality: __________________________________________________________

Profiling Questions:

Gender: Male
Female

Age Group:
21-30 years old
31-40 years old
41-50 years old
51-60 years old
60 years old and above

Education Qualification:
High School
College
University
Post Graduate

Annual Income:
Under $20,000
$20,000-$50,000
$50,000-$80,000
How many visits you make to Singapore during the last 5 years?

1st visit
2nd visits
3rd visits
More than 3 visits

**Section B:**
From scale 1 to 5 indicates whether you disagree or agree with the statements:

1 = **Strongly Disagree**    2 = **Disagree**    3 = **Neutral**
4 = **Agree**    5 = **Strongly Agree**

Please tick the number based on your opinion of each statement below.

**FINANCIAL CONSIDERATION:**

1. Cost factor determines travelling to Singapore

2 = Agree     5 = Strongly Agree

2. Selection of certain hospital is based on pricing

4 = Agree     5 = Strongly Agree

3. Foreign exchange criteria determines your decision to travel

4 = Agree     5 = Strongly Agree

4. Economical pricing is more important than service quality

5. Price and inflation affects to medical tourists
SERVICES QUALITY:

6. Medical services in Singapore is rated as one of the best in Asia
   
   1  2  3  4  5

7. Standard of professionalism in Singaporean medical tourism is high
   
   1  2  3  4  5

8. Professionalism will lead to satisfaction
   
   1  2  3  4  5

9. Prompt service is a very important factor
   
   1  2  3  4  5

10. Customer’s reception is lower than customer’s expectation
   
   1  2  3  4  5

GOVERNMENT:

11. Singapore is a safe place to visit
    
    1  2  3  4  5

12. Support from Singaporean Government helps to develop medical tourism
    
    1  2  3  4  5

13. Stable Government is an important factor to attract medical tourists
    
    1  2  3  4  5

14. Singaporean Government policies benefit medical tourists
    
    1  2  3  4  5
15. Singapore is one of the best place for medical tourists

1  2  3  4  5

ENVIRONMENT FACTORS:

16. Singapore’s multi-culture benefits medical tourists

1  2  3  4  5

17. Singapore’s geographical position attracts medical tourists

1  2  3  4  5

18. Singapore is the best place for medical tourists

1  2  3  4  5

19. Climatic factor in Singapore suits the most medical tourists

1  2  3  4  5

CUSTOMER SATISFACTION:

20. Customer’s satisfaction is most important

1  2  3  4  5

21. Customer’s satisfaction will benefit organization

1  2  3  4  5

22. Customer’s satisfaction and perception is equal

1  2  3  4  5

23. Customers’ satisfaction is vital to all healthcare organization

1  2  3  4  5
24. Satisfied customers will make them come back

1 2 3 4 5

Section C:
Please rank each of the following in order of importance from 1 to 5.
(1 = lowest importance, 5 = Highest importance)
Please circle the number based on your opinion of each statement below:

a. Your expectations before using medical services?

Doctors/specialists 1 2 3 4 5
Nurses 1 2 3 4 5
Staff at counter 1 2 3 4 5
Hospital services 1 2 3 4 5
Hospital facilities 1 2 3 4 5

b. Your reception during services?

Doctors/specialists 1 2 3 4 5
Nurses 1 2 3 4 5
Staffs in counter 1 2 3 4 5
Hospital services 1 2 3 4 5
Hospital facilities 1 2 3 4 5

c. Your overall impression regarding services.

Doctors/specialists 1 2 3 4 5
Nurses 1 2 3 4 5
Staffs at counter 1 2 3 4 5
Hospital services 1 2 3 4 5
Hospital facilities 1 2 3 4 5
d. Indicate what are the important factors below that will determine your satisfaction and consideration of your next visit? From 1 – 7.
(1 = lowest importance, 7 = highest importance)

- Low price
- Service quality
- Waiting time
- Doctors/specialists
- Nurses
- Staffs at counter
- Hospital facilities
Section D: Opend-ended Questions.
The questions below were pilot questionnaires. These questionnaires were subsequently refined and sharpened for the actual survey. See actual survey questionnaires (Appendix 8),

1) How did cost factors and economical factors affect your decision to travel to Singapore?

2) What made you select Singapore for your medical treatment?
- Professionalism?
- Prompt services?
- Medical service quality?
Why?

3) Which factor out of Singaporean Government, geography and multi-culture satisfied you? Why?

4) How do you evaluate the medical service quality in Singapore?

5) Are you happy with medical services in Singapore?

6) Will you introduce anyone after your visit to Singapore?
APPENDIX 3: Consent form

Consent Form

Title of research project:
“A Study of the Determinants Influencing Customer Satisfaction in Medical Tourism Industry in Singapore”
Name of researcher: Pham Thi Huyen

Please tick the box that applies, sign and date and give to the researcher
I agree to take part in the Southern Cross University research project specified above.
I understand the information about my participation in the research project, which has been provided to me by the researchers.
*I agree to be interviewed by the researcher.
*I agree to allow the interview to be *audio-taped and/or *video-taped.
*I agree to make myself available for further interview if required.
*I agree to complete questionnaires asking me about “Determinants of Customer’s Satisfaction within the Medical Tourism Industry on Delivery of Quality Services in Singapore”.
I understand that my participation is voluntary.
I understand that I can cease my participation at any time.
I understand that my participation in this research is anonymous.
I understand that any information that may identify me, will be de-identified at the time of analysis of any data.
*I understand that no identifying information will be disclosed or published (**delete this statement if the study is completely anonymous)
I understand that all information gathered in this research is confidential.
It will be kept securely and confidentially for 7 years at the University.
I am aware that I can contact the researchers at any time with any queries. Their contact details are provided to me.
I understand that this research project has been approved by the SCU Human Research Ethics Committee

Yes ☐  No ☐

Participants’ Name: ____________________________

Participants’ signature: ____________________________

Date: ______________________

☐ Please tick this box and provide your email or mail address below if you wish to receive a summary of the results:

Email: _________________________
APPENDIX 4: Consent form from General Manager - Raffles Hospital

Date: 12 April 2011

To:
Student Name: Pham Thi Huyen – Student No: 21774140
Address: Tanglin Halt Road, Block 30, # 04-164, Singapore 140030
Email: vhf408@yahoo.com – HP + 65 8388 4801

Dear Ms Pham,

We understand that you require permission from our organization to conduct questionnaire surveys and interview foreign customers during your Doctor of Business Administration program. We understand that you are investigating:

“Determinants of Customer’s Satisfaction within the Medical Tourism Industry on Delivery of Quality Services in Singapore.”

We grant permission for the gathering of data through sending questionnaire surveys and interviewing foreign customers from 12 April 2011 onwards.

You should be aware that such an exercise must be treated in the strictest confidence. We trust you will treat all information confidential through this exercise. We need your commitment and undertaking on the following (please tick relevant boxes):

☑ Our corporate identity is to remain anonymous throughout the research, including any published articles.
☑ All information provided through the data collection is to remain confidential
☑ The name of participants is to remain anonymous
☑ A copy of your final report is to be forwarded to us upon completion of the research

Please do not hesitate to contact me should you have any queries in relation to the above

Yours sincerely,

Lawrence Lim
General Manager
Raffles Hospital
Phone: + 65 6311 1111
Email: lawrencelim@rafflesmedical.com

CC:
Southern Cross University, Military Road
East Lismore NSW 2480 Australia
c/o The Executive Officer
APPENDIX 5: Consent form from Chef Executive Officer – Singapore Medical Group

1 Sept 2011

To:
Student Name: Pham Thi Huyen – Student No: 21774140
Address: Tanglin Hall Road, Block 30, #04-164, Singapore 140030
Email: vi403@yahoo.com – HP + 65-8383 4801

Dear Ms Pham

We understand that you require permission from our organization to conduct questionnaire surveys and interview foreign customers during your Doctor of Business Administration (DBA) program. We understand that you are investigating

"Determinants of Customer’s Satisfaction within the Medical Tourism industry on Delirium of Quality Services in Singapore"

We grant permission for the gathering of data through sending questionnaire surveys and interviewing foreign customers from 1 Sept 2011 onwards, as long as you remain under the employ of Singapore Medical Group Limited (SMG) and based on the conditions detailed below. This permission shall be withdrawn automatically once you leave the employ of SMG.

- Our corporate identity is to remain anonymous throughout and after the research, including any published works;
- All information provided through the data collection is to remain confidential and will be used for your DBA program only. If you use or intend to use it for any other purpose, you must obtain prior written permission from SMG;
- You will ensure that the names of participants remain anonymous;
- You shall conform to all laws and regulations of Singapore;
- You shall obtain written consent from all patients that you will be surveying and/or interviewing;
- You shall forward a copy of your final report to us immediately upon submitting your research to the University.

We trust that you will treat all information obtained with the strictest confidence throughout this exercise.

Upon signing this agreement, you confirm your commitment and undertaking to the contents of this agreement.

Yours sincerely,

[Signature]

Dr Cheryl Baumson
Chief Executive Officer
Singapore Medical Group Ltd
Phone: + 65 6839 1000
Email: ceo@smg.sg

I accept and will abide by all the conditions of this letter

[Signature]

Pham Thi Huyen
NRIC No: S7558576W
Student No: 21774140

CC: Southern Cross University, Military Road
East Lismore NSW 2480 Australia
c/o The Executive Officer

Registration No: 205000318P/W
W6X 1K4Q/US LUS EC
APPENDIX 6: Ethics approval letter

HUMAN RESEARCH ETHICS COMMITTEE (HREC)
HUMAN RESEARCH ETHICS SUB-COMMITTEE (HRESC)

NOTIFICATION OF APPROVAL

To: Dr Lim Cheng Hwa/Pham Thi Huyen
    Graduate College of Management
    vlif408@yahoo.com, chlim@trans-i-consulting.com

From: Secretary, Human Research Ethics Committee
      Division of Research, R. Block

Date: 19 October 2011

Project: A Study of the Determinants Influencing Customer Satisfaction in Medical Tourism Industry in Singapore
      Approval Number ECN-11-231

The Southern Cross University Human Research Ethics Committee has established, in accordance with the National Statement on Ethical Conduct in Human Research – Section 5/Processes of
Research Governance and Ethical Review, a procedure for expedited review by a delegated authority.

This application has been considered and approved by the HRESC, Tweed Head/Gold Coast campus.

This approval is subject to the usual standard conditions of approval. Please see over.

Sue Kelly / Helen Wolton
HREC Administration
Ph: (02) 6626 9139
E. ethics.lismore@scu.edu.au

Professor Bill Boyd
Chair, HREC
Ph: 02 6620 3569
E. william.boyd@scu.edu.au
The following standard conditions of approval are mandatory for all research projects which have been approved by the HREC or a HRESC and have received an ethics approval number.

All reporting is to be submitted through the Human Research Ethics Office, either at Lismore, Coffs Harbour or Tweed/GC. Forms for annual reports, renewals, completions & changes of protocol are available at the website:

The email address is ethics.lismore@scu.edu.au ethics.coffsharbour@scu.edu.au ethics.tweed@scu.edu.au

**Standard Conditions** in accordance with the National Statement on Ethical Conduct in Human Research (National Statement) (*NS*).

1. **Monitoring**

   *NS 5.5.1 – 5.5.10*
Responsibility for ensuring that research is reliably monitored lies with the institution under which the research is conducted. Mechanisms for monitoring can include:
(a) reports from researchers;
(b) reports from independent agencies (such as a data and safety monitoring board);
(c) review of adverse event reports;
(d) random inspections of research sites, data, or consent documentation; and
(e) interviews with research participants or other forms of feedback from them.

2. Approvals

(a) All ethics approvals are valid for 12 months unless specified otherwise. If research is continuing after 12 months, then the ethics approval MUST be renewed. Complete the Annual Report/Renewal form and send to the ethics office.

(b) NS 5.5.5
The researcher/s will provide a report every 12 months on the progress to date or outcome in the case of completed research including detail about:
- Maintenance and security of the records.
- Compliance with the approved proposal.
- Compliance with any conditions of approval.
- Changes of protocol to the research.

3. Reporting to the HREC

(c) The researchers will immediately notify the ethics office, on the appropriate form, any change in protocol. NS 5.5.3

(d) A completion report, on the appropriate form, must be forwarded to the ethics office.

(e) The researchers will immediately notify the ethics office about any circumstance that might affect ethical acceptance of the research protocol. NS 5.5.3
(f) The researchers will immediately notify the ethics office about any adverse events/incidences which have occurred to participants in their research. NS 5.5.3

2. Research conducted overseas
NS 4.8.1 – 4.8.21
Researchers conducting a study in a country other than Australia, need to be aware of any protocols for that country and ensure that they are followed ethically and with appropriate cultural sensitivity.

3. Participant Complaints
NS 5.6.1 – 5.6.7
General information
Institutions may receive complaints about researchers or the conduct of research, or about the conduct of a Human Research Ethics Committee (HREC) or other review body.

Complaints may be made by participants, researchers, staff of institutions, or others. All complaints should be handled promptly and sensitively. All participants in research conducted by Southern Cross University should be advised of the above procedure and be given a copy of the contact details for the Complaints Officer. They should also be aware of the ethics approval number issued by the Human Research Ethics Committee.

The following paragraph is to be included in any plain language statements for participants in research.

Complaints about the ethical conduct of this research should be addressed in writing to the following:
Ethics Complaints Officer
HREC
Southern Cross University
PO Box 157
Lismore, NSW, 2480
Email: ethics.lismore@scu.edu.au

All complaints are investigated fully and according to due process under the National Statement on Ethical Conduct in Human Research and this University. Any complaint you make will be treated in confidence and you will be informed of the outcome.
APPENDIX 7: Ethics renewal letter

HUMAN RESEARCH ETHICS COMMITTEE (HREC)
HUMAN RESEARCH ETHICS SUB-COMMITTEE (HRESC)

NOTIFICATION

To: Dr Lim Cheng Hwa/Pham Thi Huyen
Southern Cross Business School
chlim@trans-i-consulting.com;vlif408@yahoo.com

From: Secretary, Human Research Ethics Committee
Division of Research, R. Block

Date: 26 September 2012

Project: A Study of the Determinants Influencing Customer Satisfaction in Medical Tourism Industry in Singapore
Approval Number ECN-12-242

The Southern Cross University Human Research Ethics Committee has established, in accordance with the National Statement on Ethical Conduct in Human Research – Section 5/Processes of
Research Governance and Ethical Review, a procedure for expedited review and ratification by a delegated authority of the HREC.

Thank you for your ethics renewal application dated the 21 September, 2012. This has been considered by the Chair, HREC and has been approved.

Please be fully informed of the standard conditions of approval, which are attached.

Ms Sue Kelly
HREC Administration
Ph: (02) 6626 9139
E. ethics.lismore@scu.edu.au

Professor Bill Boyd
Chair, HREC
Ph: 02 6620 3569
E. william.boyd@scu.edu.au
The following standard conditions of approval are mandatory for all research projects which have been approved by the HREC or a HRESC and have received an ethics approval number.

All reporting is to be submitted through the Human Research Ethics Office, either at Lismore, Coffs Harbour or GC/Tweed. The email addresses are:
ethics.lismore@scu.edu.au
ethics.coffs@scu.edu.au
ethics.tweed@scu.edu.au

Forms for annual reports, renewals, completions and changes of protocol are available at the website:

**Standard Conditions in accordance with the National Statement on Ethical Conduct in Human Research (National Statement) (NS).**

1. **Monitoring**
   
   *NS 5.5.1 – 5.5.10*
Responsibility for ensuring that research is reliably monitored lies with the institution under which the research is conducted. Mechanisms for monitoring can include:

(a) reports from researchers;
(b) reports from independent agencies (such as a data and safety monitoring board);
(c) review of adverse event reports;
(d) random inspections of research sites, data, or consent documentation; and
(e) interviews with research participants or other forms of feedback from them.

2. Approvals

(c) All ethics approvals are valid for 12 months unless specified otherwise. If research is continuing after 12 months, then the ethics approval MUST be renewed. Complete the Annual Report/Renewal form and send to the ethics office.

(d) NS 5.5.5
The researcher/s will provide a report every 12 months on the progress to date or outcome in the case of completed research including detail about:

Maintenance and security of the records.

Compliance with the approved proposal.

Compliance with any conditions of approval.

Changes of protocol to the research.

3. Reporting to the HREC

(c) The researchers will immediately notify the ethics office, on the appropriate form, any change in protocol. NS 5.5.3

(d) A completion report, on the appropriate form, must be forwarded to the ethics office.

(e) The researchers will immediately notify the ethics office about any circumstance that might affect ethical acceptance of the research protocol. NS 5.5.3
(g) The researchers will immediately notify the ethics office about any adverse events/incidences which have occurred to participants in their research. NS 5.5.3

4. Research conducted overseas
NS 4.8.1 – 4.8.21
Researchers conducting a study in a country other than Australia, need to be aware of any protocols for that country and ensure that they are followed ethically and with appropriate cultural sensitivity.

5. Participant Complaints
NS 5.6.1 – 5.6.7
General information
Institutions may receive complaints about researchers or the conduct of research, or about the conduct of a Human Research Ethics Committee (HREC) or other review body.

Complaints may be made by participants, researchers, staff of institutions, or others. All complaints should be handled promptly and sensitively. All participants in research conducted by Southern Cross University should be advised of the above procedure and be given a copy of the contact details for the Complaints Officer. They should also be aware of the ethics approval number issued by the Human Research Ethics Committee.

The following paragraph is to be included in any plain language statements for participants in research.

Complaints about the ethical conduct of this research should be addressed in writing to the following:

Ethics Complaints Officer
HREC
Southern Cross University
PO Box 157
Lismore, NSW, 2480
Email: ethics.lismore@scu.edu.au

All complaints are investigated fully and according to due process under the National Statement on Ethical Conduct in Human Research and this University. Any complaint you make will be treated in confidence and you will be informed of the outcome.
APPENDIX 8: Actual questionnaires survey form

Survey form

Section A

Background:

Name: ____________________________________________
Email: ____________________________________________
Contact: __________________________________________
Address: __________________________________________
Nationality: ________________________________________

Section B

From scale 1 to 5 indicates whether you disagree or agree with the statements:

1 = Strongly Disagree  2 = Disagree  3 = Neutral
4 = Agree  5 = Strongly Agree

Please tick the number based on your opinion of each statement below.

Part I- Independent Variable

FINANCIAL CONSIDERATION

1. Singapore is the most expensive country for Medical Tourism.

   1  2  3  4  5

2. Selection of hospital is based on pricing.

   1  2  3  4  5

3. Foreign exchange is a consideration in coming to Singapore.

   1  2  3  4  5

4. Pricing of hospital is your priority over service quality.

   1  2  3  4  5
5. High medical cost will affect the number of Medical Tourists.

1 2 3 4 5

SERVICES QUALITY

6. Medical services in Singapore are rated as one of the best in Asia.

1 2 3 4 5

7. Standard of professionalism in Singaporean Medical Tourism is high.

1 2 3 4 5

8. Professionalism will eventually lead to customer satisfaction.

1 2 3 4 5

9. Waiting time in Singaporean hospitals is shorter than in other countries.

1 2 3 4 5

10. Good service quality in hospital attracts Medical Tourists the most.

1 2 3 4 5

MEDICAL FACILITIES

11. Advanced medical facilities attract Medical Tourists.

1 2 3 4 5

12. Up-to-date medical facilities will help to determine coming to Singapore.

1 2 3 4 5
13. Medical facilities are important factors in Healthcare services.

1 2 3 4 5

14. Advanced medical technology is an added value to services quality.

1 2 3 4 5

ENVIRONMENT FACTORS

15. Singapore’s multi-culture benefits Medical Tourists.

1 2 3 4 5

16. Singapore’s geographical location attracts Medical Tourists.

1 2 3 4 5

17. Support from the Singaporean Government for promoting Medical Tourism.

1 2 3 4 5

18. Stable Government is a significant factor to attract Medical Tourists.

1 2 3 4 5

Part II- Dependent Variable

CUSTOMER SATISFACTION

19. To satisfy a customer is the most important factor.

1 2 3 4 5

20. Customers’ satisfaction depends on how good service they received.

1 2 3 4 5
21. Customers will be satisfied if services exceed their expectations.

22. Satisfied customers will always come back.

23. You are satisfied with the quality of Singaporean medical services.

24. Customers already have a specific set of expectation before they come to Singapore.

25. Customers received a very high standard of medical services performance in Singapore.

26. Customers have a positive effect on a satisfying result and a negative effect on a dissatisfying result.

27. Customers will be satisfied if the services they received exceeded their expectations.
KANO Model

28. Must Be: Services quality must be always present or the customer will go elsewhere.

1 2 3 4 5

29. Performance: The better services customers received, the happier they are.

1 2 3 4 5

30. Delighted: Those qualities the customer was not expecting but received will be a bonus.

1 2 3 4 5

Section C

Measuring Customers Satisfaction

Please rank the following from Very low (1) to Very high (5).
(1 = Very low, 2 = Low, 3 = Moderately high, 4 = High, 5 = Very high)

Please circle the number based on your opinion of each statement below:

a. What is your expectation of the following hospital staff, services and facilities?

Doctors/specialists 1 2 3 4 5
Nurses 1 2 3 4 5
Counter staff 1 2 3 4 5
Hospital services 1 2 3 4 5
Hospital facilities 1 2 3 4 5

b. What are your actual services received from hospital staff, services and facilities?

Doctors/specialists 1 2 3 4 5
Nurses 1 2 3 4 5
Staff at counter 1 2 3 4 5
Hospital services 1 2 3 4 5
Hospital facilities 1 2 3 4 5

c. What are your main factors that will affect your satisfaction and consideration of your next visit?
### Section D

#### Questions for written Interview

1) How satisfied are you with the overall service after your treatment?

__________________________________________________________________

__________________________________________________________________

________

2) What make you choose Singapore for your medical treatment?

- Professionalism?

- Prompt services?

- Medical facilities?

- Medical service quality?

Why?

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________
3) What experience did you received from healthcare services in Singapore?
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

4) What do you think medical tourism in Singapore should be like?
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

5) Are you happy with medical services in Singapore?
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

6) Will you recommend anyone to seek treatment in Singapore?
__________________________________________________________________
__________________________________________________________________

Profiling Questions

Gender: Male Female

Age Group:
21- 30 years old 31- 40 years old
41- 50 years old 51- 60 years old
60 years old and above

Education Qualification:
High School College
University Post Graduate
Annual Income:

- Under US$50,000
- US$50,000 - US $100,000
- US$100,000 - US$150,000
- Above US $150,000
- Prefer not to mention

How many visits have you made to Singapore during the last 5 years?

- 1\(^{st}\) visit
- 2\(^{nd}\) visits
- 3\(^{rd}\) visits
- More than 3 visits

Which healthcare organization do you have experience with?

- Prefer not to mention.
- Name of healthcare organisation(s).

Thank you very much for your time and contribution!