MUSLIM FRIENDLY MEDICAL SERVICES QUALITY, SATISFACTION AND LOYALTY INTENTION: PERSPECTIVE OF MUSLIM PATIENTS AT THE PRIVATE HOSPITALS

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Field of Study: Healthcare Service Quality and Management System

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MUSLIM FRIENDLY MEDICAL SERVICES QUALITY, SATISFACTION AND LOYALTY INTENTION: PERSPECTIVE OF MUSLIM PATIENTS AT THE PRIVATE HOSPITALS

ABSTRACT

The Muslim-friendly medical services quality is a new mode of medical services which aims to fit the Muslim's medically oriented social development and extend the reform of the medical care system. Past studies on this topic have focused mainly on the popular discourse of generic medical service quality. There has been little knowledge available focusing on the niche market of Muslim-friendly medical services quality, especially in the area of satisfaction and loyalty intention with medical services at private hospitals. This study aims to investigate the influence of six major antecedents (i.e. Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour) on Muslim patients' satisfaction and their loyalty intention at hospitals in Malaysia. It also examines the mediating role of the Muslim patients' satisfaction in the relationships between the Muslim-friendly medical services quality and patients' loyalty intention.

Empirical data were collected using a self-completed survey questionnaire and respondents were chosen using random samplings from various clinics for out-patients and wards for inpatients in fifteen private hospitals in Klang Valley and were analysed by using the structural equation modelling technique through moment structure (AMOS). The results showed that administrative behaviour, nurses' services and Shariah amenities have highly significant relationships with satisfaction followed by healthcare technicality, hospital environment and physicians' services. Muslim patients' satisfaction has a significant relationship with their loyalty intention. Administrative behaviour, physicians' services and healthcare technicality have direct and positive significant relationships with loyalty intention, while, Shariah amenity has a negative significant relationship. Patients'

satisfaction fully mediates the relationship between Shariah amenities and loyalty intention. Patients' satisfaction partially mediates the relationships between physicians' services, nurses' services, healthcare technicality, hospital environment, administrative behaviour and loyalty intention. The results have important implications for product development and managerial considerations of hospitals. Service providers need to be mindful that all aspects of Muslim-friendly medical services quality are important and need to be delivered satisfactorily to ensure customer satisfaction. Patients' satisfaction is a crucial bridge in determining the likelihood of future return among Muslims patients to the hospitals.

Keywords: *Muslim Friendly, Medical Service, Satisfaction, Loyalty, Malaysia*

KUALITI PERKHIDMATAN, KEPUASAN DAN NIAT KESETIAAN PERUBATAN MESRA MUSLIM: PERSPEKTIF PESAKIT MUSLIM DI HOSPITAL SWASTA

ABSTRAK

Kualiti perkhidmatan perubatan yang mesra Muslim adalah cara baru perkhidmatan perubatan yang bertujuan untuk menyesuaikan pembangunan sosial berorientasikan perubatan Islam dan memanjangkan pembaharuan sistem penjagaan perubatan. Kajian lepas mengenai topik ini telah memberi tumpuan terutamanya kepada topik popular kualiti perkhidmatan perubatan generik. Hanya sedikit pendedahan terhadap pasaran khusus kualiti perkhidmatan perubatan mesra Islam, terutamanya dalam bidang kepuasan dan niat kesetiaan dengan perkhidmatan perubatan di hospital swasta. Kajian ini bertujuan untuk mengkaji pengaruh enam kriterion utama (iaitu kemudahan Syariah, perkhidmatan doktor, perkhidmatan jururawat, teknikal penjagaan kesihatan, persekitaran hospital dan tingkah laku pentadbiran) terhadap kepuasan pesakit Islam dan niat kesetiaan mereka di hospital-hospital di Malaysia. Ia juga mengkaji peranan mediasi kepuasan pesakit Muslim dalam hubungan antara kualiti perkhidmatan perubatan mesra Islam dan niat kesetiaan pesakit.

Data empirikal dikumpulkan menggunakan soal selidik tinjauan diri yang lengkap dan responden yang terdiri daripada pesakit luar dan wad, dipilih menggunakan persampelan rawak dari lima belas hospital swasta di Lembah Klang dan dianalisisa dengan menggunakan teknik pemodelan persamaan struktur melalui struktur momen (AMOS). Hasilnya menunjukkan bahawa tingkah laku pentadbiran, perkhidmatan jururawat dan kemudahan Syariah mempunyai hubungan yang sangat signifikan dengan kepuasan diikuti oleh teknikal, rawatan persekitaran hospital dan perkhidmatan doktor. Kepuasan pesakit Muslim mempunyai hubungan yang signifikan dengan niat kesetiaan mereka. Tingkah laku pentadbiran, perkhidmatan doktor dan teknik penjagaan kesihatan

mempunyai hubungan langsung dan positif yang signifikan dengan niat kesetiaan, sementara kemudahan Syariah mempunyai hubungan yang signifikan negatif. Kepuasan pesakit sepenuhnya mengantara hubungan antara kemudahan Syariah dan niat kesetiaan. Kepuasan pesakit sebahagiannya mengantara hubungan antara perkhidmatan doktor, perkhidmatan jururawat, teknikal kesihatan, persekitaran hospital, tingkah laku pentadbiran dan niat kesetiaan. Hasilnya mempunyai implikasi penting untuk pembangunan produk dan pertimbangan pengurusan hospital. Penyedia perkhidmatan perlu sedar bahawa semua aspek kualiti perkhidmatan perubatan yang mesra Islam adalah penting dan perlu disampaikan dengan memuaskan untuk memastikan kepuasan pelanggan. Kepuasan pesakit adalah jambatan penting dalam menentukan kemungkinan pulangan masa depan di kalangan pesakit Islam ke hospital.

Katakunci: *Mesra Muslim, Perkhidmatan Perubatan, Kepuasan, Niat Kesetiaan, Malaysia*

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LIST OF ABBREVIATIONS AND SYMBOLS

APHM	:	Associate of Private Hospitals of Malaysian
AMOS	:	Analysis of Moment Structures
ASEAN	:	Associate of Southeast Asian Nations
AGFI	:	Adjusted Goodness of Fit Index
AHRQ	:	Agency for Healthcare Research and Quality
AVE	:	Average Variance Extracted
CFA	:	Confirmatory Factor Analysis
CDVC	:	Care Delivery Value Chain
CFI	:	Comparative Fit Index
CMIN/DF	:	Normed Chi-Square
CAHPS	:	Consumer Assessment of Healthcare Providers and Systems
CEO	:	Chief Executive Officer
CR	:	Composite Reliability
Df	:	Degree of Freedom
EFA	:	Exploratory Factor Analysis
ERIA	:	Economic Research Institute of Asean and East Asia
EPF	:	Employee Provident Fund
GFI	:	Goodness of Fit Index
GOF	:	Goodness-of-Fit
GMTI	:	Global Muslim Travel Index
GDP	:	Growth Domestic Product
GCC	:	Gulf Cooperation Council
HRSQ	:	Human Resource Service Quality
HCSQ	:	Healthcare Service Quality
HIT	:	Healthcare Information Technology
IMTJ	:	International Medical Travel Journal
ISPI	:	International Strategy and Policy Institute
ITC	:	Islamic Tourism Center
JAKIM	:	Jabatan Kemajuan Islam Malaysia
KPJ	:	Kumpulan Perubatan Johor
KMO	:	Kaiser-Myer-Olkin
KLIA	:	Kuala Lumpur International Airport
MHTC	:	Malaysia Healthcare Travel Council
MI	:	Modification Index
MFT	:	Muslim Friendly Tourism
MSQH	:	Malaysian Society For Quality in Health
MMA	:	Malaysian Medical Association
MCQ	:	Medical Care Quality
MOH	:	Ministry of Health Malaysia
MS	:	Malaysia Standard
MOPH	:	Ministry of Public Health
MMC	:	Medical Malaysia Council
MCSQ	:	Medical Care Service Quality

MUS	:	Missionary Unit of Serdang
MFMS	:	Muslim Friendly Medical Services
MFMSQ	:	Muslim Friendly Medical Services Quality
NHI	:	National Heart Institute
NFI	:	Normed Fit Index
NTP	:	National Transformation Programmed
PHC	:	Primary Health Care
PNFI	:	Parsimony Normed Fit Index
PCFI	:	Parsimony Comparative of Fit Index
RMSEA	:	Root Mean Square of Error Approximation
REIT	:	Real Estate Investment Trust
RHRSQ	:	Religious Human Resource Service Quality
SERVQUAL	:	Service Quality
SSC	:	Shari'ah Supervisory Committee
SWOT	:	Strength Weakness Opportunity and Threat
SQ	:	Service Quality
SOPs	:	Standard Operating Procedures
SCIP	:	Surgical Care Improvement Program
SOCSO	:	Social Security Organization
SPM	:	Sijil Pelajaran Malaysia
S.E.	:	Standard Error
SEM	:	Structural Equation Modeling
SPSS	:	Statistical Package for the Social Science
Std.	:	Standard Deviation
UMMC	:	University Malaya Medical Center
UNWTO	:	United Nations World Tourism Organization
USA	:	United States of America
UK	:	United Kingdom
VIF	:	Variance Inflating Factor
WHO	:	World Health Organization
χ^2	:	Chi-Square
B	:	Beta
P	:	Probability level
$\geq$	:	Equals or more than
$\pm$	:	Plus or minus
$>$	:	More than
$<$	:	Less than

LIST OF APPENDICES

CHAPTER 1: INTRODUCTION

1.1   Introduction

The medical care service sector is facing continuous challenges while delivering services and demanding consistent quality performance (Büyüközkan & Çifçi, 2012). Duly, the medical field currently faces three prominent challenges: service integration, service quality and Internet connected medical device security. While the medical providers promise to change healthcare service delivery forever, it will take some time before the advancements reach their full potential. According to Ebel, Larsen and Shah (2013), patients have a multifaceted demand for medical treatments which becomes an inseparable ethical duty of medical care providers worldwide. Consequently, Santiago (1999) argued that medical care providers should maintain the service quality through delivering the desired medical care consistent with the current professional medical knowledge which consists of all the service quality components that confirm quality medical services beyond religious beliefs. This phenomenon also offers a unique opportunity to the medical care sector to deliver a new product, which is the Islamic perspective medical service.

In conjunction to this, the Malaysian government and private hospitals have taken the initiatives to apply Muslim-friendly concept to advice and counsel patients on prayers and religious matters. According to the former Health director-general Datuk Dr Noor Hisham Abdullah, there are currently 55 major hospitals nationwide, which is part of the Muslim (Ibadah/worship) Friendly Hospital programme (New Straits Times, 2016). According to Datuk Dr Noor Hisham Abdullah, practicing medicine is not just a profession but is a social obligation and this is the trust of the Muslim-friendly Hospital programme. Muslim healthcare workers are subjected to Shariah laws and are expected to provide the best care and service towards their patients and their community as they

are seeking the Pleasure of Allah SWT through their work and only then will their effort be considered an Ibadah (amalsoleh). On the other hand, the Muslims patients tend to choose their medical product and services as well as medical destination based on the availability of Shariah-compliant services.

Zawawi and Othman (2015) claimed only a few hospitals offered Shariah compliant services in the beginning of its introduction. In fact, up today, it is acknowledging that the numbers of hospitals certified with Shariah compliant services are still few (SIRIM, 2018). However, according to SIRIM there are already 31 Shariah Compliant Institutions certified under MS 1900:2014 but the biggest number are in Islamic Institution like Jabatan Pusat Zakat. For the healthcare, most of the hospitals are commonly used the tag line of "Muslim / Ibadah / Halal Friendly Hospital" for the Islamic values even though they are not yet been certified with Shariah compliant (SIRIM, 2018). Accordingly, due to the multidisciplinary scope of the subject matter, there exist confusions regarding 'Muslim-friendly hospital', 'Ibadah-friendly hospital' and 'Halal-friendly hospital' terms.

One challenge faced by academicians and practitioners is to identify the right terminologies as well as the proper clarifications of the concepts (Batour, 2018). As a result, 'Muslim-friendly', 'Ibadah-friendly' and 'Halal-friendly' terms, are often used interchangeably by academicians and practitioners since the concepts are similar. Nevertheless, according to Bartour (2018), most of these definitions are loosely defines and have not fully served the Islamic law (Shariah). Thus, this study will be studying the 'Muslim-friendly medical' that denotes an attempt by the hospitals to create the patients' experience enjoyable to Islamic values includes allowing Muslims patients to perform religious duties while they are at the hospitals.

The increasing trends in attitude towards Islamic values demonstrate how religion could be an appealing factor for patients. According to Rahman and Suhaiza et al. (2016),

generally there is a supportive environment to the Muslim-friendly services in Malaysia for the medical players to raise the value of their medical care. This study, however, provides an attractive argument by pointing out that even when the supportive environment is provided, the services quality of medical care in Muslim-friendly hospitals could still impact patient's satisfaction on Shariah compliant medical services. Given this situation, the Muslim-friendly medical services quality is an interesting issue to study.

Accordingly, this study starts by providing a general conceptual paradigm on the research topic and the problems arising therefrom in the introductory chapter. In this chapter, the background highlights the scenario of medical care services in general as well the Syariah compliant hospitals requirements. This is followed by the problem statement, research questions and objectives. The scope of study, significance and its expected contributions are discussed next. The key terms and organization of the study are explained at the end of the chapter.

1.2   Background

1.2.1   Medical Care Services

It has been proposed that greater availability of primary medical care practitioners contributes to better population health (Gulliford, Jack, Adams & Ukoumunne, 2004). In healthcare, customers are the immediate patients followed by their families and quite possibly their friends, as the outcome of the healthcare service potentially affects all their lives. Malaysia is fortunate to have a very comprehensive range of healthcare services. The Malaysian government is very committed to its principles of universal access to high-quality healthcare, which the local Ministry of Health offers through a network of nationwide clinics and hospitals. In fact, Malaysia has a dual-tiered system of healthcare services: a government-led and funded public sector, and a private sector. The public sector caters to the bulk of the population (~65%) but is served by just 45% of all registered doctors, and even fewer specialists (25-30%). The private sector on the other

hand, has grown tremendously over the past 25 years and now they have started to focus on medical tourism where the hospitals increase their expenditure to attract more patients out of the country (Quek, 2014).

Accordingly, Malaysia is generally promoting quality medical services and facilities around the world (Ormond, 2011). Besides, they are using modern technology and sophisticated medical devices as well as ensuring international accredited safety and quality services (Dahlui & Aziz, 2012). Lee and Fernando (2015) also mentioned that Malaysia has good prospects of vehement acceptance among the other countries. The patients value their medical care services owing to its multicultural society, political stability, low-cost medical treatment, high-quality medical services and affordable admission to medical care organizations. Table 1.1 compares the medical care service reputation among the ASEAN nations and outlines the comparative features. It is obvious that Malaysia, Thailand and Singapore have quite similar for both positive and negative medical care traits, nevertheless, Malaysia is the only country that emphasis on the Muslim medical care services. Moreover, it is also reported that the cost of medical treatment is one of the important considerations among the patients and the cost of medical care services in Malaysia is lower than the other countries in this region.

Table 1.1: Medical Care Quality Lacking in the ASEAN Healthcare Market

Country	Reputations	Lacking
Malaysia	a) Availability of Muslim medical care services in the region b) Up-to-date or modern technological facilities and services c) Highly trained physicians' specialists d) Reasonable or cheap healthcare costs e) Good location in the country f) Multi-ethnic population and cultural diversity g) Political stability h) English-speaking people or use of the English language in the country i) Presence of quality medical care delivery system j) Awareness of alternative medicines or halal medicinal ingredients	a) Traditional and complementary medicines are unorganized and unregulated b) Internal and external brain drain among medical care professionals c) Good quality physicians from overseas d) Good quality nurses from expanded nursing schools e) Financing schemes may favour foreigners over citizens
Thailand	a) Heavy investment in modern medical equipment and facilities b) Invest in training and education c) Private hospitals are in place d) Increasing healthcare demand and wellness treatment all over the region e) The huge number of expatriates living in Bangkok for medication f) Strong local demand for cosmetic surgical procedures g) Rise of chronic diseases h) Changing demographic features	a) Internal brain drains of medical professionals b) Insufficiencies in foreign languages c) Very few numbers of training organizations to meet expanding demand in healthcare travel d) Portability of health insurance e) Regulations on treatment in foreign countries
Singapore	a) Quality of healthcare services b) Variety of medical service choices and private hospital beds c) Available local medical training organizations and universities d) Quality medical equipment e) High quality of health care expert f) Service orientation	a) Difference in the quality of medical specialists and the quality of management staff b) Limited information on price of medical care services c) Segmentation of the healthcare travel industry in the region

Source: Tullao and Hin (2011)

Many researchers have developed a quality service-delivery management system that plays a vital role in the success of any service sector (Shafii et al., 2016). In the past decades, most of the companies encountered the challenge in providing quality medical services (Aitken et al., 2016). Milner et al. (2016) stated that efficient service-oriented quality can manage these challenges effectively through, for example, the introduction of the Muslim-friendly medical services quality system that could meet Muslim patients' demand and satisfy their needs. Malaysia as a tropical country in the heart of South East Asia (Deva, 2004) with 30.0 million over people of diverse ethnic, cultural and religious backgrounds, certainly, the medical care system in Malaysia has been overhauled to provide quality service to the people (Rahman & Zailani, 2017; Rahman, 2019). In 2009, Malaysian Government established the Malaysian Healthcare Travel Council (MHTC) which brought the synergistic efforts in the healthcare travel industry to the public and private sectors (MHTC, 2016). This phenomenon can outspread the image of Malaysia as a world-class medical services hub. It is also required to ensure the delivery of quality medical service across the service components (MHTC, 2016) that results in patients' satisfaction.

Healthcare accreditation is a practical milestone of hospital performance in the medical care system. The accreditation is designed as a methodical procedure by which an independent body can measure a quality medical care service standard in the healthcare organizations (Shrivastava et al., 2015). Following this, the Malaysian Society for Quality in Health (MSQH) has received an international recognition from the International Society for Quality in Health Care (ISQua) for its organizational program, accreditation standards, and its surveyor training programs since 2008. Medical care service in many circumstances is generally driven by quality metrics (Parthasarathy et al., 2014). The patient-centered medical care quality emphasizes the outcomes which are associated with the patients or improving the patients' satisfaction and enhancing their experience (Selby,

Beall & Frank, 2012; Parthasarathy et al., 2014). The Malaysian Society for Quality in Health (MSQH) is a non-profit organization which formed through the initiatives of the Malaysian Medical Association (MMA), the Ministry of Health Malaysia (MOH) and Associations of Private Hospital in Malaysia (APHM). The MSQH is working actively in conjunction with the medical care service experts to ensure patients' safety and continuous improvement of the medical care service quality (APHM, 2015). Besides, MSQH has been Malaysia's leading accrediting body in healthcare facilities and services since 1999.

Parthasarathy et al. (2014), on the other hand, stated that the most fundamental and implemented medical care service policy globally in the last three decades was medical care service accreditation. This accreditation status evinces that medical care quality service organizations have attained a minimum safety and quality medical care service standards. The popularity of hospital accreditation has amplified providing a standardized medical care quality services to the healthcare institutions (Pamidi et al., 2012). To pass an accreditation, a medical care service organization needs to undertake an external evaluation by a self-governing body. The evaluation presents a measure of the degree of compliance with recommended quality medical care service (Chai-Coetzer et al., 2013). Shrivastava et al. (2015) contended that owing to the impending globalization, medical care systems are also improving while maintaining a standardized and sustained level of quality. A healthcare accreditation body in this regard regulates and monitors the institutions to ensure the development of a medical services industry and delivery of quality medical services.

Although Malaysia is a new player in this market, nevertheless, has quickly managed to attract the attention of patients around the world as a better and more affordable medical care services destination (Zailani et al., 2016). The history of Malaysia's contribution to the medical industry dates two decades ago during the Asian

financial crisis in 1997. It led the growth of the private medical service sector, targeting local and foreign patients (Lee & Fernando, 2015). At the same time, the government understood that the medical service sector was valuable and could be sustainable in the long run, yet support is obligatory to help overcome the economic crisis (Mohezar et al., 2015). Since then, the Government has made effective efforts to market the quality medical services in general care and later focusing on the Islamic perspective. Many patients visit hospitals in search of alternative standard medical services, low-cost procedures and less waiting time. Malaysia has become a well-known healthcare hub in the world for its competitive medical charges and hospitalization costs as compared to other countries (MHTC, 2015; MHTC, 2016). Salleh, Mohamad and Taib (2011) postulated that the patients from India, Indonesia, Japan, China, Europe, Australia, Singapore, Bangladesh, Korea and the United State of America are seeking quality medical services in Malaysian hospitals.

It has been acknowledged as a growing segmentation that international patients deliberately travelled abroad for Shariah compliant medical services (Klijs, Ormond, Mainil, Peerlings & Heijman, 2016). This niche area which is related to the tourism industry has become so lucrative that, it has been identified as one of the contributors to the growth of economies. According to Sherine Azli, CEO of the MHTC, over the last few years, medical tourism has been one of Malaysia's fastest growing industries, recording an average year-on-year growth of around 15 per cent over the last five years (Shafaki, 2016). While the increasing Muslim populations globally with the differences in the social and religious cultures, has created opportunities for Islamic medical tourism industry (Snyder, Crooks, Turner & Johnston, 2013). They, nevertheless, argued that the success of any destination in medical tourism is not only dependent on the perception of the quality of medical care in the country, but also builds on the general perception of the destination from a tourism perspective. Apparently, the quality of medical care under

Muslim-friendly medical care is a big challenge among hospitals in Malaysia to ensure especially Muslims patients' satisfaction on services quality components that comply with Shariah rules (Mohezar, Moghavvemi & Zailani et al., 2017).

Shariah means "the totality of Allah's commands that regulates the life of every Muslim in all aspects" and Shariah compliance is conformity to Shariah through fiqh council that is accountable to issue decree *(fatwa)* on Islamic matters (S). This Malaysian Standard is developed with the aim to ensure that organisations are managed in accordance to the principles and practice of the quality management system from Islamic perspectives. ISO 9001 is the internationally accepted standard on quality management systems. It, however, does not address certain aspects of Shariah requirements which are a concern to Islamic practitioners and consumers. Therefore, in addition to the existing ISO 9001 Shariah requirements are being incorporated, where applicable (SIRIM, 2015).

Therefore, the service providers inculcate Shariah requirements into their quality management practice with the emphasis on value-based management. Islam promotes good universal values, which are readily acceptable to all people in the world (Yahaya, 2018). For that reason, the increased awareness of consuming halal products and experiencing Halal services among Muslim consumers has influenced them to also seek for Shariah compliant healthcare services (Rahim et al., 2015). This encourages several service providers to include hospitals that adopt and implement Shariah compliant healthcare services in Malaysia. For example, Muslim patients face significant challenges in receiving treatment in conventional hospitals, which includes privacy issues during treatment, cross-gender interactions between patients and medical practitioners as well as the status of the pharmaceuticals provided as treatment. Hence, many Muslims are concerned with the way they treated when seeking medical attention in hospitals and this has resulted in the demands for Shariah compliant healthcare services (Sharif & Rahman, 2016). Since Muslims are obliged to observe the Shariah in all aspects of their lives, the

introduction of a Shariah compliant hospital will add as another innovative product. The following subsection will discuss the needs and the role of Syariah compliant medical services in Malaysia in more detail.

1.2.2 *Shariah Compliant Medical Services*

Spiritually Muslims are obliged to observe the Shariah in all aspects of their lives. According to a famous Muslim jurist, Ibn al-Qayyim as cited in Sharif and Rahman (2016), Shariah is aimed at governing individual and societal affairs in life to uphold justice, mercy, wisdom and common good in human dealings which anything that violates the four principles stated above is not Shariah. Therefore, the awareness for the need to practice Islam in all aspects of life has brought many Muslims to realise the importance of following the Shariah including industries such as food, logistics, finance, hotel, restaurant and many others (Samoria & Sabtub, 2012). Nevertheless, Sharif and Rahman (2016) emphasized that a Shariah compliant hospital is not only product-oriented like an Islamic bank or financial centre which providing an Islamic alternative within a conventional system, but rather it is an organisation which has scope of work, procedure and staffing requirements which must comply to Shariah in totality. In other words, the whole institution needs to be certified by an independent body which is authorised to carry out the accreditation process to ensure that the organisation is following procedures as per Shariah requirement.

According to Shariff and Rahman (2016), Shariah compliant hospital covered fiqh ibadah and fiqh muamalah. They describe fiqh ibadah, means the relationship between the persons with Allah covers daily prayers, fasting and cleanliness while fiqh muamalat on the other hand covers the activities relates with society such as buying and selling transaction, takaful, food preparation and others. Yahaya (2018), on other hand, added that a Shariah compliant healthcare service is to provide Muslim patients with medical treatment that abides by Islamic principles which also includes halal medicine, and this

encourages hospitals to adopt and implement Shariah compliant healthcare services in Malaysia. Considering both arguments, therefore, there is a need to develop a Shariah Compliant Medical Practice Quality System which can be implemented as the compliance requirement for Shariah compliant hospital in which, hospital management must ensure all the Standard Operating Procedures (SOPs) must conform to the standard (Yahaya, 2018).

In the case of Malaysia, SIRIM has developed a general Shariah based Quality Management System (SIRIM, 2015) that provides general guidelines towards implementing a Shariah based quality management system. Primarily, the source of Shariah originates from al-Ouran, which is the direct commandment of Allah. The second source is al-Sunnah. In addition to al-Ouran and al-Sunnah, there is the provision or authority given to man in order to interpret and expand Divine commandment by means of consensus of opinion of ulama or analogical deductions. AI-Ijma and al-Qiyas' which are asserted as the third and the fourth sources of the Shariah respectively derived from this provision (Malaysia Standard, 2014). The framework is shown in Figure 1.1. According to Yahaya (2018), the guideline from SIRIM MS 1900:2014 is useful as a benchmark for the hospital to receive accreditation for Shariah compliant in which the accreditation will give more confidence and satisfaction to the hospitals' stakeholders. In other words, for a Shariah compliant hospital, the healthcare services rendered in the hospital must accordance with the Shariah principles or Islamic teachings which comprises of five characteristic components: -

1) Understanding the basic principles of Shariah

2) Understanding the principles of Halal and Haram

3) Understanding the principles of Muamalat

4) Implementing the concept of quality in Islam

5) Establishing 'Islamic Core Values' within the organisation which runs the hospital.

As mentioned in the previous paragraph, the MS 1900:2014 standard specifies the requirements for a Shariah Compliant Quality Management System which aims to ensure that an organisation is managed in accordance with universally accepted values such as justice, honesty, truthfulness, sincerity, timeliness and discipline (Malaysia Standard, 2014). The principle of the MS 1900 features is the element of Aqīdah, Akhlāk and Fiqh. In the case of Fiqh as an example, the MS 1900 will observe how it is being incorporated into the corporate values of the company. It also ensures that the halal and non-halal aspects of all processes necessary for the delivery of products and services are effectively identified, communicated and implemented (Basir, Azmi, Ismail, Ibrahim & Mohamed, 2017).
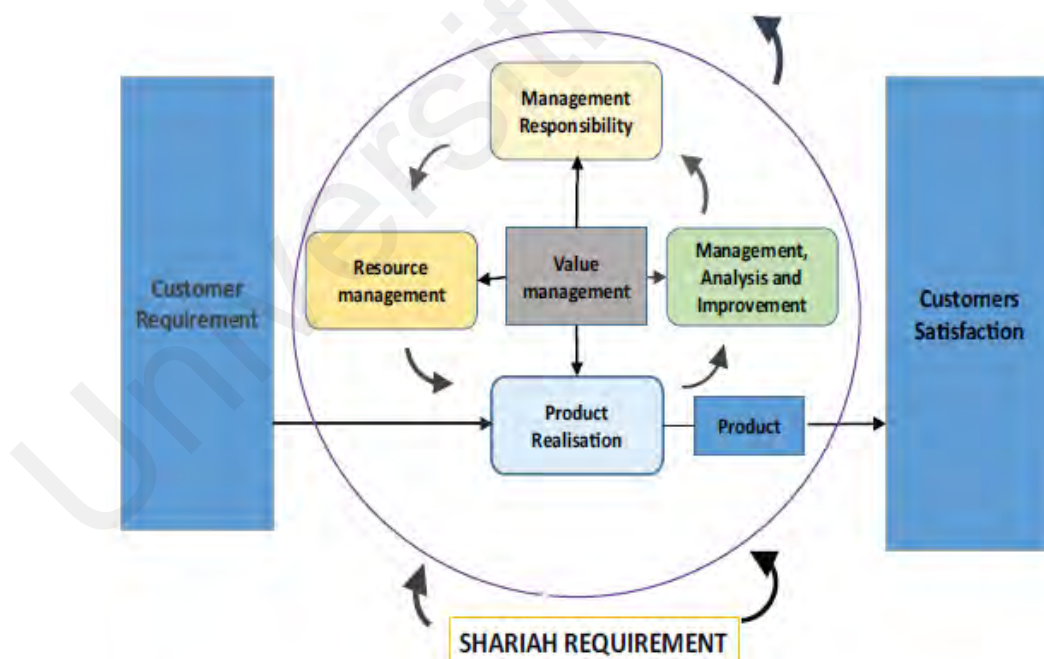
Figure 1.1: SIRIM: MS 1900:2014
Source: Shariff and Rahman (2016)

In consequence, Islamic Hospital Consortium (IHC) has been established which comprises of several Muslim hospitals such as Al-Islam Specialist Hospital, Pusrawi

Hospital, Ar-Ridzuan Medical Center and An-Nur Specialist Hospital with the main objective of providing services that complies with Shariah requirements to Muslim patients (Zawawi & Othman, 2018). In general, these hospitals fulfil the needs of Muslims wishing to be treated according to Islamic principles especially when they are sick. Thus, creates an awareness among patients and their families of the need to care for each other (hablu min an-nas) whilst observing compliance to Shariah principles (Hablu min Allah) (Yahaya, 2018).

Way before the development of the MS 1900:2014 by SIRIM, the Ministry of Health in fact, has started to introduce the concept of Ibadah-friendly hospital in 2010 to several government hospitals such as HUSM Kubang Kerian, Kelantan, Hospital Pulau Pinang, Hospital Pakar Sultanah Fatimah Muar Johor, Hospital Selayang Selangor, and Hospital Langkawi. Meanwhile, for the private sector, it was introduced to Hospital Pakar Perubatan Al-Islam Kampung Baru, Kuala Lumpur. The rationale of Ibadah-friendly hospital is to be used by the hospital management to achieve the values of excellence and pride to employees for the well-being of its customers through the adoption and appreciation of worship during and after treatment which aims to create awareness through education of patients and families to be closer to God (Kadir, Ahmad, Kefeli, Ismail & Mohamed, 2014).

Kadir et al., (2014), stressed that the awareness and actions to facilitate the patients to continuously maintain their obedience to Allah while they are sick must be created by the hospital management. Furthermore, the religious officials must be appointed by the management to assist and provide guidance to patients in which, they will visit the patients in daily routine to help patients worship and provide training and guidance to employees about Islam for them to be able to assist the patients (Mahmud, Ismail, Kadir, Ahmad, Mohamed & Kefeli, 2014). Additionally, the management has to assure the availability of basic facilities to perform the ritual namely direction of Qiblah,

veil, prayer mats, water spray and dust for tayāmum (dry ablution). To some extent, the patients will be assisted and guided by an ustaz (male religious teacher) for male patients and an ustazah (female religious teacher) for female patients to perform worship when in pain, which is consistent with the of Hospital Mesra Ībadah (worship friendly) (Mahmud et al., 2014).

The demand for a particular treatment in Islamic manner is highly recommended especially to those who are very particular in their Islamic practices and belief in which not only to provides the physical needs of patients; also, the religious and spiritual needs of patients. It is known fact that that the role of spirituality and religiosity has now being more acceptance not only in Oriental but also in the Western world (Shariff, Mohtar & Jamaludin, 2018). Accordingly, the next sub-section will discuss briefly the development of Syariah compliant medical services in the Malaysian context.

1.2.3   The Development of Shariah Compliant Medical Services

As discussed earlier, the Shariah compliant healthcare services can be defined as healthcare services offered by healthcare institutions which cater to the needs of Muslim patients while fulfilling specific requirements of the Shariah (Shariff & Rahman, 2016). In addition to this, the establishment of the institution must also be based on the Maqasid al-Shariah which means, the whole eco-system of the hospital must be Shariah compliant; comprises of the management, services, products and facilities (Shariff et al., 2018). According to Shariff et al., (2018), the understanding on the concept of Maqasid al-Shariah is important to appreciate the development of the Shariah compliant healthcare services.

The word maqasid means purpose, intents, objectives, goals or aims whereas; the word shariah literally means road or path (Dusuki & Abdullah, 2007). They added that the word Shariah has been described as the "ground on the benefits of the individual and that of the community, and its laws are designed to protect these benefits and facilitate

improvement and perfection of the conditions of human life on earth". This reflects the nature of the Shariah which is a source of guidance and felicity for the whole mankind which leads the way for all who follow it to sustenance, peace, tranquillity and felicity for the body, soul, mind and heart (Jalil, Ramli & Sahwan, 2014). As such, the term Maqasid al-Shariah theoretically means the objectives or purposes behind the Shariah. It is the principle goal that the Shariah aims at achieving to allow humans to lead a life that would be good for them in this world and Hereafter. Dusuki and Bouheraoua (2011) defined Maqāṣid by stressing the Sharīah's concern with safeguarding five objectives as follows:

> *The very objective of the sharīah is to promote the well-being of the people, which lies in safeguarding their faith (dīn), their lives (nafs), their intellect (ʿaql), their posterity (nasl), and their wealth (māl). Whatever ensures the safeguarding of these five serves public interest and is desirable, and whatever hurts them is against public interest and its removal is desirable.*

Imam al-Juwaini anticipated that the main intent of Islamic law that are set by Allah (SWT) is to protect the things that are considered as the necessities (al-dharuriyat) in people's lives in which if these essential necessities were not protected, then human lives could not continue (Dasuki & Abdullah, 2007). It is noted that these essential necessities would include the protection and preservation of faith, souls, minds, dignity and property. Besides, Dasuki and Abdullah (2007) stressed that the use of maqasid as a basis for explaining the purpose for some Shariah rulings is deemed necessary. In addition, Dasuki and Abdullah's (2007) study further explaining that the Shariah "is all about wisdom and achieving people's welfare in this life and the afterlife and it is all about justice, mercy, wisdom and good". Based on the above explanations, it could be surmised that in the case of providing healthcare services that complies with the Shariah, the main purpose of the hospital would be to provide medical services to promote and protect the main dharuriyyah for all human beings. There are a few criteria for Shariah Compliant hospital according to SIRIM MS1900:2014 as shown in Figure 1.2. The figure

clearly highlighted for the hospital activities, they should refer to Shariah Advisor or Shariah Compliant Officer in the hospital to make sure their activities does not contradictory with Quran and Sunnah or involve in non-permissible activities to Shariah.
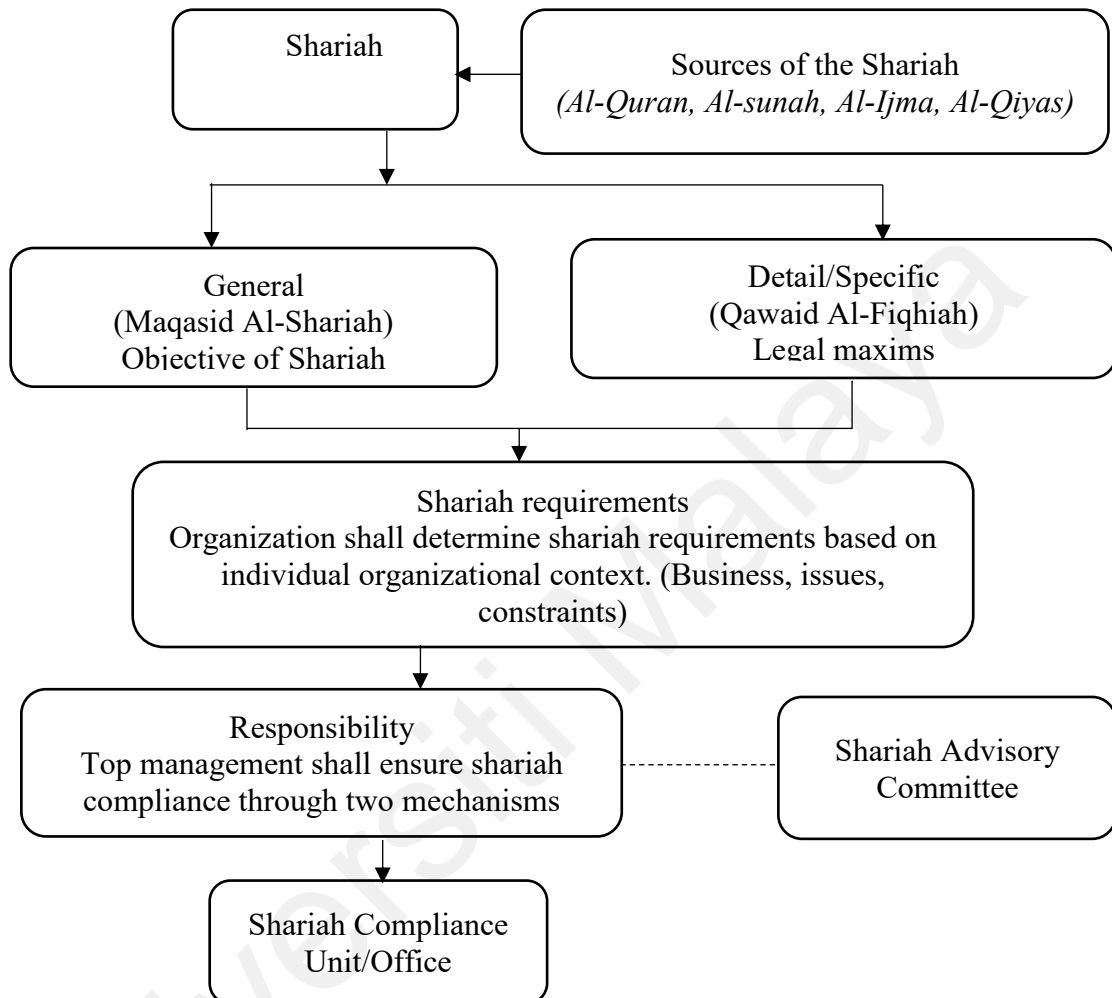
Figure 1.2: Shariah Implementation Framework for Quality Management System from Islamic Perspectives in Hospitals

Source: Malaysia Standard (2014) MS 1900:2014

Consequently, the hospital must consider the needs of the public which must come over and above any monetary interests or gains. Therefore, the purpose for the introduction of a Shariah compliant hospital is to ensure that the lives and livelihood of Muslims in Malaysia is the primary concern of the hospital (Yahaya, 2018). He added that the protection and preservation of human life will lead to the promotion and the protection of religion. Furthermore, this concept enables the hospital to protect and

promote the religion through emphasising that working for the benefit of others is an ibadah that would be rewarded by Allah s.w.t manifolds. This is also evident from the Quranic which mentions that if a person saves the life of a person it is as if he saved the life the people of the whole world (Kasule, 2013). Hence, in providing health services to all who need the treatment, a Shariah compliant hospital must also ensure that the doctors, nurses, attendants and administrators are conscious of the importance of offering the best services possible to all who need it, regardless of religion or race.

Now there is a dearth of activities in promoting Shariah compliant hospitals. The obligation is on them to ensure that their practice and the system in which they practise in must comply with the aims of the Islamic Shariah and be guided by its principles. This represents a new marketing opportunity for the next Muslim-friendly medical initiatives to bring forward through the Islamic content that serves as a solution and alternative to this contemporary phenomenon (Shariff & Rahman, 2016). Consequently, a brief explanation as to the association between Shariah compliant healthcare services and Muslim-friendly medical services is discussed in the next sub section.

1.2.4 *Shariah Compliant Healthcare Services vs. Muslim-friendly Medical Services*

Health is the most precious gift to all mankind from Allah (SWT) (Asmak et al., 2015). Asmak et al.'s (2015) study reported that there are two major fields of medical standard practices such as; i) general healthcare services and Islamic medical services. However, Shariah compliant healthcare services and Muslim-friendly medical services are the part of Islamic medical services. Generally, Shariah compliant healthcare services refer to the products and services that related to medical treatment and offered in accordance with the doctrine of the Shariah while Muslim-friendly medical services are denoted the availability of facilities and services cater specially to Muslim needs.

The Islamic or Muslim-friendly medical services are consistent with the Al-Qur'an and Al-Hadith. Al-Qur'an did not describe the method of treatment of diseases in

detail but there are certain verses refer to the objective for medical science, called as Shifa which means the cure. The word Shifa repeated by six times in Al-Quran; four in verbal nouns form[1] and another two in verb form[2]. The important of treatment for disease (either physical or spiritual care practice) is mentioned in the Holy Al-Quran and Al-Hadith based on Chapter Al-Isra 17:82, Chapter Fussilat 41:44 and Chapter Surah Yunus 10:57. In the Holy Quran Allah (SWT) said that:

وَنُنَزِّلُ مِنَ الْقُرْآنِ مَا هُوَ شِفَاءٌ وَرَحْمَةٌ لِلْمُؤْمِنِينَ وَلَا يَزِيدُ الظَّالِمِينَ إِلَّا خَسَارًا

Translation: ("And We send dowin of the Quran that which is healing and mercy for the believers, but it does not increase the wrongdoers except in loss") (Al-Quran, 17:82).

وَلَوْ جَعَلْنَاهُ قُرْآنًا أَعْجَمِيًّا لَقَالُوا لَوْلَا فُصِّلَتْ آيَاتُهُ أَأَعْجَمِيٌّ وَعَرَبِيٌّ قُلْ هُوَ لِلَّذِينَ آمَنُوا هُدًى وَشِفَاءٌ وَالَّذِينَ لَا يُؤْمِنُونَ فِي آذَانِهِمْ وَقْرٌ وَهُوَ عَلَيْهِمْ عَمًى أُولَئِكَ يُنَادَوْنَ مِنْ مَكَانٍ بَعِيدٍ

Translation: ("And if We had made it a foreign (i.e., in a language other than Arabic) Qur'an, they would indeed have said, "Had its ayat (Verses, signs) been expounded? A foreign (tongue) and an Arab (Messenger)?" Say, " To the ones who have believed it is a guidance and a cure; and the ones who do not believe, in their ears is an obstruction, and for them it is a blindness; those are called out from a place far (away)" (Al-Quran, 41:44).

يَا أَيُّهَا النَّاسُ قَدْ جَاءَتْكُمْ مَوْعِظَةٌ مِنْ رَبِّكُمْ وَشِفَاءٌ لِمَا فِي الصُّدُورِ وَهُدًى وَرَحْمَةٌ لِلْمُؤْمِنِينَ

Translation: ("O mankind! There has to come to you instruction from your Lord and healing for that which is in your hearts and guidance and mercy for the believers") (Al-Quran, 10:57).

According to these verses, it can be said that Allah (SWT) had explained to people that the whole Al-Quran is cure (Shifa) for all diseases either physically or spiritually disease.

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[1] Chapter Al-Nahl, 16:69, Chapter Al-Isra 17:82, Chpater Yunus 10:57, Chapter Fussilat 41:44
[2] Chapter Al-Taubah 9:14, Chapter Al-Syuara 26:80

In addition, there are several hadiths that state Allah (SWT) prescribes a cure for every sickness. For example, From Abu Hurairah (RA), the Prophet Muhammad (peace be upon him) said that:

مَا أَنْزَلَ اللَّهُ دَاءً إِلَّا أَنْزَلَ لَهُ شِفَاءً

> "There is no disease that Allah has created, except that He also has created its treatment." (Sahih al-Bukhari, 5678).

In addition, from Anas bin Malik (RA), the Prophet (peace be upon him) said:

إِنَّ اللهَ حَيْثُ خَلَقَ الدَّاءَ، خَلَقَ الدَّوَاءَ، فَتَدَاوَوْا

"Indeed, Allah created disease and its cure. Hence, seek medication." (Musnad Ahmad, 12596). In this regard, Imam Bukhari said that it is necessary to seek medical treatment when someone gets sick.

According to these Hadiths, it can be said that the knowledge regarding diseases is revealed through the agel Gebriel to the Prophet Muhhammad (peace be upon him). These Hadiths also suggest that seeking Muslim-friendly medication is only with what is permissible. Therefore, it is prohibited for someone to seek medication from what is prohibited. For instance, from Abu Darda (RA), the Prophet Muhammad (peace be upon him) said:

إِنَّ اللَّهَ أَنْزَلَ الدَّاءَ وَالدَّوَاءَ، وَجَعَلَ لِكُلِّ دَاءٍ دَوَاءً فَتَدَاوَوْا وَلَا تَدَاوَوْا بِحَرَامٍ

> "Allah (SWT) has sent down both the illness and the cure, and He has selected a meadication for every sickness, so treat yourselves patholofically, but use nothing unlawful" (Sunan Abu Dawud, 2874).

The Prophet Muhammad (peace be upon him) encouraged patients to seek proper medical treatment and he himself invited professional physicians for this purpose. Traditionally, it is regarded as a belief of illness and its medication from the religious or spiritual perspective. Muslims and non-Muslims have adopted many health-oriented

practices, such as dietary restrictions, and herbal medical treatments. Islamic medical science leans heavily upon local medical practices in the pre-modern era. Muslims are concerned with the manner in which they treated when seeking medical attention in hospitals and this has resulted in the demands for Shariah compliant healthcare services (Zawawi & Othman, 2018). As mentioned in the previous section, the concept of Shariah compliant healthcare services can be defined as healthcare services offered by healthcare institutions which cater to the needs of Muslim patients while fulfilling specific requirements of the Shariah.

Generally, Shariah compliant healthcare services are not yet fully implemented in many healthcare institutions in Malaysia however some of the elements are already practiced. Within the healthcare market, there are niche areas that gaining traction which is the Muslim-friendly medical services. This niche areas target specific Muslim market, which emphasises the need to conform to the Islamic principles. As mentioned earlier that the terms on Muslim-friendly, Ibadah-friendly and Halal-friendly are often used interchangeably by academicians and practitioners for hospitals that designates an attempt to follow the requirements of Shariah compliant (will be discussed in detail in Chapter 2). Table 1.2 illustrates the Muslim-friendly and Shariah compliance related services.

Table 1.2: Muslim-Friendly vs. Shariah-Compliance Related Services

Source	Muslim-Friendly	Source	Shariah Compliance
Jais, Aliman & Ismail (2017)	Muslim friendly is a term that denotes the availability of facilities and services cater specifically to Muslim needs.	Malaysia Standard (2014): (MS1900:2014)	Shariah-compliance means ensuring that the organisation is effectively managed in accordance with universally accepted values like discipline, honesty, justice, sincerity, timeliness and truthfulness.
Federation of Islamic Medical Associations (FIMA) (2009)	Muslim-friendly medical service is defined as a practice in medicine with a holistic approach, for instance, taking into consideration physical, psychological, mental, and spiritual as well as emotional components based on *tauhid* paradigm.	Malaysia Standard, (2015): (MS2610:2015)	Shariah compliance can be defined as a products or services that produced or offered in accordance with the doctrines of the Shariah.

Table 1.2: Muslim-Friendly vs. Shariah-Compliance Related Services (continue)

Source	Muslim-Friendly	Source	Shariah Compliance
Mahjom, Alias and Zulkifli (2011)	Muslim-friendly healthcare service provider runs and provides a capable medical care to treat sickness or symptoms of diseases.	Malaysia Standard, (2014): (MS 1900:2014)	Shariah compliant organisation needs to ensure the high standards of operations and products, and will continue to deliver great value, quality and excellence to all of the stakeholders.
Tayeb, Al-Zamel, Fareed and Abouellail (2010)	The Muslim-friendly medical service is required to have access to any spiritual or emotional support and to maintain dignity and privacy in its performance.	Shariff & Rahman (2016)	Shariah compliant hospital covered Fiqh Ibadah and Fiqh Muamalah. They describe Fiqh Ibadah, means the relationship between the persons with Allah covers daily prayers, fasting and cleanliness while Fiqh Muamalat on the other hand covers the activities relates with society such as buying and selling transaction, takaful, food preparation and others
Taheri (2008)	The Muslim patients' experience in medical care services include: patients' personal hygiene, dietary requirement (e.g. no alcohol, no pork) and avoidance of addictive habits (e.g. smoking, over-consumption of food).	Malaysia Standard (2014): (1900:2014).	Shariah-compliance is related to the halal and non-halal aspects of all processes vital for the delivery of services and products must also be identified and communicated to all employees as well as implemented effectively.
Padela (2007)	Muslim-friendly medical care attempts to determine an Islamic point of view on bioethical issues, for example, abortion, end-of-life care, sexual orientation, the relationship between patient-doctor and euthanasia. It underpins the holistic medical oath of both hospitals and ethicists to better comprehend the Islamic view of medical ethics and subsequently to positively influence patients' health care in a virtuous circumstantial environment.	Rashidi et al. (2015).	Shariah-compliant shows one of many ways that humanity strives to harmonize and maintain internal and external belief systems in a holistic approach to life. Shariah-compliance covers not only religious rituals, but also many aspects of day-to-day life, policy, business and social issues. Shariah-compliance refers to the way in which Islamic financial institution promotes, adopts and implements the behaviour of compliance with Shariah in its aims and operations, business, affairs and activities.

Amongst the earliest hospitals to introduce Shariah compliant healthcare services was the al-Islam Specialist Hospital in Kampung Baru which opened their services to the public in 2006 and was officially launched by the Ministry of Health in August 2010. Initially, the prime objective of the hospital was to provide the best services and facilities to help patients and at the same time also provide staff and patients as well as visitors with enough facilities to perform their Ibadah especially prayers (Hadi, 2014). It must be mentioned that the Pusat Rawatan Islam or PUSRAWI had also been introduced earlier than Hospital al-Islam in 1984 (PUSRAWI, 2013). However, its establishment was not

aimed to provide Shariah compliant healthcare services in its totality. Instead, it was a hospital that provided medical services for the public at large which is fully owned by the Majlis Agama Islam Wilayah Persekutuan. Nevertheless, one of its objectives is to inculcate Islamic principles as a work ethics (PUSRAWI, 2013).

Subsequently, many other healthcare establishments followed the steps started with the Islamic Hospital Consortium which was established in 2005 with an objective to establish contact and cooperation among its members in the field of healthcare services, strengthen ethical medical practice and hospital administration based on the principles of Islam (Islamic Hospital Consortium Malaysia, 2016). The consortium also caters to both to the human capital as well as and services offered by member hospitals and ensures that these hospitals are at least somewhat met the requirements of Shariah compliant in both aspects of human capital and services. Yadav (2006) has argued that hospital should cover all aspect in the hospital organisation and there should be integration including four aspects which are people, structure, work process and technology. As such, the hospital must ensure that the necessary services and facilities are able to cater to the needs of patients in which involves the fulfilment of the ibadah khususiah such as the five-time daily prayers, obtaining Halal medicine, food and beverages as well as protecting their aurah when being treated. Consequently, Kamaruzzaman (2013) listed the broad criteria for Muslim-friendly medical care which include the following:

1. Quality hospital management process

2. Financial management with Shariah principles

3. Adequate facilities for a quality patient care

4. Adequate facilities and policies for patients and staffs to perform ībadah (compulsory Islamic ritual) and other religious obligations including dress code

5. All products (foods and medicines) and procedures used are halal

6. All nursing and doctors' procedures must incorporate Shariah needs

7. Having guidelines to handle Muslim and other patients

8. Having trained staffs to advise Muslim patients regarding ībadah and rukṣah

9. Having a panel of expert to advice the hospital management on Shariah compliance

10. Having a regular assessment including clients.

This study is therefore interested to investigate the Muslim-friendly practices in the healthcare industry, its salient feature, the feasibility of integrating Shariah compliance component in its operations as well as highlighting the current practices. Considering the fact that the services quality of conventional medical care has been unsolved debates and talks over decades through various publications, seminars, and dialogues, similarly, the services quality of the Muslim-friendly medical care is still remaining unexplored and debated. To date, there are no definitive guidelines on what establishes services quality dimension for Muslim-friendly medical care. Thus, it is timely for the study to explore what are the criterions of services quality of the Muslim-friendly medical and to what extent they have been implemented by the hospitals in Malaysia.

1.3 Problem Statement

The industry manager for the Frost & Sullivan Transformational Health practice, Natasha Gulati noted consumerism as a major disruptor in the healthcare industry in Malaysia, where consumers' demands are seen to be driving a lot of innovations on the service front (Zainul, 2018). Nevertheless, the medical care service quality is remained as a challenging issue (AHRQ, 2014), especially in the countries where there are a lack of quality medical care equipment, infrastructure, medicines, and medical care system. These constraints can

conceivably lead to weak medical care services. Loganathan, Ng, Tan and Low (2015) indicated a lack of clinical skills in managing the hospitals in Malaysia.

Currently, Malaysian hospitals attempt to position themselves as medical service providers for the Muslim patients by offering the generic and Muslim-friendly medical care practices, products and services (Moghavvemi et al., 2015; Zailani et al., 2016). Nevertheless, the market share of Muslim-friendly medical services providers is negligible in Malaysia. For instance, only 26.73 percent of private medical operators have been distinguished and perceived by the Ministry of Health as Muslim-friendly healthcare providers (Moghavvemi et al., 2015). These hospitals also have been facing a lot of difficulties and constraints to provide medical services to Muslim patients (Rahman et al., 2017a).

Moreover, the current medical care service providers are more prone toward being provider centric rather than providing quality services to ensure patient's satisfaction (Wagner et al., 2012; Akinci & Patel, 2014). In addition, Battles (2006) and Carayon et al. (2014) indicated that medical care services have safety and quality problems because they relied heavily on outmoded work systems. Poor operational designs are also an issue in regard to performance failure. Therefore, a new medical care concept is apparent if we want to establish safer, higher quality care and a different market segment, particularly focusing on Muslim patients. Muslim-friendly medical services would be an emerging concept that would mitigate the existing challenges while complying with a proper Shariah-based quality standard is obvious.

In general, hospitals are the provider of medical care services (Baalbaki, Ahmed, Pashtenko & Makarem, 2008). Production and consumption of the services (Craig, Perlin & Fleming, 2007) occur concurrently to acknowledge the importance of the consumer which should be integrated into the hospital medical service process (Pugh et al., 2007). From the production side, hospitals in Malaysia face several capacity constraints of

specialized doctors and nurses. Specifically, a lack of appropriate Islamic-based knowledge has been commonly observed among the professional and religious oriented physicians and nurses in the medical care services (Samsudin et al., 2015; Moghavvemi et al., 2015). The organizations also do not readily provide much comprehensive solutions or information on the quality medical care services in this regard (Ministry of Health Malaysia, 2012). From the consumption side, patients sometimes find it difficult to communicate the issue of halal medication while they are under treatment. For example, the lack of resources along with language and communication challenges are the issues mentioned as problems (Lee, Lee & Ng, 2012; Tan, Asahar & Harun, 2015). Furthermore, a standard Muslim-friendly medical service is still at an infant stage where only a few hospitals have started introducing some aspects of Muslim-friendly services.

The growth rate of infectious diseases, skilled workforce shortages, commercial and regulatory gaps and possible market failure are likely to impact on the quality care services (Ministry of Health Malaysia, 2012). This phenomenon has brought up the issue concerning patient satisfaction. The study revealed that Muslim patients in Malaysia are not satisfied with the current Muslim-friendly medical services (Zailani et al., 2016) and they are not intending to refer or return to Malaysia if they need further medical assistance (Amin & Nasharuddin, 2013). Statistics also reveal that despite the potentiality existing, economic contribution to the Malaysian GDP from the medical industry is poor (Hartman et al., 2013; Keehan et al., 2015; Jakovljevic & Getzen, 2016). It signals the lack of patient loyalty due to the low satisfaction with the medical service performance. According to the literature review and the taxonomy of 50 articles (refer to Chapter 2) with the title of medical care services for the "Muslim patients' satisfaction" and their "loyalty intention for medical treatment", the studies have mostly focused on areas of generic medical care, product development, and marketing research. There are very few studies have been found which are related to the Islamic perspective of medical care services in Malaysia

that pertaining Muslim-friendly medical services quality, patient satisfaction and patient loyalty.

Malaysia is a Muslim country which is listed as a medical service hub in Asia (The Star, 2013; Lee & Fernando, 2015) and has economic potential and social welfare status (Dahlui & Aziz, 2012). Even though many hospitals in Malaysia are offering Muslim-friendly medical services (Islamic Tourism Centre, 2016; Ministry of Health, 2015; KPJ, 2015; Mohezar et al., 2015), most of them are still ill-equipped with limited adherence to evidence-based guidelines. Policy makers are also focusing much attention on Islamic perspective medical services; however, it does not necessarily mean the hospitals are being more efficient or effectively administering Shariah-based procedures. For example, Moghavvemi et al. (2015) and Mohezar et al. (2017) found that the health care provider developed a general guideline for Muslim-friendly medical services at the individual level, yet it was not sufficiently done. The guidelines mostly explain the doctor's general practices, as there are no appropriate policies and regulations by the hospitals that provide Muslim-friendly medical services in Malaysia as a regulatory requirement.

In conjunction to the Muslim-friendly medical services, hospitals must ensure that their level best practice principle of medical services quality can be achieved without impediments. Even though the Muslim-friendly medical services have been practised and adopted in the hospitals, its coverage is not that widely accepted. Only a handful of hospitals in both private and government sectors adopt this. The adoptions of Muslim friendly medical services were superficial where a certain part is adopted, while neglecting some critical parts such as medical and Shariah amenities (Jais, Aliman & Ismail, 2017). It is, therefore, important that hospitals voluntarily implement best Muslim-friendly medical services to benchmarks it against Shariah compliant requirements. The Muslim-friendly medical care services quality, however understudied

and poorly understood by all the members in medical industry. It is understandable that the patients can be the better judge of the Muslim-friendly medical services quality for than management of the hospitals themselves.

In summary, the main problem of the research can be stated as follows: "To what are the criterions of service quality for the Muslim-friendly medical? To what extent is the Muslim-friendly medical services quality being offered by the hospitals in Malaysia? What is the extent of Muslims patients' satisfaction on the quality of Muslim-friendly medical services? What does the extent of Muslims patients' satisfaction affect patients' intention of loyalty? Does Muslims patients' satisfaction mediate the Muslim-friendly medical services quality on patients' intention of loyalty?

1.4 Research Questions

Based on the previous justifications, this research provides answers to the following questions:

1. To what extent the Muslim-friendly medical services quality offered by the private hospitals in Malaysia?

2. What are the relationships of Muslims-friendly medical services quality with Muslim patients' satisfaction?

3. What are the relationships of Muslims patients' satisfactions with patients' intention of loyalty for future medical treatment at the private hospitals?

4. What are the relationships of Muslims-friendly medical services quality with patients' intention of loyalty for future medical treatment at the private hospitals?

5. Do the Muslims patients' satisfactions mediate the relationship between the Muslim-friendly medical services quality and patients' intention of loyalty for future medical treatment at the private hospitals?

1.5 Research Objectives

The objectives of the study are: -

1. To investigate the extent of Muslim-friendly medical service quality offered by the private hospitals in Malaysia.

2. To examine the relationships of Muslim-friendly medical services quality with Muslim patients' satisfaction.

3. To study the relationships of Muslim patients' satisfaction with their loyalty intention for future medical treatment at the private hospitals.

4. To determine the relationships of Muslims-friendly medical services quality with patients' intention of loyalty for future medical treatment at the private hospitals.

5. To examine the mediation effect of Muslim patients' satisfaction on the relationships between Muslim-friendly medical services quality and Muslim patients' loyalty intention for future medical treatment at the private hospitals.

1.6 Scope of the Study

This study is exploratory and explanatory in nature. According to Aaker and Day (1986): "exploratory research is used when one is seeking insights into the general nature of a problem, the possible decision alternatives, and relevant variables that need to be considered. There is typically little prior knowledge upon which to build." Since Muslim-friendly medical services quality is a new area of study and practice and little is known about it, especially in the context of Malaysia, the exploratory part of the study is necessary to explore and describe the extent of Muslim-friendly medical services quality offered by the hospitals, the satisfaction of the Muslims patients and their intention to be back to the hospital for repeating the medical services. Based on the exploratory part, the study identifies variables of the study and depicts relationships between these variables in a form of theoretical framework. To explain the nature and strength of relationships in

the framework, the study includes explanatory part which is based on using statistical techniques to test the relationships.

The study focuses on Muslim patients regardless their nationality that received the medical services at the private hospitals in Klang Valley. The argument on why the study was only focused on Muslim patients because the study believed that that Non-Muslim patients will not be interested to answer the survey as the topic is not relevant to them, besides, they perhaps do not have any knowledge or interest with the topic and also afraid of the sensitivity issue. The study well noted the opportunity to present the "rahmah" that Islam can bring to the world if the Non-Muslim patients also included in the study, anyhow, taking consideration of the high risk that they will not answer the survey thus jeopardize the response rate of the study, therefore they have been excluded. Whereas, the private hospitals selected were basically located in Klang Valley as it has the larger population of private hospitals for about 45% of total private hospitals in Malaysia. As the study is explanatory in nature to explain the extent of Muslim-friendly medical services quality, therefore, the study has collected data to patients in hospitals that offering Islamic/Muslim-friendly medical care services based on the list from Islamic Hospital Consortium Malaysia (2016). Mahjom and Zulkifli, (2011) and Mohezar et al. (2015) are also used the list of Islamic Hospital Consortium (IHC) Malaysia as their population frames.

The study has interviewed few of the personnel in IHC hospitals in the preliminary study and they had claimed that they do offering Islamic/Muslim friendly medical care services to the patients. "One of the objectives of IHC is to fulfil the criteria of Islamic medical institutions in areas of medical ethical standards, and application of Islamic principles in the field of medicine, etc". It is confirmed by SIRIM that the basic requirements for SIRIM's MS1900:2014 will be easy to fulfil if they are the members of

IHC. With this, the study remains the standpoint that the sampling done to IHC members is appropriate.

This study investigates the extent of Muslim-friendly medical services quality from the perspective of patients. Thereby, any effort to improve the satisfaction of patients eventually can produce substantial benefits. Furthermore, it is bias for the hospitals to evaluate the extent of their Muslim-friendly medical services quality themselves. Thus, it is indeed necessary that the patients provide reliable data concerning their satisfaction and their loyalty intention. The eco-system of the hospitals comprises of various aspects. Nevertheless, to study the extent of Muslim-friendly medical services quality, the study has grouped services only into six criterions which are Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour. This means that the study will not indulge in the technical aspects of Shariah compliant certifications processes or halal standards used inside hospitals.

1.7   Significance of the Study

There are about 1.8 billion Muslims around the world (Bohari, Hin & Fuad, 2013; Majid et al., 2015) and this number is also increasing among the European population (Sokol et al., 2005). The annual increasing rate of Muslims is estimated at 2.9 to 6.4 percent, which is faster than the rate of increase of other populations in the world. Therefore, it is important for all medical care workers or staff to become well informed about Islamic religious beliefs and their desired medical services that might affect Muslim patients' satisfaction. Additionally, there have been limited studies carried in this aspect in Muslim countries, with the exception of Zailani et al. (2016) who studied Islamic medical tourism which looked into an attitude of halal practices when providing services of Muslim tourists only. This study, however, focuses on Muslim-friendly medical services quality, patients' satisfaction and loyalty intention at hospitals in Malaysia.

Currently, about 40 hospitals offer Muslim-friendly medical services in the country (Mohezar et al., 2015). However, there are still lack of Islamic/Muslim-friendly medical services and shortages of other professionals, such as clinical religious physicians, psychologists, religious oriented nurses, and staff as well as quality standards (Samsudin et al., 2015). In addition, there has been no significant effort made to study Muslim-friendly medical services quality, especially in Malaysia. Therefore, this research attempts to fill this gap by providing insights relating to Muslim-friendly medical services quality which would result in Muslim patients' satisfaction in Malaysia. The following section discusses the study's contributions.

1.8 Contributions of the Study

The ever-evolving medical care services encounter several challenges, one such challenge is the need to maximize the patients' satisfactions. Considering this, Malaysian healthcare industry is looking for the innovation medical services and products. It is therefore, timely to explore the current trend on Muslim-friendly medical services among hospitals in Malaysia. The significance of this study emanates from its expected theoretical contributions to knowledge and practical contributions to business and public organizations. Although there is a general agreement on the importance of service quality of medical care, it is believed that no studies have been conducted to investigate the extent of Muslim-friendly medical services quality offered by the hospitals.

This study builds further on previous work published by Zawawi and Othman (2018) by investigating the extent of Muslim-friendly medical services quality offered by the hospitals. Accordingly, this study is expected to add to the knowledge of service quality medical care by which cooperating a unique variable of Shariah compliant based on established theories from the literature. The research findings therefore will be useful to academics and policymakers interested in fostering a Muslim-friendly medical services quality in Malaysia.

In addition, the patients-focused strategy is needed to meet what customers want. Juga, Juntunen and Grant (2010), believes that customer-oriented companies use market data and information to develop new services and to understand how the customer asses the service; they are more focused on their customers than their competitors and believe that their businesses exist primarily to serve their customers and customers' need are always on the first place. In summary, the study is expected to enhance the knowledge and performance of hospitals. The hospitals especially in global halal business essential to have better guidelines and understanding toward the fundamental of Muslim-friendly medical services, the requirements of them and know-how implementation based on current demand. This directly will lead to exploration of the hospitals to achieve services quality and consequently the business sustainability and can explain why some hospitals were not able to achieve good service quality. This study also may act, as a primary guideline for government agencies, as well as the hospitals that are developing policies and strategies towards implementing the Muslim-friendly medical services.

1.9 Definition of Key Terms

The definitions of main constructs used in this research are as follows:

Muslim-friendly Medical Services: Muslim friendly is a term that denotes the availability of facilities and services cater specifically to Muslim needs (Jais, Aliman & Ismail, 2017). In this study, Muslim-friendly medical services is defined as a practice in medicine with a holistic approach, for instance, taking into consideration physical, psychological, mental, and spiritual as well as emotional components based on tauhid paradigm.

Service Quality: Service quality is comprised of what service consumers receive in their interaction with the providers, reflected in technical, physical and outcome quality, as

well as technical quality delivery methods, in terms of functional, interactive, and process quality (Parasuraman, Zeithaml & Berry, 1988).

Muslim-friendly Medical Services Quality: Mosadeghara (2014) defined quality healthcare as "consistently delighting the patient by providing efficacious, effective and efficient healthcare services according to the latest clinical guidelines and standards, which meet the patients' needs and satisfies providers". Following Mosadeghrad's (2014) definition, this study adapted it and defined Muslim-friendly medical services quality as "consistently delighting the patient by providing efficacious, effective and efficient healthcare services according to the latest clinical guidelines and standards and adhere to Shariah compliant requirements which meet the patients' needs and satisfies providers".

Physicians' Services: Physician services refer to the services provided by an individual licensed under state law to practice medicine or osteopathy (Mahr et al., 2017). For this study, physicians' services refer to medical doctors in the hospital who practice medicine competently and other skills which is maintaining or promoting health for patients through treatment.

Nurses' Service: Nurses' services refer to a group of medical nurses who provide nursing care or collaborative care for patients or individuals in the hospital (Zailani et al., 2016). Nurses' services incorporate the prevention of illness, the promotion of health and care of illness with competent and other skills.

Healthcare Technicality: The healthcare technicality is the application of the administration system and standard of medical care and of the other healthcare sciences (Donabedian, 2005). For this study, the healthcare technicality refers to the hospital administration system and standard which are reliable.

Hospital Environment: Malik et al. (2016) defined hospital environment to be a measure of the conducive condition of a pleasant environment relative to the requirements of

human need or purpose. However, in this research, hospital environment refers to the sum of the elements and conditions in the surroundings of the hospital which have an impact on the improvement, care, and survival of patients through good healthcare system, process equipment and building and workspace.

Administrative Behaviour: Administrative behaviour is a generic term used to describe the process by which people within the healthcare organizations work (Meyer, Saw, Cho & Fancher, 2015). Administrative behaviour is defined as the selection of a course of action or the duties of administrative staff in the hospital which cover matters relating to planning, organising, directing, staffing and controlling that are responsive and well trained and accessible.

Shariah Amenity: Shariah amenities are defined as service elements (e.g. prayer facilities, food that meets patients' religious diet and etc.) in the hospital which are specific for Muslim patients and based on Islamic teachings and systems.

Patients' Satisfaction: Kim et al. (2008) adopted the concept of customer satisfaction and defined it as the patient's satisfaction is the choice of perceived value and sustained response toward service related stimulus before, during or after receiving medical services by a patient. This study defines patients' satisfaction as a measure of the extent to which an individual (patient) is satisfied with the quality medical care services that they received from the hospitals.

Loyalty intention: Zhou et al. (2017) stated that loyalty intention of patients is key to business success for hospitals or medical service providers. Accordingly, in this study loyalty intention is defined as a particular future intention that is created through patients' choices or decisions involving their satisfaction with the quality of healthcare services of hospitals.

1.10   Organization of the Thesis

The thesis is structured into five chapters:

Chapter 1 outlines an overview of the research context, research problem statement, research questions, and objectives. This chapter is also included in the expected contributions of the study.

Chapter 2 provides a review of literature regarding service quality, medical care quality, and medical services from the Muslim perspective, Muslim patients' satisfaction and outcomes (loyalty intention at hospitals for future medical treatment) in addition to the clarification of the concepts of medical service quality.

Chapter 3 deals with methodology, developing the theoretical model and hypotheses based on the literature review. This chapter explains hypothetical establishments and connectivity of the constructs to the study. The methodology discusses the research design, postulating population and sample, developing measures and scales for the constructs of the research. It also details the questionnaire design and statistical methods that are used in analysing the data.

Chapter 4 presents the study results that provide data and figures collected from the survey based on statistical analysis. This chapter also explains the results of the measurement model and structural model analysis.

Chapter 5 discusses the pertinent findings together with literature support based on research objectives. It explains the study's theoretical, managerial and marketing implications. The chapter also presents the study's limitations, and proposes some recommendations for future research, following which it ends with concluding remarks.

CHAPTER 2: LITERAURE REVIEW

2.1 Introduction

This chapter reviews the significant contributions from previous studies and content analysis carried out to examine the structure and direction of the previous research related to the issue of medical services. Medical service is increasingly a focus of global interest, debate and discussion for the betterment of quality care in performance and administrative integrity. The literature is reviewed, and theoretical gaps are identified. The research framework is developed upon the discussions on the underlying theories. The variables in the framework are then discussed thoroughly in their respective subsections; Muslim-friendly medical services' quality, patients' satisfaction and their loyalty intention at hospitals. Then, this is followed by discussions on the relationship of the variables in the hypothesis development. Finally, the summary of the chapter is discussed at the end of the chapter.

2.2 Medical Care Services in General

Differences in the design, content and management of health systems translate into differences in a range of socially valued outcomes such as health, responsiveness or fairness (Arah, Klazinga, Delnoij, Asbroek, & Custers, 2003), thus, need to examine and compare aspects of health systems around the world. The World Health Organization (WHO) ranked the health systems of its 191 member states and Malaysia is ranked 49th in the world (World Health Report, 2018) (refer to Table 2.1). This accomplishment is evidence to Malaysia's well-developed healthcare system, which is highly accessible, with competitively affordable rates, and of world-class quality.

Malaysia is one of the few countries in the region to receive strong government backing and is rigorously regulated by the Ministry of Health Malaysia to ensure

impeccable standards of quality, safety and ethics in Malaysian healthcare services (Healthcare Blueprint, MOH, 2017). Accordingly, the government set out ambitious goals for the health system in its 'Vision for Health': 'Malaysia is to be a nation of healthy individuals, families and communities through a health system that is equitable, affordable, efficient, technologically appropriate, environmentally adaptable and consumer-friendly. This includes emphasis on quality, innovation, health promotion and respect for human dignity, promoting individual's responsibility and community participation towards an enhanced quality of life'.

Table 2.1: Ranking of the World Health Systems

Country	Attainment of goals Health Level	Attainment of goals Health Distribution	Attainment of goals / Health / Overall goal attainment	Health expenditure per capita in international dollars	Performance / On level of health	Performance / Overall health system performance
Singapore	30	29	27	38	14	6
Japan	1	3	1	13	9	10
United Kingdom	14	2	9	26	24	18
Australia	2	17	12	17	39	32
United States	24	32	15	1	72	37
Brunei	59	42	37	32	76	40
New Zealand	31	16	26	20	80	41
Thailand	99	74	57	64	102	47
Malaysia	**89**	**49**	**55**	**93**	**86**	**49**
Indonesia	103	156	106	154	90	92
India	134	153	121	133	118	112
China	81	101	132	139	61	144
Laos	147	147	154	157	155	165
Myanmar	139	162	175	136	129	190

Source: World Health Report, 2018

Since Malaysian consumers' demands are driving a lot of innovations on the service front, therefore, the healthcare service providers are expected to adapt to these demands to avoid losing out as consumers and requires them to become more aware of their priorities (Zainul, 2018). The demand for healthcare is rising and continues

unabated, with opportunities for improvement and innovation in treatment. As mentioned by Dr Lum in the Star, February 12, 2018, patients' voices will become louder in 2018 as they are increasingly more informed, particularly about the quality of health information on the Internet. The underlying initiative of improving the medical care system is essential, as without this initiative, it is difficult to design the interventions and measures the health care rating. The health ratings are ratings or evaluations of health care used to evaluate process of care, healthcare structures and/or outcomes of healthcare services. Figure 2.1 shows the world health care index which Malaysia have been indexed 66.45. This evaluation of quality can be based on measures of hospital quality, health plan quality, physician quality, quality for other health professionals and patient experience.
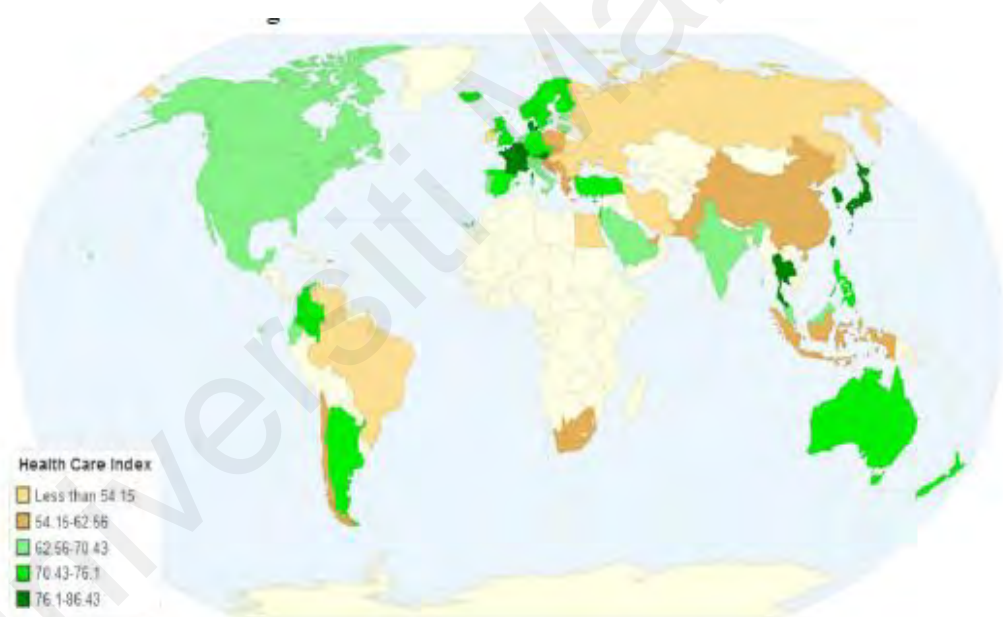
Figure 2.1: World Health Care Index 2016
Source: http://chartsbin.com/view/39854

Therefore, there is an urgent need to give attention to the medical care sector and its quality standards for the aim to attract more patients that could boost up Malaysia's health care index. This is evidenced from over the last two decades, there have been several issues related to the delivery of medical services including inconsistent quality, accessibility of quality medical equipment, increasing medical costs in developed countries, technological advances that enable access to relevant information and

knowledge transfer (Helble, 2011). Many definitions of quality medical care are used relevant to the various medical care disciplines, but a working definition is essential to characterize the medical-care quality, the process of new interventions and the formulation of strategies for quality development (WHO, 2006). The definition of medical-care quality needs to take a whole-system perspective and patient-oriented medical-care services for the individuals and the community. The following definitions as shown in Figure 2.2 suggest a medical-care system should pursue the task of making quality improvements. Donabedian (2005) suggested that the assessment of quality care should be an operationalized definition of what the meaning of the quality medical care is all about.
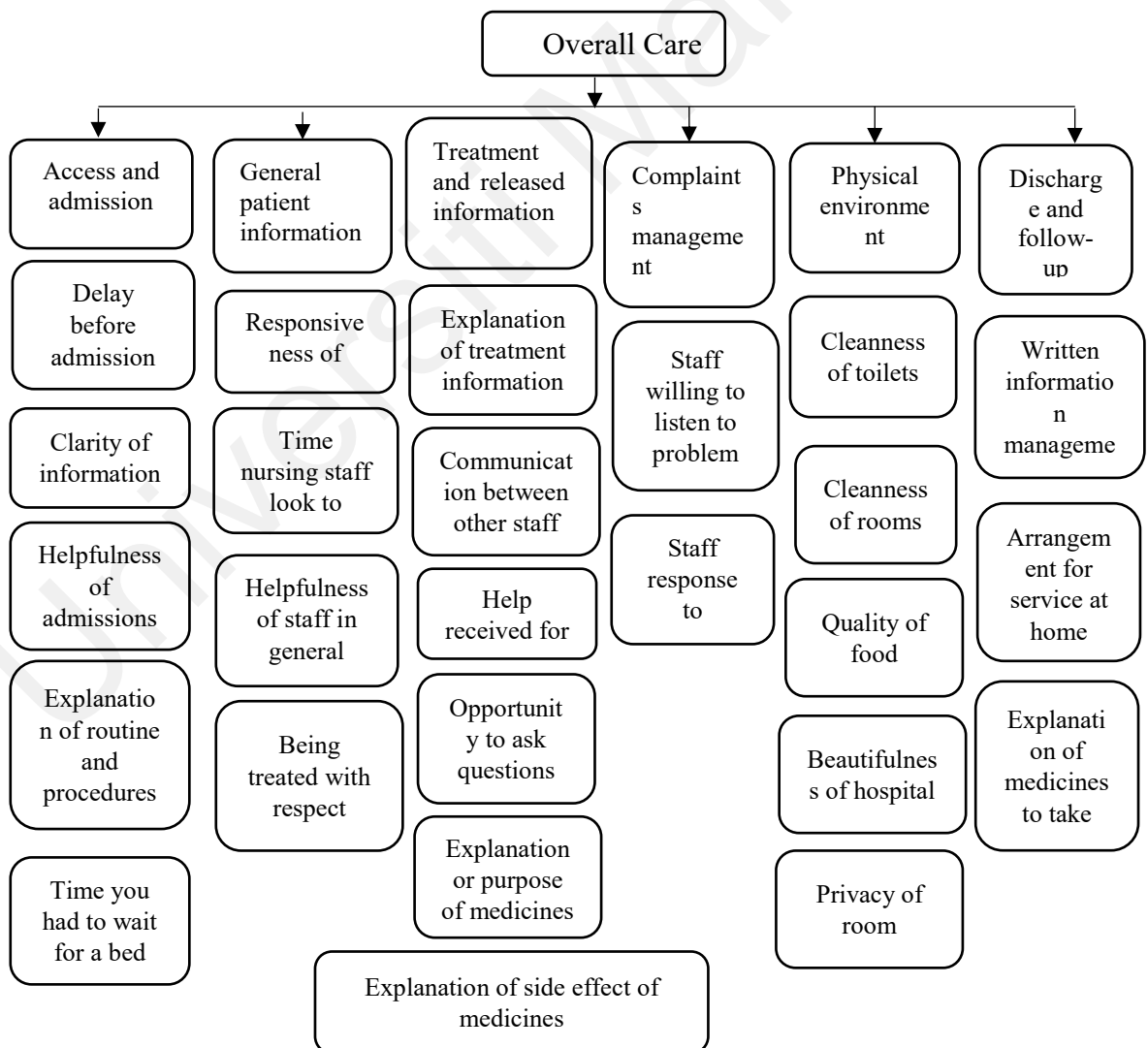
Figure 2.2: Medical-Care Index
Source: Chu and Kong (2018)

As the world grows increasingly aware of the high-value healthcare services Malaysia is able to deliver, therefore, healthcare providers in Malaysia needs to further strengthen its healthcare propositions and create higher degrees of accessibility to its healthcare services quality for citizens of the world. Indeed, service quality in medical-care service is the emerging trend of the future, which realizes a potential market growth. Moreover, medical-care service is turning into the motivating force offered by healthcare providers to ensure the patients' satisfaction and loyalty (Daud et al., 2010). In general, there are different classifications of perceived medical-care quality services in medical-care organizations. The following Table 2.2 shows the summary of the medical-care focused area that was discussed by different researchers in previous studies.

It is found from the summary that the frequency of focussed-on areas in medical-care quality services are mainly centred to the issues such as service quality (19.7 per cent) which is the most used construct by different authors and followed by satisfaction (14.3 per cent), performance (13.9 per cent), Islamic or Shariah standard (13 per cent), enablers, drivers or prime movers (11.6 per cent), competencies (5.8 per cent), practical applications (5.4 per cent), Muslim or Islamic (5.4 per cent), effectiveness (4.9 per cent), resources (3.1 per cent) and issues or challenges (2.7 per cent). In other words, the top positions of focussed areas in medical care services are: service quality, satisfaction, performance, and Islamic standard or Shariah compliance and, enablers. Consequently, the following sub-section discusses on various theories in service quality available in the literatures of medical care.

Table 2.2: Medical Care Focus Area

No.	Author	Year	Country	Focus Area of Medical Care Study											Method	Theory Building	Statistical Tool
				P	PE	S	R	EF	CO	EN	IS	MI	SC	SQ			
1	Kennedy et al.	2015	USA		√	√				√			√	√	Empirical study	Value-based payment models	SPSS
2	Al-Khafaji et al.	2015	Cross country			√			√			√	√	√	Review	Grounded theory	-
3	Sever	2015	Croatian coast		√	√		√						√	Empirical study	Expectation-disconfirmation theory	IPA Approach
4	Almasabi et al.	2014	Cross country			√							√	√	Descriptive	Grounded theory	-
5	Alonazi and Thomas	2014	Saudi Arabia			√	√	√	√			√			Survey	QoC and QoL	SPSS
6	Luck et al.	2014	Ukraine		√		√				√	√		√	Survey	Grounded theory	SPSS
7	Neeman & Sehgal	2014	USA	√	√	√								√	Descriptive	Grounded theory	-
8	Mahrous	2014	Saudi Arabia			√			√					√	Survey	Grounded theory	SPSS
9	Mankowska et al.	2014	Germany		√	√							√	√	Empirical study	HHCRSP	-
10	Gharibi et al.	2014	Iran		√	√			√				√	√	Empirical study	SQ	SPSS

Footnote: "√" indicates the medical care focus area. P = Practices/Applications, PE = Performance, S = Satisfaction, R = Resources, EF = Effectiveness, CO = Competencies, EN = Enablers/Drivers, IS = Issues/Challenges, MI = Muslim/Islamic Related Issues, SC = Standard Compliance/Shariah Compliance, SQ = Service Quality.

No.	Author	Year	Country	Focus Area of Medical Care Study											Method	Theory Building	Statistical Tool
				P	PE	S	R	EF	CO	EN	IS	MI	SC	SQ			
11	Serapioni & Matos	2014	Italy, Portugal and Spain		√	√					√			√	Review	Grounded theory	-
12	Arozullah & Kholwadia	2013	Cross country		√				√			√	√		Conceptual	Grounded theory	-
13	Kim et al.	2013	Cross country	√	√			√		√				√	Descriptive	Delivery value chain	-
14	Wessell et al.	2013	USA	√	√					√			√	√	Empirical study	Practice–based research	SAS
15	Kalanithi et al.	2013	USA		√	√	√			√			√	√	Descriptive statistics	Grounded theory	-
16	Kruizinga et al.	2013	Netherlands			√				√		√	√	√	Empirical study	Grounded theory	SPSS
17	Garrard & Narayan	2013		√					√					√			
18	Heard et al.	2013	Bangladesh		√	√				√				√	Empirical study	Grounded theory	STATA
19	Simbar et al.	2012	Iran	√		√						√	√		Empirical study	Grounded theory	SPSS
20	Kronfol	2012	Cross country			√					√			√	Review	Grounded theory	-

Footnote: "√" indicates the medical care focus area. P = Practices/Applications, PE = Performance, S = Satisfaction, R = Resources, EF = Effectiveness, CO = Competencies, EN = Enablers / Drivers, IS = Issues / Challenges, MI = Muslim / Islamic Related Issues, SC = Standard Compliance/Shari'ah Compliance, SQ = Service Quality.

No.	Author	Year	Country	Focus Area of Medical Care Study											Method	Theory Building	Statistical Tool
				P	PE	S	R	EF	CO	EN	IS	MI	SC	SQ			
21	Grissemann & Stokburger-Sauer	2012	Australia		√	√				√				√	Empirical study	Co-creation	SEM-
22	Hanna et al.	2012	USA		√	√			√				√	√	Empirical study	Grounded theory	SPSS
23	Puri et al.	2012	India		√	√								√	Empirical study	Grounded theory	EPI6 computer software
24	Chavan	2011	Australia	√	√		√		√	√			√	√	Empirical study	CPI theory	-
25	Guar et al.	2011	Cross country			√								√			
26	Hoseinpourfard et al.	2012	Iran						√	√			√		Survey	Grounded theory	SPSS
27	Karim et al.	2011	Malaysia	√	√									√	Conceptual	UTAUT	-
28	Bristow et al.	2011	USA						√	√			√	√	Empirical study	Grounded theory	SPSS
29	Inhorn & Serour	2011	USA	√	√		√				√	√		√	Review	Grounded theory	-
30	Mpinga & Chastonay	2011	Cross country		√	√	√			√				√	Conceptual	Grounded theory	-
31	Fulton et al.	2011	USA		√	√			√					√	Survey	Grounded theory	PASW
32	Nekoei-Moghadam & Kerman	2011	Iran		√	√				√				√	Empirical study	SERVQUAL	SPSS

Footnote: "√" indicates the medical care focus area. P = Practices / Applications, PE = Performance, S = Satisfaction, R = Resources, EF = Effectiveness, CO = Competencies, EN = Enablers / Drivers, IS = Issues / Challenges, MI = Muslim / Islamic Related Issues, SC = Standard Compliance/Shari'ah Compliance, SQ = Service Quality.

Table 2.2: Medical Care Focus Area (Continue)

No.	Author	Year	Country	Focus Area of Medical Care Study											Method	Theory Building	Statistical Tool
				P	PE	S	R	EF	CO	EN	IS	MI	SC	SQ			
33	Carney	2011	Ireland	√	√					√		√	√	√	Qualitative exploratory study	Grounded theory	SPSS
34	Rahman & Daud	2010	Malaysia		√			√				√	√		Database and survey	Grounded theory	SPSS
35	Owusu-Frimpong et al.	2010	UK		√	√		√		√			√	√	Descriptive	SERVQUAL	-
36	Dembe et al.	2010	USA			√		√		√			√	√	Empirical study	CAHPS	SAS
37	Gomes et al.	2010	Cross country		√	√		√		√			√	√	Descriptive	HOE	-
38	Rambod & Rafii	2010	Iran							√		√	√	√	Empirical study	QOL	SPSS
39	Padela et al.	2008	USA	√		√			√		√	√			Exploratory qualitative	Grounded theory	-
40	Korne et al.	2009	Netherlands		√	√		√					√	√	Empirical study	CDVC	SPSS
41	Joosten et al.	2009	Netherlands	√	√		√						√	√	Conceptual	Lean thinking	-
42	Øvretveit et al.	2008	USA	√			√	√	√					√	Survey	Evidence-based practices	SPSS
43	Sajid & Baig	2007	UK			√				√	√		√	√	Conceptual	SQ	-
44	Laird et al.	2007	UK, USA		√						√	√		√	Review	Grounded theory	-

Footnote: "√" indicates the medical care focus area. P = Practices / Applications, PE = Performance, S = Satisfaction, R = Resources, EF = Effectiveness, CO = Competencies, EN = Enablers / Drivers, IS = Issues / Challenges, MI = Muslim / Islamic Related Issues, SC = Standard Compliance/Shari'ah Compliance, SQ = Service Quality.

Table 2.2: Medical Care Focus Area (Continue)

No.	Author	Year	Country	Focus Area of Medical Care Study											Method	Theory Building	Statistical Tool
				P	PE	S	R	EF	CO	EN	IS	MI	SC	SQ			
45	King et al.	2006	Australia	√		√							√	√	Empirical study	Lean thinking	SPSS
46	Hammoud et al.	2005	USA						√		√	√		√	Conceptual	Grounded theory	-
47	Pomey et al.	2004	France		√	√			√	√				√	Empirical study	Grounded theory	SPSS
48	Lekkas et al.	2002	Cross country					√		√			√	√	Qualitative	QoS	-
49	Wong	2002	Australia		√	√		√		√			√	√	Empirical study	SERVQUAL	SPSS
50	Smith & Swinehart	2001	USA		√	√								√	Descriptive	Grounded theory	-
	No of occurrences			**2**	**31**	**2**	**7**	**11**	**13**	**26**	**6**	**12**	**29**	**44**			
	Percentage of occurrences			**5.4**	**13.9**	**4.3**	**3.1**	**4.9**	**5.8**	**11.6**	**2.7**	**5.4**	**13**	**9.7**			

Footnote: "√" indicates the medical care focus area. P = Practices / Applications, PE = Performance, S = Satisfaction, R = Resources, EF = Effectiveness, CO = Competencies, EN = Enablers / Drivers, IS = Issues / Challenges, MI = Muslim / Islamic Related Issues, SC = Standard Compliance/Shari'ah Compliance, SQ = Service Quality.

2.3   Service Quality

Service quality is comprised of what service consumers receive in their interaction with the providers, reflected in technical, physical and outcome quality, as well as technical quality delivery methods, in terms of functional, interactive, and process quality (Parasuraman, Zeithaml & Berry, 1988). The service industry is playing a vital role in stimulating the economy worldwide. The service quality (SQ) practice and the consumers' satisfaction are widely examined in the literature in the industrialized and emerging countries. Indeed, SQ is an assessment of service delivery procedures (Mokhtar & Husain, 2015) of whether the service provided can genuinely satisfy the customers' expectation (Yusof et al., 2014). Parasuraman, Zeithaml and Berry (1985, 1988) developed SERVQUAL model that postulated service quality as an overall assessment of individual services provided by the organization for customers' satisfaction. Higher perceived value of service quality can influence more customers' participation in purchased products and services (Dabholkar, 2015). Mosadeghrad (2014) postulated that medical-care quality services are the product of dedicative collaboration and proactive coordination between practitioners and customers.

A SERVQUAL model is a multi-dimensional or multi-item scale which is widely used for evaluating the betterment of service quality which comprises of ten criterions of quality service (Umath et al., 2015). These are responsiveness, reliability, security, tangibility, access, credibility, competency, communication, and understanding of the customer. Later Parasuraman et al. (1988) further compressed the service-quality criterions into five, which are i) assurance, ii) reliability, iii) responsiveness, iv) tangibility and, v) empathy. Table 2.3 illustrates the five criterions of the SERVQUAL model as identified by Parasuraman et al. (1988). The SERVQUAL model is developed from several service settings, such as, cultural context and geographical locations,

hospitals, medical care hospitals, dental schools, business schools, fast food establishments and departmental stores (Yin et al., 2016).

Table 2.3: The Description of the SERVQUAL Dimensions

Dimension	Definition
Assurance	The knowledge, information and courteousness of staff and their capacity of practicing trust and confidence.
Reliability	Capability to deliver services perfectly and dependably. This measurement incorporates meeting promises relating to quality delivery, accuracy, suitability, timeliness and compliant supervision.
Responsiveness	The willingness in responding to customers' needs. This measurement suggests constructive service attitudes and needs of personnel to focus on client inquiries, requests and complaints.
Tangibility	Physical confirmation of the existence of things in an administration office (e.g. Personnel, employees, equipment, communication etc.).
Empathy	The caring attitude and individualized attention are provided by the firm to its clients.

At present, the SERVQUAL scale is widely used to measure the patient's satisfaction and behavioural intention in the healthcare sector. Butt and Run (2010) postulated that SERVQUAL measured global and individual service quality criterions for benchmarking purposes on educational services, retail, websites, transportation and physiotherapy services, to mention a few. The SERVQUAL scale is used to evaluate the quality of a particular service and it can also be used to assign resources to achieve maximum benefits in the service rendered. Cong and Mai (2014) posited that SERVQUAL was used to develop a generic mechanism for measuring a wide range of service qualities. Ladhari (2009) indicated that the SERVQUAL model was suitable for use to transform subject-matter or industry-specific context in which a study can be conducted by the researchers. Usually, a SERVQUAL model is used for assessing the customer's perceived attributes of service quality across a wide variety of service environments including medical care services. From various studies, SERVQUAL

appears to be a consistent and reliable scale to measure heath care service quality. The following sub-section describes in detail the concept of SERVQUAL and other theories of service quality that can be applied in the medical care.

2.3.1   Service Quality Theories in the Medical Care

Increasing competition in this sector has led the hospitals to realizing the need to focus on increase the service quality to maintain competitive position. Consumers are the determinants of service quality and perception carried by them plays an important role in choosing a hospital. Services are being highly competitive and the health care industry in Malaysia is moving very rapidly to face this situation by implementing six measures to ensure the provision of quality health services to the people, said Health Minister Dr Dzulkefly Ahmad (Bernama, June 11, 2018). Quality assurance has become the major concern in the delivery of medical care.

Medical-care quality service is more complex to describe and measure as compared to other service sectors (Mosadeghard, 2014). Currently, the service quality (SQ) in the medical healthcare sector is growing considerably in attention and importance (Owusu-Frimpong, Nwankwo & Dason, 2010; Conga & Mai, 2014). From the experience of the public healthcare users, they are mostly not satisfied with matters in relation to the environmental service factors, such as, waiting time, getting appointments, getting attention from physicians, starting of consultation hours and access to core treatment. The public and the private medical-care users are facing a major problem in accessing medical-care availability. Hence, medical-care service providers or organizations should improve and provide a quality medical-care service for the patients' satisfaction.

Generally, the service quality is defined as users' assessment through personal experience of the values of the great care or service delivered to them. Service quality can be evaluated by determining users' perceptions of the service quality (Conga & Mai,

2014) which, incidentally, is a complex and multi-dimensional construct (Naidu, 2009). Donabedian (1980) posited on the criteria as to what constitutes "great care" by utilizing the medical care service system which is identified with physical satisfaction, benefits and good environment, based on a process which refers to a connection with the service provider and the resultant outcomes. Subsequently, he has created seven characteristics of medical-care quality services such as effectiveness, optimality, legitimacy, equity, efficacy, efficiency and acceptability.

Jain and Gupta (2004), on the other hand, identified 11 measurements of medical-care quality using interviews with doctors, administrators and patients. However, eight criterions out of eleven are a part of Parasuraman model (Parasuraman et al., 1985). The other three criterions are: i) "caring" and "empathy" for the individuals; ii) "results" of saving of life, release from pain, and frustration with life after medical treatment; and iii) cooperation or collaboration. Consequently, Lee (2017) proposed HEALTHQUAL model which consisted of the five crucial criterions such as tangibles, safety, empathy, efficiency and degree of improvements of care service. Different authors would have different scope of study based on the context of study.

In addition, the service-quality model reviews the quality services in terms of the difference between the clients' perceptions and their desires. The SERVQUAL instrument has been widely utilized as a part of an assortment of service settings, for example, banking service, retail service, MasterCard services, education, accommodation, telephone service, logistic, repair and maintenance, airline and hospital services in developed countries. Moreover, Cronin and Taylor (1992) built up another equally important SERVQUAL instrument, which was well known as SERVPERF. Usually, the SERVPERF model emphasizes the measurement of the clients' views on quality services. In addition, Rust and Oliver (1993) revealed three-component models,

which contained products and services (related to technical quality), service delivery (related to functional quality) and service environment.

Edvardsson et al. (1997), however, built up an experience-based method which afforded assessment of the clients' knowledge and their satisfaction on quality services. Anderson (1995) used a 15-items instrument which identified the five measurements of SERVQUAL for measuring service quality of the public medical health-care clinics as a result of which his findings of all the five components were measured negatively; assurance was particularly measured most negatively. Tomes and Ng (1995) also formulated the service quality dimensional scale in the USA hospitals and concluded that dignity, empathy, respect, religious needs and understanding of illness were intangible factors, while physical environment and food were the tangible criterions s of the service offered. Youssef et al. (1996) highlighted the service quality in the West Midlands National Health Service (NHS) hospital with all the five measurements of the service-quality model which found that the patients' perceptions neglected to meet their desires. Haddad et al. (1998) formulated an instrument for quality assessment of medical-care centres and proposed a 20-item scale to interpret the consumers' opinions relating to the medical-care quality services.

Hasin et al. (2001) identified the five criterions of the SERVQUAL model in a Thailand hospital, namely staff's cleanliness, cost, communication and responsiveness. Contrasting with Baltussen et al. (2002) study in which they have used the six criterions of the SERVQUAL model for measuring service quality of hospitals in Bukina Paso producing the following criterions: medical work force practices, adequacy of resources, services, medical care delivery, financial and physical availability of care. Baldwin and Sohal (2003) tested the SERVQUAL model in dental care for measuring the impact of service quality and they identified that patients' anxiety, appreciation, prompt services, patients' fear and anxiety in the treatment were found to be significantly impacted by the

patients' perceptions. Sohail (2003) identified the SERVQUAL modified instrument in a Malaysian private hospital.

Boshoff and Gray (2004) examined the hospital service quality and patients' intentions, using the SERVQUAL criterions of tangibility, communication, empathy, responsiveness, assurance and security. Moreover, Pakdil and Harwood (2005) revealed that patients were not satisfied with the long waiting time for medical treatment at hospitals. Rohini and Mahadevappa (2006) also used the SERVQUAL model for measuring patients' perceptions with hospital management in India. This is followed by Duggirala et al. (2008), in which they have applied a SERVQUAL model and revealed all the seven criterions, such as safety, patients' experience, quality, clinical care, social responsibility, infrastructure, safety indicators and administrative processes of medical care, had positive impacts on the patients' satisfaction with the hospitals' performance. In addition, Ramsaran-Fowdar (2008) used the modified SERVQUAL scale on private hospitals and the result revealed that there was a significant relationship between equitable treatment, reliability and patients' satisfaction.

Besides SERVQUAL, Aagaja and Garg (2010) developed the PubHosQual instrument to measure patients perceived medical-care quality service in Indian public hospitals where he identified five dimensions. These are quality healthcare services, admission, the social discharge process, responsibility and overall medical service quality. Chahal and Kumari (2010), on the other hand, had formulated a multi-dimensional Healthcare Service Quality (HCSQ) mechanism to measure the HCSQ of a tertiary-care public hospital. The study analysed the HCSQ and its capability to predict the outcomes of service quality by applying two different SERVQUAL models. The direct relationship among the service-quality criterions were measured by applying the first model, whilst the second model tested the direct impact of the physical environmental quality.

Ramez (2012), instead, examined customers' satisfaction of a health-care service quality of a hospital in Bahrain and found that there was a significant relationship between the SERVQUAL criterions and patients' satisfaction with their behavioural intention. Amin and Nasharuddin (2013), however, investigated patients' satisfaction with their intention to revisit the hospital for medical treatment and they identified five service quality criterions which are admission, medical service, discharge, social service quality. Accordingly, the assessment of medical care quality based on the SERVQUAL model successfully carried out in many countries, such as, the United State of America (Strawderman & Koubek, 2006), United Kingdom (Resnick & Griffiths, 2011), Canada (Tempier et al., 2010), Malaysia (Butt & Run, 2010; John et al., 2010), Korea (Lee & Yom, 2007), Iran (Nekoei-Moghadam & Amiresmaili, 2011; Thawesaengskulthai et al., 2015), Taiwan (Lin et al., 2009), Turkey (Bakar et al., 2008a; Baker et al., 2008b; Baker et al., 2013), Egypt (Mostafa, 2005) and Spain (Rincon-Gomez et al., 2011). The service-quality model is also involved with outpatient services, including national and international processes and screening as well as numerous medical care specialties, such as: i) mental health care service (Resnick & Griffiths, 2011), ii) primary medical care (Strawderman & Koubek, 2006), iii) dentistry (John, Yatim & Mani, 2010), iv) ophthalmology (Lin et al., 2009) and v) nursing (Lee & Yom, 2007).

From the above literature review, the researcher suggests that the prominent criterions of SERVQUAL scale are, namely, i) reliability, ii) tangibility, iii) assurance, iv) responsiveness and, v) empathy (Pakdil, & Harwood, 2005; Becker et al., 2016; Shafii et al., 2016). Most importantly, the measurement criterions of tangibility, assurance, empathy, reliability and responsiveness play a vital role (Becker et al., 2016) in predicting the patients' satisfaction and intention to revisit for medical treatment in hospitals. Many researchers have addressed different measurements of service quality medical care from different backgrounds e.g patients, clinicals, hospitals, employees and stakeholeders

(Graneheim & Lundman, 2004; John, 2015). Table 2.4 shows among the issues addressed by the literatures of 50 articles in the area related to service quality medical care surrounded within patients' relationship, patients' satisfaction and patients' loyalty intention in seeking medical care services either as independent or dependent variables.

Importance of service delivery has been talked and said that factors of service quality influence customers overall sense of satisfaction with the services offered by the public and private sector hospitals (Kaul, Gupta & Jauhari, 2008). The research conducted by Reynoso and Moores (1995) has contributed the different criterions with its validity which is needed to assess the internal service quality of any organization. The study done by Choi et al., (2005) with the motivation to extend the test of functional relationship between health care service quality and patient satisfaction and concluded that the study broadens the scope of generalizability of the service quality satisfaction relationship. Leadership's role in developing systems for delivering quality is one of the most important aspects of satisfaction for customers in healthcare sector (Marley & Collier, 2004). Nevertheless, as mentioned earlier in Section 1.4 that this study focuses on Muslim-friendly medical services, therefore, the services quality in the Muslim-friendly medical need to be investigated. Therefore, the following section illustrates the services quality in the Muslim-friendly medical.

Table 2.4: Literature on Medical Care Service Criterions

No.	Sources	Application	Country	Statistical Tool	Population	Criterions of medical care quality services (IV, MV, DV)	Result
1	Sumaedi et al. (2016)	Healthcare service quality	Indonesia	LISREL	154	Healthcare service quality, healthcare service outcome, healthcare service environment, healthcare service interaction	Sig. +
2	Lupo (2016)	Healthcare service quality	Italy	AHP	680	Healthcare staff, responsiveness, relationships, support services	Sig. +
3	Jang et al. (2016)	u-Healthcare service	South Korea	SEM	157	Connectivity, compatibility, effort expectancy, complexity, perceived benefit, perceived trust, usage intention, performance, social influence, expectancy	Sig. +/-
4	Dinkel et al. (2016)	Specialist healthcare	Germany	SPSS	258	Perceived quality, patient relationship, doctor relationship, interpersonal behaviour	Sig. +
5	Shafii et al. (2016)	Health service	Iran	FAHP	300	Patient orientation, health communication, tangibles assurance security, responsiveness	Sig. +
6	Kennedy et al. (2015)	Healthcare service quality	USA	SPSS	840	Process efficiency, Listening, respect, Responsiveness, Perception of overall quality, Cleanliness.	Sig. +
7	Califf et al. (2015)	Healthcare	USA	SEM	402	Usefulness, pace of change, reliability, complexity, insecurity, uncertainty, overload, information facilities	Sig. +/-
8	Alhassan et al. (2015)	Healthcare service quality	Ghana	SPSS	324	Supportiveness of health staff, staff and services, Complaint lodging, Adequacy of information, Respect, provision, handling and feedback	Sig. +
9	Zarei et al. (2015)	Medical care service	Iran	SPSS	969	Service quality, Physical environment, satisfaction, cost, interpersonal aspect	Sig. +
10	Leland et al. (2015)	Quality medical care	USA	-	-	Implementation, Evaluation, Measure specification, Maintenance, Enhancement. Integrating quality measure.	Sig. +

Table 2.4: Literature on Medical Care Service Criterions (Continue)

No.	Sources	Application	Country	Statistical Tool	Population	Criterions of medical care quality services (IV, MV, DV)	Result
11	Jennings et al. (2015)	Quality of patient care	Australia	-	40	Cost, Quality of care, Waiting times, Satisfaction.	Sig. +
12	Renedoa et al. (2015)	Healthcare quality improvement	UK	SPSS	20	Multidisciplinary collaboration, Relationship, Professional physician, Commitment, Communication, Skilled staff	Sig. +
13	Dobrzykowski et al. (2015)	Healthcare delivery	USA	SPSS	173	Physician, satisfaction, CRM, responsiveness	Sig. +
14	Laugesen et al. (2015)	Internet health information	Canada	SEM	225	Physician quality, internet health information quality, Patient-Physician Concordance, patient compliance, Perceived Information Asymmetry.	Sig. +/-
15	Aljeesh et al. (2014)	Health care–associated infections	Gaza	SPSS	26	Prevention medical supplies, Protective equipment, Pre-intervention, Post-intervention	Sig. +/-
16	Taye et al. (2014)	Quality of emergency medical care	Ethiopia	SPSS	995	Emergency visit, cancelling visit, Admission to hospital, Believed discriminated	Sig. +
17	Marshall et al. (2014)	The impact of patient care quality.	USA & Canada	OLS	174	Time saved Patient care changes, Adverse events avoided, Information access, Physical library, Web site, institutional intranet.	Sig. +
18	Marković et al. (2014)	Healthcare service	Italy		104	Staff communication and reliability, assurance, output quality, hospital environment.	Sig. +/-
19	Walston et al. (2014)	Perceived benefits of Medical care	Saudi Arabia	SPSS	623	Perception of HIT barrier, Training, Skills, Use, Perception of HIT benefits.	Sig. +
20	Pantouvakis and Bouranta (2014)	Quality service and patient satisfaction	Greece	SPSS	1,298	Intercept, Physical quality, Interactive quality, Corporate quality, Convenience Cost.	Sig. +

Table 2.4: Literature on Medical Care Service Criterions (Continue)

No.	Sources	Application	Country	Statistical Tool	Population	Criterions of medical care quality services (IV, MV, DV)	Result
21	Hajizadeh and Nghiem (2013)	National healthcare care service	Iran	SPSS	3514	Effective services, respect the patients, effective communication, patient treatment decisions, patient confidentiality, choose health professionals; quality of food, cleanness of room.	Sig. +
22	Al-Borie et al. (2013)	Healthcare quality	Saudi Arabia		1000	Tangibles, reliability, responsiveness, safety and empathy.	Sig. +
23	Enayati et al. (2013)	Measuring service quality in medical.	Iran	SPSS	373	Tangibility, Reliability, Assurance, Empathy, Responsiveness.	Sig. +
24	Lashgari et al. (2013)	Quality of health care services	Iran	SPSS	380	Quality of physical environment, Quality of equipment, Quality of human resource, Current services, New services.	Sig. +
25	Garrard and Narayan (2013)	Medical Services encounter	UK	SPSS	173	Tangibles, Reliability, Responsiveness, Assurance, Empathy.	Sig. +/-
26	Gallan et al. (2013)	Healthcare service	USA	SPSS	190	Technical quality, functional quality, customer participation, satisfaction, positivity, compliance, perceived outcome.	Sig. +/-
27	Gok and Sezen (2013)	Healthcare service	Turkey	DEA	523	Structural quality, hospital efficiency, technical efficiency, satisfaction	Sig. +/-
28	Amin and Nasharuddin (2013)	Hospital service quality	Malaysia	SEM	350	Admission, social responsibility, medical service, customer satisfaction, overall service, behavioral intention, discharge	Sig. +
29	Chen and Chuang (2013)	Healthcare systems	USA	SPSS	-	Quality care, Waiting periods, Free healthcare, Medical Equipment, Taxes.	Sig. +/-
30	Blozik et al. (2012)	Quality indicators and Healthcare	Cross Country	PHP	90	Health care professionals, Staff, Health care reputation, Developers and implementation teams.	Sig. +

Table 2.4: Literature on Medical Care Service Criterions (Continue)

No.	Sources	Application	Country	Statistical Tool	Population	Criterions of medical care quality services (IV, MV, DV)	Result
31	Zarei et al. (2012)	Service quality of private hospitals	Iran	SPSS	983	Responsiveness, Reliability, Empathy, Tangibles	Sig. +
32	Prakash and Mohanty (2012)	Service quality in health care system	India	SPSS	169	Administration, Prevention, Trust, Personnel, Research, Education, Treatment, Diagnosis	Sig. +
33	Cidon et al. (2012)	Indirect predictor of quality of care	Cross Country	SPSS	135	Nursing job feelings, nursing job quality, satisfaction, nursing job perceptions, communication, doctors, Nurses	Sig. +
34	Puri et al. (2012)	Patients' satisfaction	India	EPI6 computer software	120	Prescription quality, availability of facilities, signage display facility, and doctor-patient interaction.	Sig. +
35	Nurunnabi and Islam (2012)	Healthcare sector	Bangladesh	SEM	533	Professional, Administrative and management, legal enforcement and ethical, Government, Accountability.	Sig. +/-
36	Singer et al. (2011)	Integrated patients care	Cross country	-	-	Integration, collaboration, patient centeredness, coordination, respect to patients, responsiveness	Sig. +
37	Nekoei-Moghadam and Amiresmaili (2011)	Hospital service quality	Iran	SPSS	385	Reliability, Tangibles, Assurance, Responsiveness and Empathy.	Sig. +
38	Chavan (2011)	Quality management and care	Australian	-	-	Patient safety, quality care, management strategy, relationship, communication	Sig. +/-
39	Atinga et al. (2011)	Healthcare quality	Ghana	SPSS	324	Communication, Patient-provider relationship, Environment, Waiting time.	Sig. +
40	Eleuch (2011)	Healthcare service quality perception	Japan	SPSS, AMOS	192	Reliability, Assurance, Responsiveness, Empathy, Tangibles.	Sig. +

Table 2.4: Literature on Medical Care Service Criterions (Continue)

No.	Sources	Application	Country	Statistical Tool	Population	Criterions of medical care quality services (IV, MV, DV)	Result
41	Karim and Ahmad (2010)	Electronic health record	Malaysia	-	56	Performance expectancy, Social influence, Facilitating, Effort expectancy, Job satisfaction, Usage behaviour, Service quality and Information quality	Sig. +/-
42	Larsson and Wilde-Larsson (2010)	Quality of medical care	Sweden	SPSS, SEM	624	Doctor's commitment, Information, Conscientiousness, Emotional stability, Openness, General atmosphere, Medical treatment.	Sig. +
43	Holland et al. (2010)	Medical Care service Quality	USA	SPSS	26	Knowledge, Skills, Attitudes, Abilities, Beliefs, Commitment.	Sig. +
44	Akter et al. (2010)	Mobile health quality	Bangladesh	SmartPLS	283	System availability, reliability, , assurance, efficiency, privacy, emotional benefit, responsiveness, empathy, functional benefit, quality of health	Sig. +
45	Lonial et al. (2010)	SQ in health care	USA, Turkey	SEM	139	Courtesy, reliability, tangibility, assurance, responsiveness and empathy	Sig. +
46	Wan Edura and Wan Rashid (2009)	Service quality in health care	Cross country	SPSS	173	Word of mouth, Service delivery, Past experience, Communications, External communications to others, Personal needs, Expected service, Management perceptions, Service quality specs, Consumer expectations.	Sig. +
47	Baalbaki et al. (2008)	Health care delivery system	Beirut, Lebanon	SPSS	315	Admission, Food service, Nursing, Housekeeping, Orderly services, Physicians' services, Technical services, Discharge.	Sig. +
48	Ogunrin et al. (2007)	Medical care service quality	Nigeria	SPSS	69	Payment, Physiological, Security, Self-actualization, Self-Esteem, Relationship, and Transcendence needs.	Sig. +/-
49	Astrow et al. (2007)	Quality care	United States	SPSS	369	Religious, physician, spiritual need, staff, quality care	Sig. +/-
50	Gasquet et al. (2004)	Quality of hospital	Cross country	SAS software	1007	Consultation with doctor, appointment making, reception and facilities, waiting time.	Sig. +

2.4 Criterion of Muslim-Friendly Medical Care

Similar to Shariah compliant for hospitals, Shariah compliant hotel is a new innovative and creative services found in the hotel industry. Shariah-compliant hotel can be defined as a hotel that provides services in accordance to the Shariah principles (Jurattanasan & Jaroenwisan, 2014). Shariah compliant is a term that denotes the availability of facilities and services cater specifically to Muslim needs (Malaysia Standard, MS 2610:2015). Hospitality, a term derived from the Latin word "hospitaire" which denotes to receive a guest, implies a concept of a guest is away from home and is welcome by a host where necessities (food, beverage, medication and lodging) are provided (Malaysia Standard, MS 2610:2015). The potential of Muslim-friendly hospitality services to become a big business, as Muslim tend to choose their destination based on the availability of Shariah-compliant facilities or services.

Generally, Muslim-friendly medical services make a good complement to the Muslim-friendly services hospitality. In coordination with national Muslim-friendly tourism agenda, Muslim-friendly medical services can be part of the supply for the Islamic tourism to provide compliance eco-system. Following this, besides the facilities or services, the medical service providers must ensure that the doctors, nurses, attendants and administrators are conscious of the importance of offering the products, facilities and services possible to all who need it, regardless of religion or race (Zawawi & Othman, 2018). According to Yahaya (2018), Shariah compliant hospital should cover all aspect in the hospital organisation and there should be integration including four aspects which are people, structure, work process and technology and all the scope should comply with Shariah (Figure 2.3).
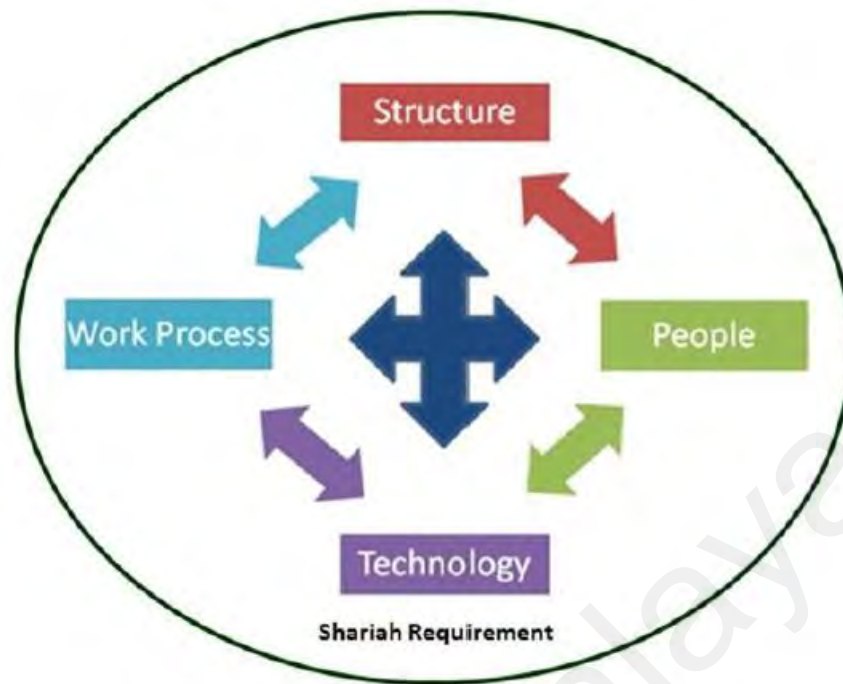
Figure 2.3: Shariah Compliant Hospital Scope

Source: Yahaya (2018)

The following subsections proceed to explain the specific criterions that need to be emphasised by the Muslim-friendly medical care based on the four aspects proposed by Yahaya (2018).

2.4.1 Management

A Muslim-friendly medical must portray with excellent professional services to the community in accordance with the principles of Islam. Nevertheless, the heart of the Muslim-friendly medical lies in its management team. The management of hospitals also needs to meet the standards stipulated under the Malaysian Standard MS 1900:2014 which provides guidelines for a Shariah-based quality management system (An Nur Specialist Hospital, 2016). Alternatively, Muslim-friendly is a term that denotes the availability of facilities and services cater specifically to Muslim needs according to the

Malaysia Standard, MS 2610:2014. Kamaruzzaman (2016) opines that the management responsibilities cover the care of hospital facilities, patient care, customer service, human resource and the management of F&B as well as drugs administration, all of which must be in line with the Malaysia Standard, MS 2610:2014.

It is well noted that the core services offered by the hospital would include the responsibility of physicians and nurses to provide sincere and genuine medical diagnosis, treatment and care to the patients with the aim of saving their lives (Haq, Medhekar & Ferdous, 2011; El-Gohary & Eid, 2015). Thus, the physicians and nurses must make every effort to ensure that they perform their duties according to Islamic medical ethical principles so that they avoid any negligence which may harm a patient's life or cause injury (Zawawi & Othman, 2018). The duty of the doctor is to provide the best treatment possible to alleviate the pain and suffering of their patients.

In Islam, there are certain categories of illnesses to be treated as claimed by Aziz (2013) who quoted the view of al-Imam al-Ghazali on medical treatment, illnesses can be divided into three categories: curable, expected to be cured and the cure is yet to be found. He added that when the ailment is curable, then the refusal of treatment is forbidden in Islam. Meanwhile, when the disease may be cured but the treatment may have a dangerous side effect or there is no guarantee that the treatment will be able to cure the disease, then, treating is not contrary to the teachings of Islam as to rely on Allah, the patients are encouraged to seek treatment. For the third category, the treatment may entail hazardous side effects like cauterization, in such cases; the disease may be left alone however treatment is permissible due to modernization of science and technology.

Generally, Muslim-friendly medical must strive towards providing health care services at reasonable prices, realizing the responsibility and trust to each staff members that the hospital is not just a working place but also a place of worship to Allah swt (to

do all the good things and to avoid all malpractices). They also need to contribute to the community through Islamic activities (da'wah) particularly in health education in order to help the community become a healthier and balanced, integrating the physical, psychological, mental treatment with religious elements (AliSLAM, 2017). Aside from that, Muslim-friendly medical services would also include the responsibility of nurses to assist both the doctors and the patients whenever needed. In both aspects, the hospital must ensure that the patient's rights are protected. The healthcare institutions should strive in preparing enough physicians and nurses to treat the patients according to patient's genders (Majid, Abidin, Majid & Chik, 2015). Although Islam doesn't totally forbid treatment of the opposite sex, providing the patients with a nurse or physician of the same gender when possible is highly recommended (Zawawi & Othman, 2018).

Moreover, the hospital would organize monthly workshop for the medical practitioner and other workers to learn about various praying methods during sickness and they also were introduced to tayammum method. Besides the various praying methods, they also prepared a short reminder (tazkirah) every week in the different wardroom to fulfil spiritual needs of patients. Meanwhile, the services provided at those hospitals are in terms of facilities and accommodations such as providing prayer amenities include ablution kit such pure dust for tayammum and water spray and provide a dedicate a musolla at all levels of the hospital buildings.

Interestingly, these practices have also been adopted by some Government hospitals such as in Sultan Abdul Halim Hospital (Zaiton, 2014) and Selayang Hospital (Zulaiha, 2014). Besides that, they also provide prayer outfit and mat, Qibla signage and manual guidelines for prayer. Accordingly, all procedures especially nursing procedures, (SOP) must incorporate Shariah needs, having guidelines to handle Muslim and other patients and having trained staff to advise Muslim patients regarding ibadah and ruksah

(an exception to a general law, granted to preserve life or remove hardship). Besides that, one of the issues raised by Muslim patients amongst pregnant women is not only male doctors present during delivering process of the baby, but male nurse also came to check themselves whether the cervix has begun to open or not (Faidhi, 2013).

2.4.2 *Products*

In terms of products, the Muslim-friendly medical needs to ensure two main types of products offered to their patients are in compliance to Shariah principles and are Halal and good (tayyiban) for their use and consumption. According to El-Gohary and Eid (2015), the first is in relation to their dietary needs while being treated in the hospital which not only must the food and drinks offered are suitable according the dietary requirements of the patients according to the illness that they suffer, it must also be Halal. Moreover, the use of personal and sanitary care of the patients must also be Halal. This requirement is also extended to the food and beverages offered to the staff and visitors at the hospital. As for the second concern, Kamaruzzaman (2013) pointed out on the medicine that is provided by the physicians in their attempt to cure the disease in which they would have to ensure that the pharmaceutical products supplied to the patients comply with the strict Halal requirements and are safe for Muslim consumption. There may be some concerns made in cases of extreme necessity where non-Halal pharmaceuticals may be resorted to if there are no other options available and to refrain from taking these medicines would result in the death of the patient. This is supported by Allegranzi, Memish, Donaldson and Pittet (2009).

Generally, Halal aspect can't be separated with Toyyib aspect in all situations that supposedly includes safety and cleanliness. For example, when patients want to perform prayer, they have to ensure their place and clothes are clean from any filth, especially for

those patients who are bedridden or who have been attached with urinating bag. Therefore, it is the responsibility of nurses in assisting patients to clean themselves before doing ibadah especially performing prayer (Kamaruzzaman, 2013). Another hygienic issue is related to preparing and handling food. As stated in MS1500:2009, the premises must be clean and safe in order to prepare food and beverages. Other medical treatment related to protection of intellect is the necessity to ensure that the pharmaceutical products are Halal and free from harmful ingredients. On the other hand, if alcohol is used as a solvent in medicine it is then permissible in Islam.

2.4.3 Facilities / Amenities

Another aspect of a Muslim-friendly healthcare institution is the need to provide for the facilities which includes accommodation as well as other facilities. These are important to assist the staff and patients to perform their daily ibadah (Kamaruzzaman, 2013) for instance; the wardroom. Some hospitals accommodate distinguish room based on the patients need and their social status anyhow; the important criterion to be taken care of is privacy. Almost all healthcare institutions in Malaysia separate the wardroom between male and female patients, however, there is less privacy occurring when a patient's guardian or relative from different gender having a visit to the patients. The duty to honour others' privacy is not to be borne by hospital alone, it is important for a visitor to also aware others patient privacy. On the other hand, when the nurse and physician with different gender want to enter the room, it is better to give signal before their arrival by knocking at the door to ensure that the patient's privacy is preserved.

One of the main aspects for Muslim-friendly hospital is ensuring adequate Syariah amenities for patients and also staff to perform their ibadah such as prayer and other obligations in comfort. The healthcare institutions must provide ablution facilities such

as ablution space in the toilet or musolla and for those bedridden patients the hospital should prepare pure dust for the purpose of tayammum (Islamic act of dry ablution using a purified sand or dust, which may be performed in place of ritual washing (wudu or ghusl) or water spray for them as they cannot take ablution normally. To perform prayer, the hospital has to provide adequate prayer space or musolla, Qibla signage especially in the wardroom and prayer outfit such as telekung (female prayer garment) and sajada (praying mat). Furthermore, the manual guideline to pray also important whether in the form of booklet or posters to assist and encourage patients to perform prayer based on their capabilities (Jawatankuasa Majlis Fatwa Kebangsaan, 2011). Hospital should ensure that their patients' aurah is protected by ensuring that the doctors and nurses are of the same gender as the patients.

The patients can be treated by opposite gender when there is no other specialist who can examine the patients. If this situation happens, the patients must be accompanied by his or her mahram during treatment (Al-Sharbini, 1997). Another example can be seen in the administration of medicine. The doctors must prescribe medicine which does not contain prohibited food substances in Islam. However, the concept of necessity may be applicable so long as the following conditions as mentioned by Qaradawi (1993) are fulfilled: i. the patient's life is endangered if he does not take such medicine. ii. No alternative or substitute medication made from entirely halal source is available. iii. The medication is prescribed by a Muslim physician who is knowledgeable as well as Allah-fearing. Therefore, the concept of necessity can be used if certain conditions are met which acts as an exception to the general rule and not taken as a norm. Considering all the criterions for Muslim-friendly medical services are quite imperative to the Muslims patients, as such, it is almost akin to the other Muslims patients in other countries. Nonetheless, the issue of Muslim-friendly medical services quality could be an argument.

Accordingly, the study is interested to examine the Muslim-friendly medical services quality from the perspective of Muslims patients.

2.4.4   Services

A Muslim-friendly medical designates an attempt to follow the requirements of Shariah compliant with excellent professional services to the community in accordance with the principles of Islam. The hospitals need to portray the requirements stipulated under the standard which provides guidelines for a Shariah-compliant facilities or services. Referring Section 1.3 in the previous chapter, there are some aspects that distinguishing between Muslim-friendly and Shariah-compliance related services.

As Muslim population increases globally, physicians and nurses involved with medical organizations will frequently encounter patients who require quality medical care services. As Abdelkader (2015), Rahman and Osmangani (2015) stated that medical service is evaluated on the intrinsic characteristics of the patients' satisfaction and their intention. Elder, Lemon and Costello (2015) stated that physicians should use medication in strict adherence to the Islamic or halal services practice in quality and standard. Loeb, Fraidenburg, Jacobson and Slivnick (2015) postulated that medical-care providers were used to improve the Islamic amenities with the standard medical care. However, based on the review of the literature, many studies show that they have focused on the requirements of the medical-care standard compliance which consisted of the Islamic rules and regulations which have been classified into 4 aspects of management (physicians and nurses), amenities, products and services. To confirm these 4 aspects of Shariah requirements related to the service quality, the following section details those specific criterions for Muslim-friendly medical service quality.

2.5 Criterions of Muslim-Friendly Medical Service Quality

The quality of service in the healthcare industry is an important factor of successful business (Ahmad, Jumli, Mahendran, & Azmi, 2018). The existing trend of complete quality management in healthcare industry ensures the achievement of competitive advantages of hospitals and is, therefore, the subject of contemporary research into service quality of the Muslim-friendly medical care. The concept and the conceptual model of service quality in Muslim-friendly medical care are essential to be explored if to understand the genesis of service quality and potential gaps in quality of Muslim-friendly medical care. In order to ensure and keep the quality expected by Muslim patients, the differences of the two aspects of quality particularly related to medical care, namely: design quality and the quality of conformity with the design, will be discussed (Parasuraman & Zeithaml, 1985).

The design quality is a concept implying the presentation of products/services directed to the needs of the Muslims patients. According to Ahmad et al (2018), the hospitals do market research in order to determine who their patients are and which of their demands require special attention. Then, the quality of conformity with the design will be determined because it represents the level which the product/service meets the demands of the market. In the end, the quality represents the satisfaction of the Muslim patient's needs and in order to achieve it and keep it in time, the hospitals not only need a continuous research into the demands of the clients but also of our own capabilities (Ahmad et al, 2018). Such an approach would ensure the pursuing of constant improvements especially in-service quality, according to the demands of the Muslims' patients.

The previous section described the most common criteria for Muslim-friendly medical care which consisted of management, facilities, products and services. This

section, on the other hand, discussed service quality measurement criteria, in particular the model of service quality and the SERVQUAL model for the Muslim-friendly medical care. When analysing the quality of service of the Muslim-friendly medical care, it is desirable to analyse the largest possible number of hospitals supplying the same type of service. In healthcare industry, service quality, as an extremely subjective category, is crucial to the satisfaction of the patients (Sharif & Rahman, 2013). It is therefore imperative for the study to apply the SERVQUAL model for the measurement of Muslim-friendly medical care service quality.

The potential of Muslim-friendly hospitality services to become a big business, as Muslim tend to choose their destination based on the availability of Shariah-compliant facilities or services. In addition, besides the management, the hospital must also ensure that the doctors, nurses, attendants and administrators are conscious of the importance of offering the products, facilities and services possible to all who need it, regardless of religion or race (Zawawi & Othman, 2018). The following subsections proceed to explain the specific criterions that need to be emphasised by the Muslim-friendly medical from the content analysis.

2.5.1 Content Analysis

Based on earlier studies on medical-care standard compliance and annotated literature on medical care quality services, this study identified the numerous medical-care service criterions which specific can be related to Muslim friendly medical services quality. These criterions may also have an influence on Muslim patients' satisfaction. The review of literature related to criterions of medical services quality, as shown in Table 2.6, which presents an evaluation of empirical studies of 60 articles on the criterions of services quality medical care. The table provides number of occurrences and percentages of

frequent uses of the service quality criterions that can be used for Muslim-friendly medical services. Based on reviews done, total of 19 key criterions services quality medical care identified in this study. The 19 criterions are physicians, nurses, competency, tangibility, assurance, cooperation, responsiveness, communication, reliability, access, collaboration, health care system, resource and facilities, buildings and workspace, supporting system, training, process equipment, administrative system and administration standard (refer to Table 2.5).

The outcome from the mapping done on the medical service quality criterions, it shows that physicians rank first with the highest percentage of occurrences (9.5 per cent), followed by nurses (8.8 per cent), healthcare system (7.9 per cent), responsiveness (6.6 per cent), administration system (6.6 per cent), administration standard (6.6 per cent), tangibility (6.1 per cent), assurance (6.1 per cent), building and workspace (5.0 per cent), supporting system (5.0 per cent), access (4.5 per cent), training (4.3 per cent), cooperation (4.1 per cent), reliability (4.1 per cent), resources and facilities (3.8 per cent), communication (3.4 per cent), competency (3.2 per cent), collaboration (2.7 per cent), process equipment (1.8 per cent).

Table 2.5: Criterions of Muslim-Friendly Medical Service Quality

No.	Author	Year	Country	Sector of Industry	PH	NU	CR	TA	AR	CO	RE	CN	RB	AC	CP	HS	RF	AD	AS	PE	BW	SS	TR
																Medical Services Criterions							
1	Lupo	2016	Itali	Hospital	√	√		√	√		√		√						√		√	√	
2	Dinkel et al.	2016	Germany	Healthcare	√	√										√	√	√	√				
3	Bahadori et al.	2015	Iran	Hospital		√		√	√		√		√			√					√		√
4	Alhassan et al.	2015	Ghana	Healthcare	√	√										√		√		√			
5	Qin et al.	2015	Iran	Hospital		√		√	√		√		√		√								
6	Jennings et al.	2015	Australia	Hospital	√	√	√			√	√					√					√	√	√
7	Dobrzykowski et al.	2015	USA	Healthcare	√	√										√		√	√				
8	Unroe et al.	2015	India	Medical Centre				√	√	√				√				√	√	√	√		√
9	Renedoa et al.	2015	UK	Healthcare	√	√										√		√	√				
10	John & Miller	2015	Cross Country	Hospital		√			√	√	√	√	√						√		√	√	
11	John	2015	Cross Country	Hospital		√		√	√	√					√								
12	Laugesen et al.	2015	Canada	Healthcare	√	√												√	√		√		√
13	Williams et al.	2015	USA	Clinics								√				√		√	√				
14	Zarei et al.	2015	Iran	Healthcare	√	√										√		√	√		√		√
15	Kennedy et al.	2015	USA	Hospital	√	√		√			√	√	√										
16	Jabbari et al.	2014	Iran	Hospital	√		√	√	√						√	√							
17	Mosadeghard	2014	Iran	Hospital	√					√				√		√	√		√	√	√		
18	Berendes et al.	2014	Sudan	Logistics					√	√	√			√	√		√	√					
19	Gharibi et al.	2014	Iran	Hospital		√		√	√		√					√		√	√				
20	Kelaher et al.	2014	Australia	Hospital												√	√	√			√		√
21	Alonazi & Thomas	2014	Australia	Hospital	√	√	√	√	√		√		√	√					√				

Footnote: "√" indicates the healthcare service quality criterions. PH= Physicians, NU= Nursing, CR= Competency, TA= Tangibility, AR= Assurance, CO= Cooperation. RE= Responsiveness, CN= Communication, RB= Reliability, AC= Access, CP= Collaboration, HS= Healthcare system, RF= Resource and facilities, AD= Administration system, AS= Administration standard, PE = Process equipment, BWU = Building, Workspace Utilities, Supporting System, TR = Training

Table 2.5: Criterions of Muslim-Friendly Medical Service Quality (Continue)

No	Author	Year	Country	Sector of Industry	PH	NU	CR	TA	AR	CO	RE	CN	RB	AC	CP	HS	RF	AD	AS	PE	BW	SS	TR
22	Johnston	2014	USA	Logistics	√	√		√				√						√			√	√	
23	Karlin & Karel	2014	USA	Hospital	√	√					√	√		√								√	
24	Beattie et al.	2014	Cross country	Hospital						√		√		√			√		√		√		√
25	Gao & Liu	2014	China	Logistics				√	√				√							√		√	
26	Montgomery & Oladapo	2014	-	Healthcare	√	√	√				√				√	√							
27	Gallan et al.	2013	USA	Healthcare	√	√										√		√		√	√	√	√
28	Aqe	2013	Jordan	Hospital			√		√					√			√		√				
29	Hajizadeh & Nghiem	2013	Iran	Healthcare	√	√					√						√		√	√	√	√	
30	Liberatore	2013	Cross country	Logistics										√				√	√				√
31	Kieran & Davies	2013	UK	Hospital	√	√											√				√	√	
32	Puri et al.	2012	India	Healthcare	√	√					√						√		√			√	
33	Weaver et al.	2012	USA	Hospital	√	√	√			√	√					√					√		√
34	Cidon et al.	2012	-	Healthcare	√	√										√		√	√				
35	Taye et al.	2012	Ethiopia	Hospital				√	√							√	√	√	√		√		√
36	Debata et al.	2012	India	Hospital	√	√	√	√	√	√	√		√	√	√								
37	Simbar et al.	2012	Iran	Hospital	√			√	√				√					√	√				√
38	Sellier et al.	2012	USA	Hospital	√			√	√	√	√		√	√									
39	Lim & Ting	2012	Malaysia	Hospital										√	√								
40	Nurunnabi and Islam	2012	Bangladesh	Healthcare	√	√					√							√					

Footnote: "√" indicates the healthcare service quality criterions. PH= Physicians, NU= Nursing, CR= Competency, TA= Tangibility, AR= Assurance, CO= Cooperation. RE= Responsiveness, CN= Communication, RB= Reliability, AC= Access, CP= Collaboration, HS= Healthcare system, RF= Resource and facilities, AD= Administration system, AS= Administration standard, PE = Process equipment, BWU = Building, Workspace Utilities, Supporting System, TR = Training.

Table 2.5: Criterions of Muslim-Friendly Medical Service Quality (Continue)

No.	Author	Year	Country	Sector of Industry	PH	NU	CR	TA	AR	CO	RE	CN	RB	AC	CP	HS	RF	AD	AS	PE	BW	SS	TR
41	Montenegro et al.	2011	USA	Hospital	√	√	√				√						√						
42	Steinwachs et al.	2011	USA	Hospital		√	√	√		√	√						√				√	√	
43	Welch	2010	USA	Hospital	√	√		√	√		√	√	√				√				√	√	
44	Holden	2011	USA	Hospital						√	√	√						√	√				
45	Nekoei-Moghadam et al.	2011	Iran	Hospital	√	√			√	√				√					√			√	√
46	Harrison & Ferguson	2011	USA	Hospital				√	√					√					√				
47	Guimarães & Carvalho	2011	UK	Logistics	√		√				√	√		√							√	√	√
48	Marco, Plaza & Canora	2010	Spain	Hospital					√					√			√	√	√				
49	Gasquet et al.	2004	-	Hospital	√	√										√	√	√				√	√
50	Towill	2009	USA	Logistics	√									√	√	√	√			√			
51	Owusu-Frimpong et al.	2010	UK	Hospital					√	√	√	√	√			√			√				
52	Larsson and Wilde-Larsson	2010	Sweden	Healthcare	√	√											√	√	√		√	√	√
53	Rajamma & Pelton	2010	USA	Logistics	√			√	√	√				√									
54	Padma et al.	2009	India	Logistics	√	√	√				√		√				√				√	√	√
55	Baalbaki et al.	2008	Leb	Healthcare	√	√												√	√				

Footnote: "√" indicates the healthcare service quality criterions. PH= Physicians, NU= Nursing, CR= Competency, TA= Tangibility, AR= Assurance, CO= Cooperation. RE= Responsiveness, CN= Communication, RB= Reliability, AC= Access, CP= Collaboration, HS= Healthcare system, RF= Resource and facilities, AD= Administration system, AS= Administration standard, PE = Process equipment, BWU = Building, Workspace Utilities, Supporting System, TR = Training.

Table 2.5: Criterions of Muslim-Friendly Medical Service Quality (Continue)

No.	Author	Year	Country	Sector of Industry	PH	NU	CR	TA	AR	CO	RE	CN	RB	AC	CP	HS	RF	AD	AS	PE	BW	SS	TR
50	Essouss & Ladet	2009	France	Logistics				√						√			√	√			√	√	√
51	Baalbaki et al.	2008	-	Hospital	√	√					√					√		√	√				
52	Kumar & Steinebach	2008	USA	Hospital			√	√		√			√			√	√	√		√	√	√	
53	Alaloola & Albedaiwi	2008	Saudi Arabia	Hospital	√								√	√		√							
54	Bakar et al.	2008	Turkey	Logistics	√	√	√			√	√					√				√		√	√
55	Elleuch	2008	Japan	Hospital	√	√	√	√	√	√			√			√							
56	Tutuncu & Kucukusta	2008	Turkey	Logistics	√						√	√				√	√				√	√	√
57	Baalbaki et al.	2008	USA	Hospital					√	√	√			√	√								
58	Dagger et al.	2007	Australia	Logistics	√	√		√	√		√			√	√			√	√				
59	Lynn et al.	2007	Cross country	Logistics				√		√	√	√					√	√			√	√	√
60	Astrow et al.	2007	-	Hospital	√	√											√	√	√				
				No of occurrences	42	39	14	27	27	18	29	15	18	20	12	35	17	29	29	8	22	22	19
				Percentage of occurrences	9.5	8.8	3.2	6.1	6.1	4.1	6.6	3.4	4.1	4.5	2.7	7.9	3.8	6.6	6.6	1.8	5.0	5.0	4.3

Footnote: "√" indicates the healthcare service quality criterions. PH= Physicians, NU= Nursing, CR= Competency, TA= Tangibility, AR= Assurance, CO= Cooperation. RE= Responsiveness, CN= Communication, RB= Reliability, AC= Access, CP= Collaboration, HS= Healthcare system, RF= Resource and facilities, AD= Administration system, AS= Administration standard, PE = Process equipment, BWU = Building, Workspace Utilities, Supporting System, TR = Training.

The 19 criterions were further clustered under the 4 main clusters of Muslim-friendly medical care which are management, facilities, services and products as proposed by Yahaya (2018). Based on the above table, the study decided to do some clustering activity base on the available Muslims medical literature. The identification of the criterions of Muslims-friendly medical service quality is necessary in order to be able to specify, measure, control, and improve patients perceived on Muslims-friendly medical service quality. The purpose of clustering activity is to further reduce and fine-tune the research model. The below effort was done in order to develop the initial theoretical framework after the clustering activity. Table 2.6 shows the clustering or categorization of the 19 key criterions services quality medical care and the rating or positioning that will be used for developing the theoretical framework after clustering.

Table 2.6: Clustering of the Criterions

Rank	Key criterions services quality medical care	Percentage	Clustering of the criterions based on Yahaya (2018)
1	Physicians	9.5%	Management related
2	Nurses	8.8%	Management related
3	Healthcare System	7.9%	Facilities related
4	Responsiveness	6.6%	Services related
5	Administration System	6.6%	Products healthcare related
6	Administration Standard	6.6%	Products healthcare related
7	Tangibility	6.1%	Services related
8	Assurance	6.1%	Services related
9	Building and Workspace	5%	Facilities related
10	Supporting System	5%	Facilities related
11	Access	4.5%	Management related
12	Training	4.3%	Management related
13	Cooperation	4.1%	Services related
14	Reliability	4.1%	Services related
15	Resources and Facilities	3.8%	Facilities related
16	Communication	3.4%	Services related
17	Competency	3.2%	Services related
18	Collaboration	2.7%	Services related
19	Process Equipment	1.8%	Facilities related

The pertinent question was whether the different clustering of service quality shows a pattern with the importance of different determinants of service quality (the five

dimensions suggested by Parasuraman, et al. (1988) as shown in Table 2.7. Since the study is related to the healthcare industry, thus, it is significantly affected by technological, structural and regulatory factors. For the first clustering, the 19 criterions of medical service quality corresponding were ranked based on the percentage of occurrences to each of the Muslim-friendly clusters of service quality as proposed by Yahaya (2018). Then followed by the second stage of clustering with if any the ranks of service criterions across each service type were similar, some kind of generalization of relative importance of criterions was possible, and thus, left with 7 criterions.

Nevertheless, the service quality criterions are multi-dimensional containing eight behavioural dimensions that patients would emphasize on compliance dimension. Therefore, they have been clustered under the management that comprises of physicians and nurses' service. Finally, the modified SERVQUAL is established by integrating the criterions of 6 Muslim-friendly clusters of medical service quality as shown in Table 2.7. The same procedures have been applied by Ali and Raza (2015) in their study on "Measurement of Service Quality Perception and Customer Satisfaction in Islamic Banks of Pakistan: Evidence from Modified SERVQUAL Model". According to them, researchers identified SERVQUAL dimensions for perceptions, expectations and gap scores, and due to this fact, the five dimensions of SERVQUAL are inconclusive. SERVQUAL on the other side, many studies have adopted this model to enhance the literature on SERVQUAL dimensions and provide support to the organization in specific research need (Parasuraman et.al, 1988). Consequently, the established modified SERVQUAL by integrating the criterions of Muslim-friendly clusters of service quality will be used in to investigate their effects on patients' satisfaction.

Table 2.7: Muslim-Friendly Medical Services Quality Criterions

Clustering of the criterions based on Yahaya (2018)	1st clustering	Management/ Services Related		Products Healthcare Related		Facilities Related	
	2nd clustering	Physicians Services	Nurses Services	Healthcare Technicality	Administrative Behavior	Hospital Environment	Shariah Amenities
	3rd clustering	Service Quality Parasuraman (1988)		1. Administration System 2. Administration Standard 3. Reliability	1. Access 2. Training 3. Responsiveness	1. Healthcare System 2. Process Equipment 3. Building & Workspace	1. Resources & Facilities 2. Supporting system
Clustering of the criterions based on Service Quality Parasuraman (1988)		Tangibility Assurance Cooperation Communication Competency Collaboration	Tangibility Assurance Cooperation Communication Competency Collaboration				

With the above development of Muslim-friendly medical services quality criterions, the study will fill the gap of Shariah compliant healthcare study in the Malaysian hospitals by conducting a robust empirical analysis on the effects of these criterions towards Muslims' patients' satisfaction and loyalty. The following sub sections discuss the criterions in more detail.

2.5.1.1 *Physicians' and Nurses' Services*

Traditionally, physicians' and nurses' sole objective is to help the patients (Arawi, 2010). The character traits of the human and good physicians are embedded in the Al-Qur'an and Al-Hadith. As such, the Muslim physicians and nurses, guided by these two main sources of Islamic law, will possess the necessary character traits of virtuous physicians and nurses. This, in turn, could lead to a doctor-patient relationship and could safeguard the profession of medicine. The Muslim doctor who abides by the Al-Qur'an and Al-Hadith will live a satisfied life; will be trusted by his/her patients. In this study, I limit my investigation to the first source of the Al-Qur'an, in the hope that it could be followed by another study on the character of the Muslim doctors and nurses. Allah SWT proclaimed that:

$$\text{وَإِنَّ اللَّهَ لَمَعَ الْمُحْسِنِينَ.}$$

Translation: And indeed, Allah is with the doers of good. (Al-Quran, 29: 69).

$$\text{وَأَحْسِنُوا ۛ إِنَّ اللَّهَ يُحِبُّ الْمُحْسِنِينَ.}$$

Translation: And do good; indeed, Allah loves the doers of good. (Al-Quran, 2: 195)

According to above verses, the good doers are people that Allah loves and keeps them close to Him. Providing those facilities to the patients is certainly considered as good works by the physicians and nurses.

Islamic ethics teaches human beings that, in addition to being virtuous, they must contribute to the moral health of society and responsiveness. Islamic ethics improve human relations and shield civilizational constructs with metaphysical ramparts of decency and order. Islamic ethics apply to various aspects of life including governance, business, healthcare and the management of personal matters. In addition, based on the above Hadith, we can say also that it is the starting point of Muslim friendly medical services or ethics and of what it means to be a good doctor/physician in trait their Muslim patients. The behaviour and attitude of a physician and nurse are the primary functions of his or her character. In addition, one of the important articles written about the Muslim physician and the ethics of medicine (conduct of physician) by Arawi (2010) stated that the modern theories of character development often stress the importance of role models. Such role models can be found in persons or in books and in history. In Islamic tradition, the typical role model of moral behaviour is found in the Prophet Muhammad (peace be upon him). His teachings inspire people's lives with good manner and virtue. The following subsections detailed the significance of physicians' and nurses' competency, assurance, cooperative, communication, tangibility and collaboration in the context of Muslim-friendly medical care.

2.5.1.1.1 *Physicians' and Nurses' Competency*

Moral behaviour, good manner, virtue and medical ethics and quality care is continually led by a highly professional performance in the Muslim society. Hence, the medical-care professionals need the relevant skills and knowledge (Battles, 2006) to comply with Islamic attributes. The Islamic medical-care educational systems must consider the requisite experience and expertise of the religious medical services professionals who attend to patients' health needs. As Battles and Shea (2001) postulated, the medical services practitioner's knowledge and experience are essential perquisites as they have a

significant impact on the patient's safety. The Islamic medical service is highly sophisticated as it directly deals with Muslim patients' lives. Zailani et al. (2016) indicated that physicians' Islamic medical services influence Muslim patients' satisfaction, while nurses' Islamic medical care practice does not significantly affect Muslim patients' satisfaction. Hence, the quality care must be closely attached with the experience of the medical caregivers (physicians and nurses) in any critical circumstantial situations. Medical services quality is increasingly supported by the latest technological developments and the latest healthcare information technology (HIT). Therefore, healthcare work-environmental systems or clinical work services must be designed for excellent quality, safety and patients' satisfaction.

In addition, religious belief factors can affect consumers' behaviour as habitual religious act of sublimity is one of the predictive factors of consumerism (El-Gohary & Eid, 2015). Hospital stakeholders assign the significance to the human resource relationship measurement, such as, professional service and quality work. These principles attract a high level of consensus amongst physicians, nurses, administrative staff and caregivers (Minvielle et al., 2008). Quality service practice is a high-performance delivery system of an organization (Bamberger, Biron & Meshoulam, 2014) as it can sequentially lead to positive outcomes of all types of firms. The Muslim religion-oriented professional doctors' and nurses' Islamic medical-services quality may influence Muslim patients' satisfaction and their loyalty intention for future medical treatment at hospitals in Malaysia.

2.5.1.1.2   *Physicians' and Nurses Assurance*

Vedel et al. (2014) argued that it is essential for physicians to improve the medical-care services. Post, Puchalski and Larson (2000) stated that physicians need to discuss spiritual issues with their patients. The ethical and moral identity is highly required from the

practicing healthcare professionals. As Bissell, May and Noyce (2004) identified, Muslim patients' faith in prayer with a sense of forgiveness is an alternative element of the medical-care treatment, for instance, Post et al. (2000) found that (64 per cent) of the American Muslim patients thought that medical doctors should join in with their Muslim patients in prayer performance and (48 per cent) of the Muslim patients anticipatively expected to pray with their medical doctors. Moreover, Bissell et al. (2004) indicated that medical patients were seeking better sympathy and appreciation from their medical-care professionals. Harder and Comarow (2015) stated that effective public reporting related to medical-care service was good for the society, since such reporting can support the patients in choosing hospitals, professional physicians and nurses without much ambiguity.

In addition, approximately (99 per cent) of medical doctors say religious faith can make an optimistic contribution to the medical treatment process (Pinto, 2010). Generally, Muslim patients like to discuss matters of religious faith with their medical providers. Pinto (2010) identified that (77 per cent) of people believe that physicians need to consider the religion-oriented care aspect of Muslim patients. Larson, Larson and Koenig (2001) stated that religious demographics in the United States of America are important as (95 per cent) of Americans believe in the Universal spirituality or God. Koenig (2000) examined 350 sample sizes that studied religious involvement and health in which the majority of the studies identified that religious patients are physically healthier. Nevertheless, most of the medical-care studies failed to consider the impact of religion-oriented professional physicians in the medical-treatment process, particularly, the Muslim-friendly medical-service quality for patients' satisfaction (Koenig, 2001a; Koenig, 2001b).

It is further noted that several studies have debated on health care providers' views and beliefs as well as service quality of medical treatment (Roelens et al., 2013). In this

case, religious beliefs and practices are quite common among Muslim patients, especially those seeking medical care services. Koenig (2004a) found that religious beliefs influence and enhance medical treatment decisions towards life-saving treatments as well as confirming the finding that almost ninety per cent of Muslim patients prefer to perform religious acts of sublimity to invoke confidence of success in the medical treatment. Medical healthcare service is under continuous improvement while medical practitioners receive maximum rewards in terms of monetary and emotional satisfaction in providing quality medical-care services to satisfied patients (Fowler, Saucier & Coffin, 2013).

2.5.1.1.3   *Physicians' and Nurses' Tangibility*

Nursing care is important to patients' safety in the hospitals because their perception of quality nursing healthcare plays a vital role in the success of treatment (Li-ming et al., 2013). The medical-care service quality is increasingly challenged to deliver the best medical care services for the patients. Nursing practitioners can play a vital role in medical-care serving, as the roles of Muslim-oriented professional nurses can assume the role of novel models in the Muslim-friendly medical care services. Especially for Muslim female patients as they can conveniently participate in medical appointments in group visits for healthcare treatment.

According to Watts et al. (2009), nursing practitioners should be equipped with several specific skills, for example, supportive participation in the design of medical-care quality systems, self-management of daily performance, organizational support, decision support and upgrading of clinical information. Religious piousness or devoutness is a distinct and diverse concept in nursing and medical-related disciplines but measuring religion-oriented concepts is grossly lacking in the nursing-care related literature (Sessanna et al., 2011).

Moreover, Aiken et al. (2012) argued that nurses' performance in healthcare service to patients varied considerably from country to country because of poor standards of performance and lackadaisical safety attitudes towards patients. Aiken et al. (2012) also cited an example of European medical hospitals where nurses' performance was found to be below the nursing-care service standard as a result of which the hospital received a falling rating grade on patients' safety. According to Li-ming et al. (2013), nurses' care in Chinese medical hospitals was identified as good working environments and fair medical care service to patients, hence, patients in such medical hospitals were more likely to grade their hospital as highly satisfied with the nursing communicable attitude and to gladly recommend the hospitals to potential patients (Li-ming et al., 2013). Ausserhofer et al. (2013) identified that the most robust predictor for the patients' satisfaction in hospitals is nursing care.

2.5.1.1.4   *Physicians' and Nurses' Communication*

Frosch and Tai-Seale (2014) examined patient's perceptions as to whether the medical specialists' respect towards patients was justified, in one way or another, by means of using a large sample of survey data from the Consumer Assessment of Healthcare Providers and Systems (CAHPS). The results indicatively showed that respect to the patient is the most accepted predictive item of the overall physician's rating. In addition, the CAPHS survey included five core elements assessing patient's perceptions towards doctors' communicative expressions, such as, respect, clear explanation of related matters with patients, giving simple easy-to-understand instructions, listening carefully and sharing short but meaningful time with the patients. Beach, Roter, Wang, Duggan and Cooper (2006) found that the physicians' rating of respect varied according to the patients' status and circumstantial situations.

2.5.1.1.5 Physicians' and Nurses' Cooperation

The strong relationship between hospital service providers and patients is based on co-operational approaches. The professional medical team plays an important role in improving medical-care quality service through the awareness of human issues, mainly explicit informative communications between service providers and clients (Mills, Neily & Dunn, 2008). Effective cooperation and communicative interactions of health care experts can timely solve the problems of patients. The hospital management should be duly concerned about the relationship between patients and doctors in handling treatment for patients of different genders, which ought to be seen from the proper perspective of Islamic tenets and principles, as, sometimes, many Muslim women patients do not feel comfortable when a medical care procedure is conducted by a male specialist instead of a female specialist (Samsudin et al., 2015).

Tsai, Kung and Chiang (2004) found that medical care malpractices are most often associated with the lack of specific knowledge in surgical, obstetric and gynaecological cases, poor interactive supportive communication, poor technical quality, errors in medicinal dispensation, and doctor's professional incompetence. Intentional or unintentional medical-care malpractices may be avoided by raising doctors' professional skills, knowledge, ward environmental awareness and interactive communication with patients in pertinent matters. Puri, Gupta, Aggarwal and Kaushal (2012) found that a lower interaction between patients and the doctors may cause medical-care malpractice in a hospital which should, in all circumstances, provide accurate information, inculcate and cultivate good patient-physician interaction because it is a key component associated with the patient's satisfaction. Huotari et al. (2016) emphasized the importance of interactive as well as proactive communications and responsible collaboration between the stakeholders in ensuring quality medical care even though stakeholders usually provide more systematic frameworks for quality medical-care services.

2.5.1.1.6 *Physicians' and Nurses' Collaboration*

Good relationship support service are important for practitioners' quality performance as good collaboration partnership support services help clinical laboratories to work well, thus, medical-care providers expect their supportive colleagues and general staff to be more responsibly cooperative to perform their jobs well (Mosadeghard, 2014). A nurse is very important for care of the patients as she spends more time with the patients than a physician. Medical nurses should promptly inform physicians of patients' medical problems so as to render them with proper and timely treatment, hence, physicians and medical nurses' cooperation and teamwork among medical-care providers are the important integrated components of high-quality medical-care services. According to Haas et al. (2002), a medical practitioners' ability to effectively collaborate with other medical care professionals is unerringly essential for the maintenance of quality medical care services.

2.5.1.2 *Shariah Amenities*

Shariah is an Arabic term that means 'the path to the source of water'. Henderson (2010) defined Shariah as 'the clear well-trodden path of water', which metaphorically regulates everyday behaviour. Shariah rules specify the daily prayer times and other religious obligations and observances. Ridzuan and Zahari (2012) stated that Shariah compliance is the basis of rules concerning diet, personal and social interactions and dress code which reflect human activities, such as, those which are permitted, recommended, disliked, forbidden, and obligatory. Ho (2015) postulated that Shariah amenity\ies consisted of Islamic concepts and practices. Shariah is derived from the sources of Islamic law (e.g. Al-Qur'an and Al-Hadith). Abdelkader (2015) and Dargahi (2011) postulated that Shariah amenities consisted of the availability of prayer facilities, such as, a prayer room with prayer mats and copies of Al-Qur'an, Islamic TV channels, an alcohol-free minibar,

alternate single-sex spa facilities, female housekeeping and room staff, halal food, direction of Makkah indicated in room, prayer times in local time zone, and maps showing locations of nearby mosques and locations of local halal restaurants. Shariah amenities differ from one Islamic-friendly organization to another in terms of size and proximity of locations (El-Hazmi, 2007; Henderson, 2010).

The availability of above facilities will ease for a patient or a doctor to perform their religious responsibility while staying in the hospital area. Shariah also allows such easiness in many cases like *tayammum* for the patient or for any emergency cases. In this sense, al-Quran mentions:

$$\text{يُرِيدُ اللَّهُ بِكُمُ الْيُسْرَ وَلَا يُرِيدُ بِكُمُ الْعُسْرَ}$$

Translation: Allah intends for you ease and does not intend for you hardship. (Al-Quran, 2:185).

In addition, the Shariah-compatible toilet is defined as the toilets positioned not to face in direction of qiblah/Makkah. In present, the awareness of the Muslims towards halal ingredients in food and medicine is increasing (Husin, Ghazali & Mohd, (2015). Patients have little knowledge towards doctors who prescribe the patients on halal pharmaceuticals. Consuming halal elements in medicine is a fundamental right of Muslim patients in terms of using medical care facilities to maintain their health according to their faith and belief. Haram ingredients in food and medicine are strictly prohibited in Islam for Muslims as long as it is a condition of life and death. In Surah al-Maidah (Al-Qur'an, 5: 3), Allah SWT mentioned that:

> *"Prohibited to you are dead animals, blood, the flesh of swine, and that which has been dedicated to other than Allah, and [those animals] killed by strangling or by a violent blow or by a head-long fall or by the goring of horns, and those from which a wild animal has eaten, except what you [are able to] slaughter (before its death), and those which are sacrificed on stone altars, and (prohibited) that you seek decision through divining arrows".*

From the above Quranic verses cited, it would imply that not only consuming halal food but also consuming halal elements in medicine is important because it forms a major part and behaviour of being a good practising Muslim. Innovations in medical-care service-delivery quality practices are accepted as long as they are not in conflict with the Islamic law (Taheri, 2008). Islamic or Muslim friendly medical care mainly consists of the Islamic beliefs, religious acts of spiritual submission and religious recitations of the Al Qur'an (Queensland Health, 2010), halal foods, non-body revealing dress, halal pharmaceuticals, personal hygiene, fasting, maternity services, care of older persons, abortion stance and mental health or cognitive dysfunction. Shariah amenities are an important issue for Muslims (Rashidi et al., 2015) to be provided with sufficient facilities inside the hospitals. Today, many commercial organizations are trying to assess the likelihood of establishing Islamic value, Islamic facility and Islamic code of practice in terms of quality and standards. The following subsections discuss the Shariah amenities associated to the study.

2.5.1.2.1 *Resource and Facilities*

Adequate resources and facilities can positively affect the quality medical-care services. Limited access to medicines and low-quality medical-care service can seriously increase patients' dissatisfaction (Manaf, 2005). If medical-care resources are limited and the patients' expectations are high, these situations can seriously make patients be fully dissatisfied with medical care providers. Mosadeghard (2014) stated that insufficient equipment, resources and infrastructure prevent an efficient and smooth delivery of quality medical care services. Therefore, adequate equipment, resources, infrastructural facilities and excellent information systems, for to record a patients' medical history also

needs a reliable information system, are essential for effective quality medical treatment. The following subsections discuss the resource and facilities associated to the study.

2.5.1.2.2   *Halal Food and Pharmaceutical Product*

The underlying concept of Muslim-friendly medical services is culturally sensitive, specifically Muslim patients' privacy, dietary regime (avoiding pork or medication that contains alcohol), modesty and spiritual needs are all of paramount importance (Rassool, 2015). Muslim-friendly medical services lays emphasis on halal ingredients and packaging materials used can be certified through halal certificates, certificates of analysis, material specifications and methods of manufacturing processes. Medical service providers must firstly ensure quality of services and products (Basurrah & Madani, 2006), cleanliness of halal products, not offering any non-halal products, non-alcohol-based products, and non-contamination of utensils and equipment used from non-halal kitchen usage (Ikram, Ghani & Basari, 2013).

Moreover, Ahmed, Memish, Allegranzi and Pittet (2006) stated that drinking alcohol was definitely haram (forbidden) as mentioned in the Al Qur'an. Additionally, Muslim customers much appreciate the consumption of halal food products, and are equally much concerned about a number of issues, particularly concerning haram meat products, such as, undeclared blood plasma, pork substitution, pork sausages, and use of non-halal ingredients in medicines and non-halal methods of slaughter (Nakyinsige, Man & Sazili, 2012). Ahmad, Abaidah and Yahya (2013) found that the level of halal-food awareness among Malaysian Muslim consumers was influenced by their understanding of the Muslim concepts.

Usage of halal pharmaceuticals product is one of the most crucial emerging Islamic issues in medical care services (Al-Odaini et al., 2011). The majority of pharmaceutical companies are generally striving for outstanding products, equitable

service quality and reasonable prices as the basis of commercial success (Lindenmeier et al., 2012). Fraudulent and substandard medicinal usage may cause a country to bear an economic burden in medical services especially in mitigation of diseases (Dharmalingam et al., 2014). Henceforth, pharmaceutical companies should improve the generic medicine with halal ingredients, as it influences Muslim patients' satisfaction. Malaysia is believed to have manufacturers of generic medicines that can cover the growing nationwide pharmaceutical needs. Fatokun, Ibrahim and Hassali (2013) postulated that there is a necessity of strict adherence to Muslim patents' standards in halal pharmaceutical products that can thoroughly vet the validity of generic medicines, investigate imported medicines and the granting of pharmaceutical patents in Malaysia.

2.5.1.2.3   *Selection of Medical Treatment*

From the perspective of patients' choice for medicine, there is an element of uncertainty of the drugs administered to the patients, whether the type is permissible or forbidden by Islam. The Red Tab Claritin and Allergy Ultra Tab Tablet are produced using substances from pig and cow. The gelatine-product related medicines which originate from pig sources is not permissible according to the Muslim law (Sulaiman, 2013). Many hospitals use insulin for intravenous injections which also originate from non-halal (impermissible) sources. These types of pharmaceutical products are prohibited by the Islamic law. The active ingredients of a medicine might be permissible in Islamic law, but its conveying medium might not be produced using halal material which is prohibited by the Islamic law.

It is therefore obligatory to establish the genuineness of halal medical products and halal medicinal ingredients, as there should be an Islamic/Muslim-friendly monitoring or regulatory body or organization to ascertain the maintenance of 'halal' procedures in the hospitals and pharmaceuticals. The operation of hospitals,

pharmaceuticals, medical staff and treatment of patients should be in accordance with the Islamic standard operational procedures or the Islamic Shariah standards of practices. The Malaysian Standard can possibly turn into an impetus for the manufacture of halal pharmaceutical items (Samsudin et al., 2015) which has attracted the interest of the Muslim community, especially, and different religious communities, generally, all of which has shown extreme concern about the purity of medicines. In a similar manner, it would be appreciated by all concerned that there is an established governmental regulating body which can thoroughly vet all prescribed medicines and ensure they comply with the Islamic standard.

2.5.1.2.4 Support System

Work process is where the Standard of Procedure (SOP) or work flows from the patient registration until they discharge from the hospital. The process will cover many areas such as receptionist, physician, operation theatre, wards, nurses, pharmacy, canteen and others. For Shariah compliant hospital, the work process should comply with Shariah. Receptionist responsible to register the patient and set appointment with the physicians and they are the front line that will reflect the image of the hospital. People are the main key player for organisation because the staff in the organisation will reflect the organisation itself.

Hence, the selection is the first step in recruitment which filters the candidate for hospital staff. There must be a few criteria that the candidate should have. For example, the candidate should have a right attitude and Islamic core values with basic understanding in Shariah principles. Other criteria for Muslim candidates such as the person should cover her aurat, perform solah, non-smokers and fulfil the requirement for the job scope. They should greet with polite manner and wear appropriate dresses which cover their aurat. As a Muslim, we are ordered to treat people fairly. The person in charge should not bias based on the background of the patients either they are from other religion or social status. For

example they give the priority in sorting the queue for treatment to some people that has position in social status or has relationship with them.

2.5.1.3 Healthcare Technicality

Islam does not limit health care in certain approaches. It suggests the believers to take advantages from many other methods which are allowed in Sharīʿah i.e. the methods that conform with the Sharīʿah guidelines. Looking at the prophetic texts, the study finds that Prophet (PBUH) allows to have medical treatment. He (PBUH) says:

<div dir="rtl">

ما أنزلَ اللهُ داءً إلَّا أنزلَ له شِفاءً

</div>

"There is no disease that Allah has created, except that He also has created its treatment" (Al-Bukhari, 2015). In addition, the prophet (PBUH) used cupping for the medical treatment for instance, Ibn Abbas narrated that the Prophet (PBUH) had himself cupped while he was in a state of ihram. (Al-Bukhari, 2015). The acceptance of prophet (PBUH) for several types of treatment for medical purposes indicates that having other methods of treatment for medical is allowed in Islam. The use of various type of medical tools in this era makes the medical facilities easier and more convenient for the patients and doctors. Therefore, Islam allows to have medical treatment in various ways unless the treatment is harmful, or the tools has such things which are not Sharīʿah compliant.

Technology presents a range of sophistication from pharmacy dispensing equipment, robotic surgical devices and automated laboratory testing to simple mistake-proof devices (Battles & Shea, 2001). Josip et al. (2008) argued that information technology and medical care application of eHealth are important for sharing information with the patients. Zeithaml et al. (2002) indicated that service quality advertisements through websites can gain the crucial strategic advantage to succeed in any well-planned business firms. To deliver medical care quality service, hospitals or healthcare providers should realize how patients are likely to perceive and assess their online information

services. Büyüközkan and Cifci (2012) postulated that business companies around the world invest money in advertisements through promotional media with the express purpose to develop the web-based quality information dissemination service for viewing in the consumer community that needs the specific services they offer. Grigoroudis et al. (2008) pointed out that the web-based information service quality was an effective information and communication network between the business organizations and their consumers. The following subsections discussed the aspects of healthcare technicality (such as reliability, administration standard and system) in the context of Muslim-friendly medical care.

2.5.1.3.1   *Reliability*

Reliability is the timely accomplishment of a desired outcome without delay and the ability to adapt alteration of service quality that leads to customers' satisfaction (Ndubisi, 2012). Butler and Gray (2006) identified two approaches to achieve reliability, such as, mindfulness-based and routine-based reliability. The latter is a complex form of behavioural functions as an identifiable unit in a comparatively automatic manner and unique style. This approach eliminates human knowledge because of incidental errors (Ndubisi, 2012). Routine-based reliability at the hospital level encompasses the implementation and decision-making processes which have been widely accepted by the industry. Furthermore, the routine-based reliability approach can be ineffective due to a misalignment of managerial procedure and a defective service quality system.

In addition, Sutcliffe (2006) postulated that mindfulness-based reliability is an approach which focuses on promoting human knowledge as the explanation to single out any managerial reliability problems. Mindfulness refers to a frame of cognitive mind ideas (Matook & Kautz, 2008) that denote the attentiveness of people to detail and provides reliability of the organizational quality process (Weick & Sutcliffe, 2006; Hales,

Kroes, Chen & Kang, 2012). Ndubisi (2012) found that patient-care reliability and information reliability directly affect patient's satisfaction and patient outcome for treatment in hospitals.

2.5.1.3.2 Administration System and Standard

The evaluation of medical-care quality service through the electronic media or websites can be an effective marketing strategy in its initial periods as compared to the traditional method of medical care services through the printed media or word-of-mouth. The website service quality was first defined by Zeithaml et al. (2002). They defined the website quality service informative approach as an extension to a web-based information disseminating media which can effectively assist to efficiently deliver the purchased products and services as magnificently proclaimed. To increase a high-tech phenomenon (Schumann et al., 2012), there is a need to develop a new paradigm for healthcare systems, which is simple in nature for ease of understanding (Green, Hartley & Gillespie, 2016).

As a result of the above multifarious means of information dissemination styles and characteristics of presentation, quality medical care delivery has become a major issue of choice for potential patients in the medical care service sector. Büyüközkan and Çifçi (2012) argued that the website quality of clear and truthful advertising methods in strict adherence with the associated code of practice is important for the potential patients to fully grasp the accurate information on the medical treatment services. Yoo and Donthu (2001) built up a SITEQUAL scale for the measurement of websites for their ease of use in aesthetic design, security and processing speed. Grigoroudis et al. (2008) developed a web-quality measurement protocol for customer perceptions towards the importance of information quality, usability and overall service interactions.

2.5.1.4 *Administrative Behaviour*

Administrative behaviour in hospitals plays a key role in providing quality medical care services (Carayon et al., 2014). To improve administrative behaviour and efficiency, hospitals need to upgrade their medical-care process approaches from the manufacturing sector (Radnor et al., 2012). For example, Toussaint (2009) and Radnor et al. (2012) used a lean thinking approach in healthcare. This approach is required to consider human factor paradigms (Holden, 2011a) and biotechnology for medical treatment safety, and socio-technical system aspects (Holden, 2011b). Thus, the lean thinking method might be considered as an administrative change that can provide positive or negative changes in the medical service system, which in turn affects medical-care quality services, employees, as well as organizational outcomes.

Carayon et al. (2014) identified a total of 178 medical service administrative errors related to medical-care quality service system factors over a period of seven months. Additionally, Ndubisi (2012) mentioned that the medical-care service errors may be the likely rampant causes of defection and dissatisfaction of patients. Atinga et al. (2011) postulated that an efficient work environment and quality medical care services are required for medical treatment safety and patients' satisfaction. There are some core levels of quality administrative services, such as, patient-centred care (Barry & Edgman-Levitan, 2012), patients' safety (Battles, 2006; Aiken et al., 2012) and other attributes that can include effectiveness, efficiency, timeliness, equity (Battles, 2006), and assurance of clean care, courtesy and compensation among others (Ausserhofer et al., 2013).

Regarding the responsibility of providing those services, Allah (SWT) commands:

يَا أَيُّهَا الَّذِينَ آمَنُوا أَوْفُوا بِالْعُقُودِ

Translation: O you who have believed, fulfill [all] contracts. (Quran, 5:1).

The administrative body should fulfill their responsibilities to provide the facilities which is helpful and expected by the patients. The administrative body must show respect to the patients and be concern about the dignity of the patients in their dealing. By providing all of those facilities with full sincerity and respect, they will deserve rewards from Allah. In this regard, the chapter 55, verse 60 states that:

هَلْ جَزَاءُ الْإِحْسَانِ إِلَّا الْإِحْسَانُ

Translation: Is the reward for good [anything] but good?

The verse proves that the good work from the administration for their good behaviour and other services like giving salam, respecting the elders, has good return from Allah.

Subsequently, there may be multifarious behaviours in the medical care practices that have many potential impacts on the quality medical-care interventions (Rowe et al., 2005). However, religious beliefs among the medical care staff are increasingly visible in interfaith roles with the medical patients (Cadge & Sigalow, 2013). Religious beliefs and practice, rules about dress or uniform, courtesy and sympathy among medical administrative staff and social workers can influence more Muslim patients to be really interested and encouraged to seek medical care services. Sikorska-Simmons (2005) postulated that staff turnover has adverse effects on the quality of medical care services, administrative costs and staff morale. The following subsections discussed the aspects of administrative behaviour (such as responsiveness, access and training) in the context of Muslim-friendly medical care.

2.5.1.4.1 *Responsiveness*

Responsiveness refers to the willingness of medical care employees with a sense of belonging to provide medical-care services to the patients (Nembhard et al., 2012). Responsivity to the patient's preferences, needs and social values may guide all clinical decisions (Nembhard et al., 2012) since most patients are judicious consumers when it comes to assessment and evaluation of the quality health care (Dempsey, Mylod & Siegrist, 2015). Arguing this critique, medical care professionals are socially responsive and can accordingly act to suit the circumstantial situation for the patients' well-being (Menamin et al., 2014). The World Health Organization (WHO) improved medical-care quality service through measurements of patients' experiences intended to inculcate, instil and invoke the responsiveness of the medical-care delivery, particularly, in an environment where patients are treated when they fervently seek the quality medical care (Valentine et al., 2003a). In addition, improving the responsiveness of medical-care systems is a fundamental aim of medical-care policy in which responsiveness is concentrated on interpersonal aspects of people's interactions with medical-care quality service (Murray & Frenk, 2000; Valentine & Salomon, 2003).

Valentine et al. (2003c) indicated that the people, especially, patients' experiences in medical-care services can be used to evaluate and modify the shortcomings of the services rendered in order to improve the well-being of the patients. The WHO described responsiveness as a key objective to which medical-care quality contributes to developing population health (Ortiz et al., 2003). Gakidou, Murray and Evans (2003) stated that responsiveness had two elements, which are respect to person and client orientation. Respect to person consists of dignity, confidence and autonomy whereas respect to client orientation includes access to social support, choice of provider, basic amenities and promptness of attention. Lauer, Evans and Murray (2003) argued that medical-care services must contribute to promoting health for their patients' satisfaction.

2.5.1.4.2   Training

Its journey towards Shariah compliance started in 2012 and preparation began with training of staff in understanding the requirements to comply with MS 1900:2005 and later an upgraded version MS 1900:2014. Muslim practitioners practise, the obligation is on them to ensure that their practice and the system in which they practise in must comply with the aims of the Islamic Shariah and be guided by its principles. In human resource management employees are the main assets (assets) of the company so it must be maintained properly as claimed by Zainuddin, Nasution and Siregar (2018). They added that the factor of concern in human resources is the human itself. It is realized that human resource management is the most important corporate problem. With the effective human resources persuaded the leadership to find the best way utilizing the people in the company's environment for achieving goals.

According to Blumenthal et al. (2014), training must be intensive to allow participating professionals to address major challenging issues including those from the high specialist sector, which in this case consists of medical professionals and senior physicians who are experts in their respective field of medical discipline. The perceived medical-care service administration needs to closely scrutinize the maintenance of health and improvement of the recovering patients' physical, mental and social wellbeing and to guarantee the expansion level of welfare and bliss to the general public (Kayral, 2014). As in all administrative establishments, administration quality is a vital pivot in medical care organizations.

2.5.1.4.3   Accessible

Arnold et al. (2015) found that poor staff performance and a heavy workload affected the medical care quality services in more ways than one, because to improve any existing medical care quality services, the staff's role is an indispensable key to the more effective

interventions and sustainability of performance. Importantly, accessibility of excellent system design and approaches can magnificently contribute to the medical care providers for further upgrading programs, for example, a learning system can maintain competency of medical care skills, facilities, information systems and clinical systems (Battles, 2006). The availability of well protected equipment for frequent use is also required for medical care services (Al-Azzam et al., 2015) as attested by Ogundele and Olafimihan (2009) who found that the equipment and adequacy of facilities had a significant impact on the quality of medical care services.

Moreover, medical-care staff performance and safety-oriented considerations can successfully influence the planned specifications. Government support can play a vital role to establish this medical-care plan specification. The medical care professionals' lack of knowledge of the interactive activities of the medical-care quality service can also lead to the failure of medical care service sustainability which then leads to patients' dissatisfaction (Blumenthal et al., 2014). Catwell and Sheikh (2009) suggested that medical care providers need also to attend proper training programs and sessions for upgrading their individual responsive functions in developing medical-care service quality to a more accommodative level of professionalism.

2.5.1.5 *Hospital Environment*

The hospital must guarantee the healthy and comfortable environment which includes the provision for infection control, hygiene and personal wash and also provides clean water supply and good ventilation around the hospitals. These facilities will confirm the prevention of harms for the patients and visitors to the hospital. In this context, Allah (SWT) reminds us:

<div dir="rtl">

وَلَا تُلْقُوا بِأَيْدِيكُمْ إِلَى التَّهْلُكَةِ

</div>

Translation: and do not throw [yourselves] with your [own] hands into destruction [by refraining]. (Al-Quran, 2: 195).

Based on this verse, the hospital must have the environment where the patients including nurses and doctors and visitors do not face any kind of hygiene issues or unhealthy environmental issue. Keeping the hospital clean and healthy will ensure that the environment of the hospital is not harmful to the patients and others like doctors and nurses and visitors.

Environmental related factors consist of quality of the physical environment and quality of medical care at hospitals. Mosadeghard (2014) pointed out that environmental health factors consist of medical-care environmental systems, resources, facilities, collaboration and partnership development for patient's satisfaction and loyalty intention. The following subsections discussed the elements of hospital environment in the context of Muslim-friendly medical care.

2.5.1.5.1   *Building and Workspace*

Infrastructural facilities also refer to the quality of building and workspace facilities in hospitals (Dahlui & Aziz, 2012) for the benefits of patients seeking their medical care treatment. Ogundele and Olafimihan (2009) stated that the infrastructure of a hospital consists of the physiological facilities in which medical care providers are producing new forms of medical-care environmental perspectives by transforming hospitals in terms of their architecture, healthcare design, service strategies and organizational policies that can be pleasantly appealing to potential patients (Whittaker & Chee, 2015). The growth of transnationalism is a form of association between organizations, places and people for caregiving institutions, social developments and cultural encounters (Bochaton, 2013).

Freed, Hansberry and Arrieta (2013) found that structural barriers to the local primary medical-care infrastructure include medical insurance, payments, delayed

appointment waiting time and transportation scarcity besides some hidden barriers, such as, lack of knowledge of local medical care services and fear of uncertainties in the healthcare services. In addition, the improvement of informative infrastructure involves a surprising transformation in the nature of better medical care professionals, patients, consultation and safekeeping of medical records. Thus, the extension of informative infrastructures for the patient-centred medical care entails the mobilization of legal and ethical standards, clinical entities, technical and transformation in structural and professional boundaries (Vikkelsø, 2010).

2.5.1.5.2   *Healthcare System*

The patient-centred medical-care informative infrastructures need modernization and decision-making programs for expansion, considering also the need to improve basic structures and relations in medical care. In addition, motivations of patient-centred medical care should have positive consequences of evolving infrastructures for patients and for quality medical care services. Gupta, Satpathy, Patnaik and Patel (2014) found that in some countries, even after political independence of many decades, people still do not have access to basic medical-care benefits in rural and semi-urban areas, especially in India. The major stumbling block is insufficient infrastructure in the hospitals as well as the lackadaisical attitudes of the ruling sector to address the outstanding health issues, not to mention the lack of a quality healthcare entity.

Accordingly, quality management infrastructure can lead quality development and patient-care efforts in medical care services. Jenkins, Meltzer, Jacobs and McDaid (2010) suggested that in the understanding, developing and accessibility of medical services, there are necessary significant efforts, such as, assessment, investment, human resources and policy in quality medical care services. However, Pronovost and Marsteller (2014) found that environemntal infrastructure quality had assisted a medical care system

to achieve 96 per cent acquiescence on national core measures and facilitated the intensive formation of medical-care units across the United State of America, Spain and England.

The fractal system of infrastructure organizes medical workers in the hospitals as well as supports responsibility and obtains solutions using local wisdom and effective use of accessible resources. Furthermore, a fractal structure assists the medical care providers in applying their social and ethical duties as learning organizations to deliver the quality medical-care service and safety for the patients' satisfaction. As Zineldin (2006) stated patients' satisfaction is an important construct including infrastructure, process, environmental curative atmosphere, interaction, and quality of object.

2.5.1.5.3 *Process and Equipment*

Most patients prefer to be seen by and consult with a professional physician. Patients are free to choose any hospital for their medical treatment. A hospital's good environment and infrastructural quality can influence patients to readily see a medical doctor. The medical insurance system can also influence patients to see a doctor (Mosadeghard, 2014). However, a lack of patients' trust increases uncertainty, hence; medical doctors should convince their patients that they provide proper care for patients and instil a positive impression that there is no need to be worried about their illnesses.

In Malaysia, Muslim patients' expectation is that the child care could be conducted by female physicians by virtue of their intrinsic motherly approach. On the other hand, Samsudin et al. (2015) stated that if the patient is a non-Muslim, and in the case of emergency, physicians are usually bound to provide medical treatment with medical ethics under the Medical Malaysia Council (MMC) rule. However, it is a basic necessity to establish a Shariah Supervisory Committee (SSC) for medical care services to ensure that the rules of Allah (SWT), in any circumstantial situations, are comprehensively followed.

2.6   Patients' Satisfaction

The performance assessment in medical care is vital for both healthcare providers as well as patients because successful outcomes will equally be shared by all stakeholders in terms of satisfaction. Lyu et al. (2013) postulated that healthcare providers need to provide quality medical care for patients' satisfaction. As satisfaction is a key component, healthcare providers need to be aware of quality medical care and provide well-trained medical doctors. Tsai, Orav and Jha (2015) postulated that government policymakers have made patients' satisfaction a core measurable process to determine how doctors' facilities are assessed. There is a broad concern that the performance on patients' satisfaction may have a negative connection with the nature of the medical-care quality service under consideration. There are three types of satisfaction of patients about their medical services such as physical satisfaction, spiritual satisfaction and emotional satisfaction. Generally, spiritual and emotional are two types of mental behavioural changes of patients/people that show some differences between them. The word spiritual is derived from the 'spirit'. Spiritual is related the divine nature of the soul within the body. On the other hand, emotional is related to the physical body. Spiritual are feeling related to unearthly or unworldly life. On the other hand, emotion is nothing but feelings related to worldly life. Being emotional is all about being humanly in thinking and acting whereas being spiritual is all about being godly in thinking and acting. Spiritual is the highest state of mind, whereas emotional is the normal state of mind. Emotional feelings lead to friendship and enmity, whereas spirituality leads to religion. A spiritual person is empathetic but not emotional. An emotional person seeks for sympathy rather than knowledge.

However, a few studies have examined the relationship between patients' safety in their environment and their satisfaction (Ausserhofer et al., 2013). Allegranzi, Memish, Donaldson and Pittet (2009) identified that cleanliness has a significant effect on patients'

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satisfaction. In Islam, hygiene is an important matter; it is not only for body care but also for environmental care (Rahman et al., 2017). Generally, medical-care quality and safety personnel consist of other medical care staff, such as, hospital workers, emergency department physicians, intensive-care unit doctors, surgeon responders, infectious-disease specialists and non-physicians, such as, physician assistant responders, nurse responders and emergency medical service clinical personnel. Public safety personnel consist of public medical specialists and emergency managers, such as, emergency management response planners or management officials, public and private medical-care practitioner; while medical-care institution supportive personnel in the emergency room consist of administrative staff, security personnel, laundry workers, food service caterers and pharmacists.

Table 2.8 describes the summary of medical care performance and patients' satisfaction that has been studied by various researchers. However, in light of the literature review, it shows that four types of medical care performance, namely cost reduction, efficiency, effectiveness and productivity, and three types of medical care satisfaction, which are, patients' satisfaction, doctors' satisfaction and employees' satisfaction, where the last 2 factors influence patients' loyalty intention. The percentage of frequency in criterions of medical care performance, satisfaction, intention and loyalty is analysed. In terms of medical care performance; most authors used medical care effectiveness (22.1 per cent), followed by efficiency (18.1 per cent), cost reduction (10.7 per cent) and productivity (9.4 per cent). In terms of medical care satisfaction, percentage of occurrences are patients' satisfaction (16.8 per cent) which is used in most studies, followed by doctors' satisfaction (4 per cent), employees' satisfaction (3.4 per cent), patients' behavioural intention (8 per cent) and loyalty (7.4 per cent). Based on this evaluation, this study focuses more on patients' satisfaction and patients' loyalty intention in the medical treatment domain.

As a result, evaluation of medical care provision is crucial for an on-going assessment of quality enhancement in medical care services. Patients' satisfaction refers to the medical care facility environment, such as, the continuity of medical-care quality improvement processes, clinical practices, patient workload, leadership of the director, attitudes of co-workers, peer pressure, supervision, availability of quality equipment and supplies, communication, location, medical workers deployment, flow of patients, medical staff participation in planning and organizing the medical work entities (Rowe et al., 2005). Marshall et al. (2014) postulated that patients' outcome or satisfaction related to medical-care benefits can be measured by medical care providers and medical care professionals. Patients' satisfaction consists of patients' experiences in medical care provision and performance, the results which the patients may likely recommend the hospital services to others (Jenkinson et al., 2002).

Table 2.8: Medical Care Performance, Satisfaction, Intention and Loyalty

No.	Author	Year	Country	Medical Care Performance				Medical Care Satisfaction			Behavioural Intention	Loyalty
				CR	EF	EFT	PR	PS	DS	ES		
1	Kennedy et al.	2015	Maricopa			√	√	√				
2	Ormond	2015	Indonesia			√					√	
3	Berendes et al.	2014	Sudan		√	√		√				
4	Lindlbauer & Schreyögg	2014	Germany		√		√					
5	Hays et al.	2014	USA		√	√	√		√	√		
6	Pantouvakis & Bouranta	2014	Greece	√				√			√	√
7	Blank & Eggink	2014	Netherlands		√		√					
8	Araújo et al.	2014	Brazil		√		√					
9	Choia et al.	2014	South Korea	√		√		√			√	
10	Mosadeghard	2014	Iran					√	√	√	√	
11	Victoor et al.	2014	Netherlands			√		√			√	
12	Kawaguchi et al.	2014	Japan		√	√						
13	Pantouvakis & Bouranta	2014	Greece			√		√				√
14	Zarei et al.	2015	Iran	√	√			√				
15	Davis et al.	2013	UK		√		√				√	
16	Kuwahara et al.	2013	Japan		√	√						
17	Kargul et al.	2013	USA		√		√					
18	Martinussen et al.	2013	Norway		√	√			√			
19	Murti et al.	2013	India					√			√	√
20	Heard et al.	2013	Bangladesh	√	√	√						
21	Tavaokkoli et al.	2013	Iran		√							
22	Ausserhofer et al.	2013	Switzerland			√		√				
23	Ndubisi	2012	Malaysia		√	√		√				√
24	Ramez	2012	Bahrain			√		√			√	
25	Islam et al.	2012	Cross country	√		√						
26	Zarei et al.	2012	Iran			√		√				√
27	Narang	2011	India		√			√			√	
28	Atinga et al.	2011	Ghana			√	√	√				
29	Owusu-Frimpong et al.	2010	UK		√		√	√			√	√

Note: CR= Cost Reduction, EF=Efficiency, EFT=Effectiveness, PR= Productivity, PS= Patient Satisfaction, DS= Doctor Satisfaction, ES= Employee Satisfaction.

Table 2.8: Medical Care Performance, Satisfaction, Intention and Loyalty (Continue)

No.	Author	Year	Country	Medical Care Performance				Medical Care Satisfaction			Behavioural Intention	Loyalty
				CR	EF	EFT	PR	PS	DS	ES		
30	Yesilada & Direktör	2010	Cyprus		√		√	√				
31	Simonet	2010	Europe	√		√						
32	Dembe et al.	2010	USA	√	√				√	√		
33	Johnston et al.	2010	Cross country			√					√	
34	Samuel et al.	2010	India	√	√							
35	Gomes et al.	2010	Cross country	√	√	√		√				
36	Büssing & Koenig	2010	Cross country			√		√				√
37	Anand & Sinha	2010	India			√	√	√				√
38	Padma et al.	2009	India	√		√		√				√
39	Korne et al.	2009	Netherlands	√			√	√				
40	Drummond-Hay et al.	2009	UK	√	√	√						
41	Elleuch	2008	Japan	√		√		√				
42	Berwick et al.	2008	USA	√	√		√					
43	Dagger et al.	2007	Australia		√	√					√	
44	Miller et al.	2006	Tennessee			√		√	√	√		
45	Choia et al.	2004	South Korea		√	√		√				√
46	Jackson	2004	USA	√	√	√						
47	Tsai et al.	2004	Taiwan		√	√						√
48	Canel et al.	2002	USA		√	√						
49	Forrest et al.	2000	USA			√			√			
50	Kenagy et al.	1999	USA	√			√			√		
No of occurrences				16	27	33	14	25	6	5	12	11
Percentage of occurrences				10.7	18.1	22.1	9.4	16.8	4.0	3.4	8.0	7.4

Note: CR= Cost Reduction, EF=Efficiency, EFT=Effectiveness, PR= Productivity, PS= Patient Satisfaction, DS= Doctor Satisfaction, ES= Employee Satisfaction.

Muslim patients have different aspects of medical care services, including physiological, psychological, emotional and spiritual all of which are most likely to influence the rating of satisfaction with the quality care and their willingness to endorse the clinical services to others. Zineldin (2006) argued that patients' satisfaction with different medical care services correlates with their willingness to recommend the Muslim friendly hospital to others. The following subsections discuss the types of satisfaction (physical, spiritual and emotional) that will be investigated in this study.

2.6.1 Physical Satisfaction

Physical structure of a medical care system is an interaction between medical care providers and all of the process of medical-care quality services that take place within a medical physical environment (Battles, 2006). Once the environment is accordingly built, medical service facilities have a pervasive effect on quality medical care services and safety provided to the patients. Dijkstra, Pieterse and Pruyn (2006) postulated that the physical environment of a medical care setting can generate potential medical-care facilities and influence medical treatment processes and patients' satisfaction. Bedimo-Rung, Mowen and Cohen (2005) pointed out that patients' leisure time is also conducted in a diversity of community environments, such as, local parking facilities which may frequently be accessed at a low fee or free of charge. Richardson et al. (2005) deduced that the use of physical action in providing convenient facilities to the public, if at all affordable, might produce mental and physical health among people through the reduction of mental stresses.

In Islam, fasting in the month of Ramadan clearly provides specific exemptions in circumstances of serious sickness, pregnant women and breastfeeding mothers. However, many Muslim women still choose to fast while they are sick, pregnant or breastfeeding. This is because of social norms, cultural factors and habitual religious

obligations. Kridli (2011) stated that the lack of specific religious knowledge has induced physiological effects of fasting during Ramadan on sick or pregnant Muslim women. Thus, nurses and healthcare professionals or medical care providers are faced with a challenging task to provide suitable medical guidance to Muslim patients regarding safety or wellbeing and the effectiveness of their fast. However, healthcare providers are seriously encouraged to learn as much as possible about the best multicultural medical-care quality services and research-driven evidence on fasting in order to assist Muslim women patients on their religious right to abstain from fasting as and when the occasion arises as provided for by the Muslim law.

2.6.2   Spiritual Satisfaction

Spirituality is an important dimension of a patient's quality of life as declared by the World Health Organization (Sulmasy, 2010; Rusa et al., 2014). The patient needs a better quality of life and safety. Kang et al. (2011) found 50.5 per cent of patients stated that their spiritual and religious needs were addressed by medical care staff on the life-quality aspects. However, this finding was not found in a significant proportion of patients since not all staff refered to in the survey were religious. Tombaugh, Mayfield and Durand (2011) defined spiritual expression as an extension of patients' habitual religious practices which denoted the effect of a particular deeply religion-oriented personality on patients' behavior. The quality of a religion-oriented personality is also required among medical workers so that they can express their common religious inclination to patients, and because personal religion-oriented integrity may also influence health care organizational outcomes.

Clark, Drain and Malone (2003) found a significant relationship between spiritual needs and overall patients' satisfaction. The spiritual experience of hospitalization remains at a significant level in the patients. Traditionally, religious orientation is

recurringly used interchangeably with matters of religion. Hyson (2013) pointed out that religion-oriented knowledge plays a crucial role in developing leadership efficacy and staff performance in the public sector in the duty-bound role of the individual. However, a religion-orientated personality is a key aspect of human life quality, though it is regarded as a lesser priority area for social and medical services government policy (Sango & Forrester-Jones, 2014). Dhiman and Marques (2011) stated that the religion-oriented mindset of employees is important in order to be more aware of their environmental responsibilities.

These authors also said that when corporate greed, negligence and dishonesty were exposed intensely, the religion-oriented sense of responsibility invoked progress in the work place; thus, a religion-oriented personality is necessary to provide a valuable religion-oriented mindset and corporate sense of belonging for the stakeholders. Patient-defined religion-oriented characteristics of medical care are potentially an important aspect of the non-pharmaceutical treatment (Bell, 2013). Bell (2013) also found that the attitudes of medical professionals and patients can affect the effectiveness of patient-defined religion-oriented medical treatment. Mental medical clinicians should address the religion-oriented needs of their service users (Loynes & O'Hara, 2015). Albuquerque et al. (2014) found that workplace religious orientation was mediated by the type of work-unit and organizational performance.

2.6.3   *Emotional Satisfaction*

The role of emotional satisfaction is critical in a service organization, as emotional satisfaction is the predictor of customer loyalty and relationship quality (Wong, 2004). Customers' emotional satisfaction towards their preferred medical care service may also influence medical care organizational outcomes. Clark, Drain and Malone (2003) found that emotional satisfaction influenced patients' overall satisfaction. Muslim patients'

emotional satisfaction with their medical care treatment is an important component and service quality has a significant relationship with emotional satisfaction. Clark, Drain and Malone (2003) also identified that emotional satisfaction is significantly related to customers' overall satisfaction and intention to revisit for medical treatment in medical care organizations.

According to Helena Vinagre and Neves (2008), empirical evidence indicated that patients' emotions have a significant impact on patients' satisfaction with medical care services. In particular, consumption emotion is conceptualized as distinct classifications of emotional experience, for example, feelings of fear, anger, joy, pleasantness and unpleasantness, relaxation, calmness, excitement, etc. (Prayag et al., 2015). In the review of literature on satisfaction, there is a debate as to whether satisfaction is either an emotional construct or a cognitive construct which incorporates an emotional component (Wong, 2004; Helena et al., 2008). Indeed, satisfaction is mostly psychological and a partly full-of-feeling (emotional) evaluation of a consumption experience which is significant for modelling consumers' conduct in service settings. Helena et al. (2008) proposed that emotion coexisted with different cognitive judgments in producing satisfaction and is vital in the comprehension of consumers' consumption. In addition, an emotion is a mental condition of availability that emerges from subjective appraisals of events or the individual's own contemplations. In this example, one's certain emotion is connected to one's choice to stay and proceed with contribution; while one's negative emotion is connected to inverse choice, such as, to leave and discontinue participation. Positive emotion may prompt positive word-of-mouth practices, while negative emotion may bring about grumbling practices.

2.7   Loyalty Intention for Medical Treatment

Loyalty intention for medical treatment to hospitals is defined as people with certain ailments intending to repeat visits to the same hospital for medical treatment. Um, Chon and Ro (2006) contended, "loyalty intention is viewed as an extension of satisfaction rather than an initiator of revisit decision making process". Stylos et al. (2016) verified the mediating role of holistic images for predicting patients' loyalty intention for medical treatment. Patients' satisfaction and loyalty intention for treatment gratifyingly recommended other intending patients, family and friends and prefer to visit the chosen hospital for further treatment.

In addition, Dahlui and Aziz (2012) also found several key facilitators that made more quality patient-centred medical care motivational programs, such as, committed top level leadership, active relationship of patient and families throughout the medical care organization, communication of strategic vision, staff's satisfaction, staff's working capacity development, feedback reporting of patients' experience, active measurement of patients' experiences, availability-resourcing of medical-care quality, accountability and cultural support which may influence patients' satisfaction and loyalty intention. Aziz, Samdin, Awang and Abdullah (2015) pointed out that hospital reputation and medical treatment quality had the most influence on patients' satisfaction and their loyalty intention.

The globalization of medical care establishments across the world has considerable influence on potential patients from developed countries (Europe, Australia, USA, UK) to travel to developing countries, such as, Malaysia, Singapore, Thailand, India, Poland and Mexico for the purpose of having quality treatment, reduced medical care cost and less waiting time (Medhekar, Wong & Hall, 2014). In Malaysia, private medical-care expenditure has risen more than public medical care hospitals as a result of which some powerful interested groups are seeking profits behind the growing

privatization of medical care services (Rasiah, Noh & Tumin, 2009). Sing (2001) argued that the Malaysian pharmaceutical society could play a vital role if it could practice its profession in rugged terrains which demanded both professional skills and pioneering spirits in order to enhance the surrounding environments with an alluring majestic natural background. Various researchers have concentrated on factors that contribute to the loyalty intention of former patients (Chen & Tsai, 2007; Alegre & Garau, 2011; Stylos et al., 2016), as they still have the lingering memory of quality performances from the Shari'ah compliant medical health care doctors and staff (Um et al., 2006; Stylos et al., 2016). For instance, Petrick, Morais and Norman (2001) postulated that the loyalty intention was influenced by former patients ' satisfaction and perceived service quality.

Moreover, patients' loyalty intention is gaining attention increasingly among medical service providers in an intense competition. Ravichandran (2015) defined patients' loyalty intention as patronage, which is viewed as patient return behaviour and thereby ensuring organization growth. Hoffman and Bateson (2010) stated that loyal customers' repeated visits to use organizational services lead to more royalty for the organization. Regular customers' visits play a critical role in choosing the development of the organization. In the meantime, loyal patients confidently refer others to their hospital by word-of-mouth, which is not only cost-effective but also free. They create entry barriers to other competitors in the market while forgive the failures of servicing hospitals (Guo, Xiao & Tang, 2009). Rahman et al. (2017) stated that loyal patients suggest improvement in the service engineering process and caring approaches to retain the existing patients and attract new patients as well.

Furthermore, many patient satisfaction studies demanded the fulfilment of customer expectations with the focus on medical services quality and to enhance the personalized approaches (Ahmed et al., 2017; Sadeh, & Sadeh, 2017; Sharma, 2017). Nonetheless, Ravichandran (2015) mentioned that the magnitude of effort spent on

increasing quality service seldom translates into repeat visits, but failed and created a loss of market share due to impoverished satisfaction levels. The Muslim patient would consider moving to the competitors, where they feel can get better services (Wieringa & Verhoef, 2007). Interestingly, many studies reported that there is a direct relationship between quality services and the customers' loyalty intention to stay with the same service provider (Ravichandran, 2015; Sharma, 2017; Ahmed et al., 2017). This study nonetheless proposes to analyse and measure the antecedent Muslim-friendly medical-services quality factors that are responsible for patients' satisfaction and its impact on their loyalty intention and examine how Muslim-friendly medical-services quality affect Muslim patients' loyalty intention for future medical treatment at the hospital.

2.8   Theoretical Base of the Study

The study was basically based on two underlying theories; Parasuraman et al. (1985) and Oliver (1980/1997) that focuses on the customer's perception of overall satisfaction and post-purchase satisfaction (loyalty intention). Figure 2.4 outlines the underlying theory which contains three types of variables in examining the Muslim-friendly medical service quality. These theories contain three different variables:

1. Independent variables as the inputs (Muslim friendly medical services quality);

2. The mediating variable as a process (Muslim patients' satisfaction); and

3. The dependent variable (loyalty intention for medical treatment) as the outputs.
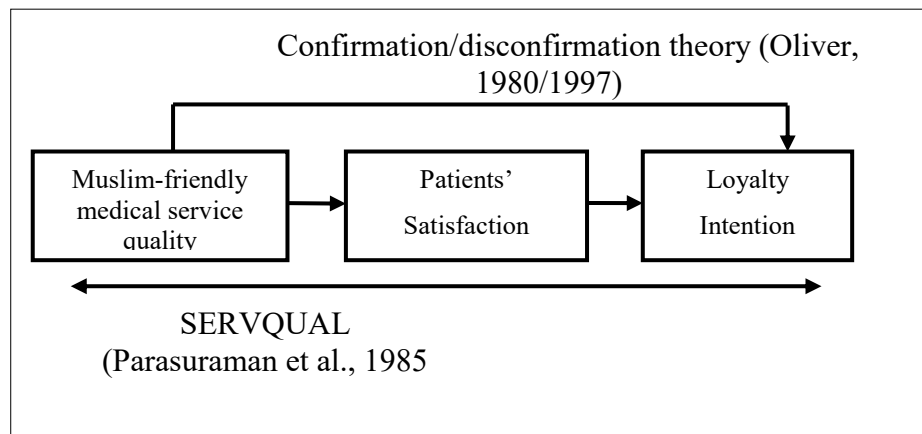
Figure 2.4: Underlying Theory

Amundson (1998) pointed out that a theory is important to define, establish as well as explain the relationship among the concepts or the constructs. This study has made the use of the service quality criterions (Parasuraman et al., 1985) to analytically investigate the impact of Muslim patients' satisfaction with medical services on their loyalty intention for future medical treatment at the hospitals. In addition, the study has also applied the confirmation/disconfirmation theory (Oliver, 1980/1997) that explained the customer's perception of overall satisfaction results from a comparison between expectation and outcome performance. The theory also seeks to explain post-purchase satisfaction as a function of expectation, perceived performance and disconfirmation of beliefs. The following subsections discussed the service quality theory.

2.8.1 Service Quality Theory

Service quality can be judged directly through the customers' trend of patronising the service establishments (Abdelkader, 2015). It is viewed as one of the essential issues in which both researchers and service providers have been interested in recent years. The study efforts which examined this issue were varied and the service quality measurements differed according to the service nature and area. However, the investigation of medical care service measurements should not be limited or confined only to the SERVQUAL

measurements. Shariah amenities, for instance, are considered as a new dimension, which includes prayer amenities, separate medical examination rooms, halal food and halal pharmaceutical etc.

Besides, these are the indicators that influence Muslim patients' satisfaction and their loyalty intention to receive further medical treatment at the hospitals in the future and therefore ought to be incorporated. Due to the growing pattern of Muslim patients around the world and the diversity of their expectations, hospitals have given specific concentration on "quality medical care service delivery" for Muslim patients. This study firstly investigates whether Muslim friendly hospitals match the expectations or satisfaction of Muslim patients and how Muslim-friendly medical service impacts on the intention to revisit for future medical treatment. There are three main differences which have been observed in this regard between the present and previous studies.

Firstly, this study measures the medical care services for Muslim patients at the private hospitals in Malaysia. It uses the general medical service measurements together with the measurement of Muslim friendly medical services and amenities. Secondly, there have been no previous studies that measured the service quality of the hospitals in Malaysia. Thirdly, we acknowledge that there are several studies which examined the relationship between perceived service quality, satisfaction and behavioural intention (Clemes et al., 2010; Lai & Chen, 2011; Alalak & Elrefae, 2012; Shi, Prentice et al., 2014), however, these studies did not apply the Shariah amenities as one of service quality measurements.

Islamic-perspective medical care services may influence Muslim patients' satisfaction and their loyalty intention for future medical treatment at hospitals. Cummins, Curtis, Diez-Roux, and Macintyre (2007) postulated that medical care service providers should develop a mutual relationship between people and service providers. This theoretical approach could facilitate the empirical test to allow the understanding of how

Muslim-friendly medical service quality influences Muslim patients' satisfaction and their loyalty intention for future medical treatment.

2.8.1.1 SERVQUAL

The SERVQUAL model is accepted as the most valid, reliable and realistic approach to measuring service quality. There are numerous models that have been created in the service quality literature to measure and assess service quality performance, for example, the number of complaints, a measure of satisfaction, and value-oriented client measures. Parasuraman et al. (1985) also developed "the gaps' measure", which depends on comparing the consumers' perception of the service and their expectations of the offered service level. The resulted difference is either satisfaction or dissatisfaction. Furthermore, it is notable that the essential issues for the marketer are measuring customers' satisfaction and loyalty intention. Based on the review of the literature, this study investigates the additional SERVQUAL criterions (Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment, administrative behaviour) for Muslim perspectives that influence satisfaction of Muslim patients and their loyalty intention.

Cronin and Taylor (1992) postulated that the SERVQUAL criterions assess service quality that influences customer satisfaction. This measurement does not vary across the various service gaps as the criterions explain the generic aspect of service quality like tangibles, responsiveness, empathy, assurance and reliability (Parasuraman et al., 1994). However, this measurement approach is criticized as it excludes a critical component of consumers' desires, along with the technique and statistical methods used to distinguish its stability. There is still a debate with respect to the adequacy of service quality measurements between supporters and rivals. Though there are numerous

criticisms focused on every measurement, they are both supposed to be a quantum leap in the field of service-quality measurement.

This study differs from past studies in its approach to treating service-quality criterions in a way that it includes measurement variables, namely Islamic religiosity and Islamic attributes which were approved and proven to be reliable in an investigation of hotels by Eid and ElGohary (2015). This study includes Islamic attributes of the Shariah amenities, as these are the same concepts as Eid and ElGohary (2015) mention. Their study conforms the Shariah amenities, as they found a few hotels in the European urban areas provide Muslim-friendly hotel services which include prayer rooms, halal foods, alcohol-free zone, etc. Therefore, the measurement of this variable may address the requirement of accessibility to Shariah amenities within the hospital.

2.9   Research Framework Development

The conceptual model of this study is generated from the review of literature findings and informal interview/conversation with Muslim patients at the hospitals in Malaysia. Based on the review of literature, taxonomy analysis on medical services standard compliance, generic medical services for patients' satisfaction, as well as the findings of informal conversations/interviews with Muslim patients, total 19 significant service quality criterions are identified for this study, which are clustering into 6 major crucial constructs of Muslim-friendly medical service quality (refer to Appendix C). Because, all the 19 criterions cover fewer than 6 Muslim-friendly services quality constructs, which can reflect Muslim patients' satisfaction and their loyalty intention to the medical care services at the hospitals in Malaysia. Importantly, Muslim-friendly services quality is certified by the Standard and Industrial Research Institute of Malaysia (SIRIM) to preserved and protect the integrity of Muslim-friendly product and services through effective application of Malaysia Standard (MS 1900:2014).

Besides MS1900:2014 endorsed a guideline for a Quality Management System from Islamic perspective, SIRIM has also endorsed MS 2610:2015 certification for Muslim Friendly Hospitality that intended for the tourism industry for Muslim travel-savvy needs. Nevertheless, MS1900:2014 is the most appropriate to be applied in the study as it provides guidelines for an organization to be accredited as a Shari'ah compliant organization. Shariff, Mohtar and Jamaludin (2017) claimed that hospitals can be defined as Shari'ah Compliant Hospital (SCH) is through the award of the MS 1900:2014. Therefore, the study used SIRIM's Syariah compliant MS1900:2014 as one the reference in developing the dimensions and constructs of the Muslim-friendly medical service besides from the studies by Shariff and Rahman (2016), Shariff, Mohtar and Jamaludin (2017 and Yahaya (2018).

2.9.1 Findings of Literature Review

Based on literature reviews on the Muslim-friendly medical, authors such as Shariff and Rahman (2016), Shariff, Mohtar and Jamaludin, (2017) and Yahaya, (2018) have studied the criterions that related to Muslim religiosity, halal, and Muslim spiritual. These authors have captured the relevant verses from the Quran or Hadith in their studies based on their background. For instance; Shaharom Md Shariff (Chief Executive Officer, An Nur Specialist Hospital), Abdul Rashid Abdul Rahman (Medical Director, An Nur Specialist Hospital). Specialist Hospital Annur Bangi was the first hospital in Malaysia awarded with Shariah Compliant Hospital accreditation by Scientific and Industrial Research Institute of Malaysia (SIRIM) under MS1900:2014 Quality Management System. Rahman (2016) mention Shariah Compliant Hospital is an organisation which fully complies with Shariah including job scope, procedure and staffing requirements.

Whereas, the criterions on service quality such as tangibility, responsiveness, competency, cooperation, communication, and collaboration is measured to determine

physicians' and nurses' services were referred to Parasuraman et al., (1988); Webster et al., (2011) and Mosadeghard, (2014a). Similarly, criterions on administrative system, standard and reliability are measured to determine healthcare technicality was referred to Parasuraman et al., (1988); Dagger et al., (2007); Webster et al., (2011) and Budiwan, (2016). In addition, resources, facilities and supporting system for the hospital environment was referred to Dagger et al., (2007) and Mosadeghard, (2014a). Finally, access, training and facilities that determine administrative behaviour were referred to Dagger et al., (2007); Duggirala et al., (2008); and Padma et al., (2009).

3.9.2   Findings from Informal Interview

Based on the findings of informal conversation/interviews with Muslim patients at the hospitals in Malaysia, the key points found that not spiritual support before the medical test, no standard for Islamic medical services, not fully follow Islamic Shariah practices and do not utter bismillah before the medical test are measured to determine Shariah amenities. Staffs are not friendly, doctors are not expert, maybe a student, the doctor is not friendly and prescribed medicine is not available in the pharmacy are measured to determine physicians' services quality (refer to Table 2.9).

Table 2.9: Constructs Development from Literature vs. Interview

Findings of service quality criterions from the literature	Findings of service quality related key points from the interview	Clustering constructs and their sources
Tangibility	Staffs are not friendly	**Physicians' and Nurses Services** Parasuraman et al., 1988; Webster et al., 2011; Mosadeghard, 2014a.
Competency	Doctor is not expert, may be student	
Cooperation	Doctor is not friendly	
Assurance	Prescribed medicine is not available	
Communication	Nurse is not expert	
Collaboration	Nurse is not friendly	

Table 2.9: Constructs Development from Literature vs. Interview (continue)

Findings of service quality criterions from the literature	Findings of service quality related key points from the interview	Clustering constructs and their sources
Reliability Administrative system Administration standard	Technical problem Not sufficient equipment Computer is not working	**Healthcare Technicality** Parasuraman et al., 1988; Dagger et al., 2007; Webster et al., 2011; Budiwan, 2016.
Healthcare system	Noisy area in front of doctors' room	**Hospital Environment** Dagger et al., 2007; Mosadeghard, 2014a.
Building and workspace Process and equipment	Surrounding area is not quite Difficult to find car parking Many process	
Responsiveness Training	Staffs are not friendly Long waiting time Not systematic and delay process	**Administrative Behavior** Dagger et al., 2007; Duggirala et al., 2008
Access	Parents are not allowed in the x-ray room	
Resources and facilities	The hospital provides halal foods and drinks	**Syariah Amenities** Yahaya (2018)
Supporting system	The hospital provides a prayer room for each ward for Muslim patients	

Figure 2.5 shows a comprehensive research model that encompasses how Muslim patients and healthcare providers create and affect medical care services quality. The model identifies 6 factors incorporating Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour to determine Muslim patients' satisfaction and loyalty intention of the Muslim-friendly medical care services.
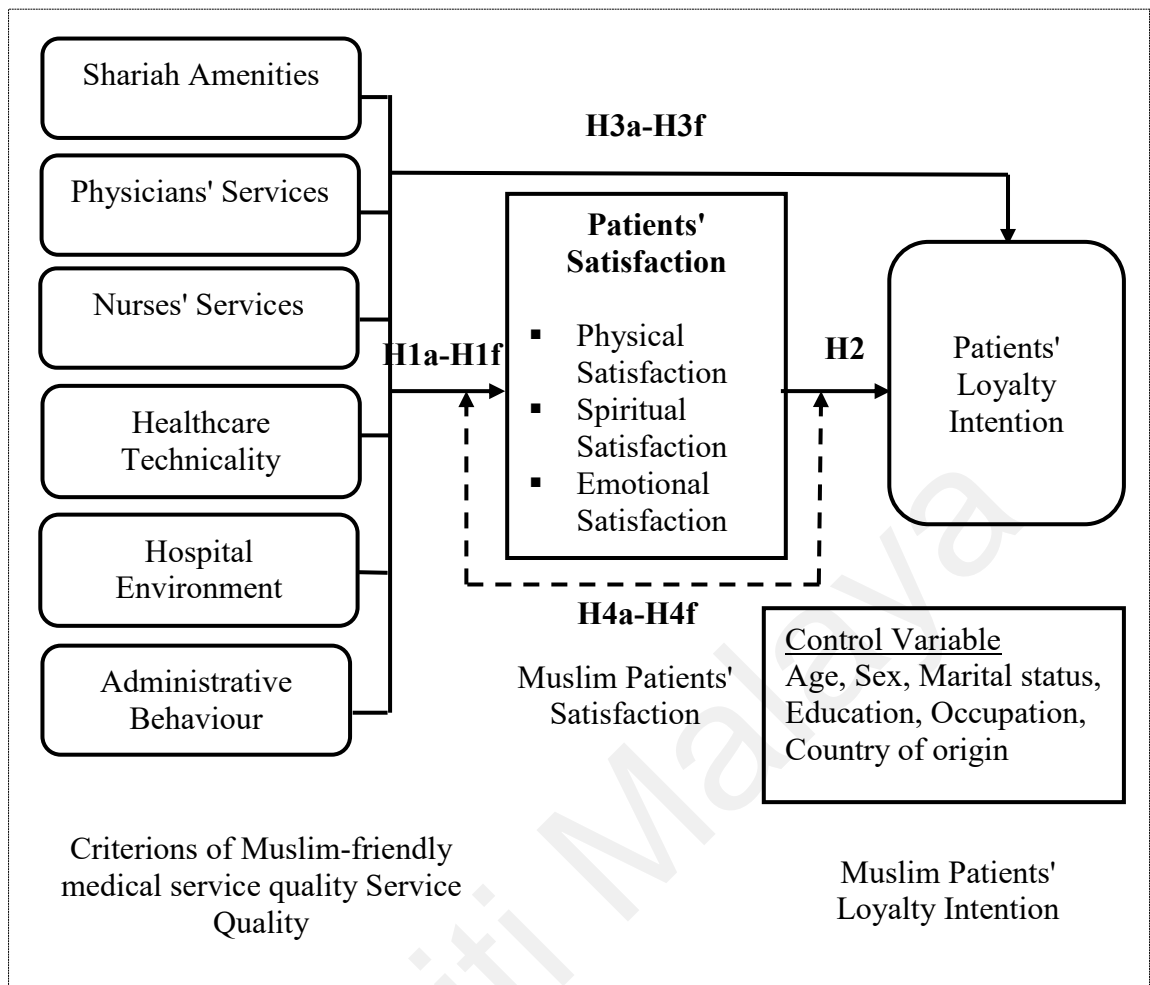
Figure 2.5: Research Framework

The construct of satisfaction and loyalty intention, as in the case of service quality, has largely been interpreted within the expectation-disconfirmation paradigm (Oliver, 1993; Johnton, 1995). According to the paradigm, a disconfirmation between prior expectation and product performance affects customer satisfaction or dissatisfaction. Oliver (1989) stated that customer satisfaction is determined based upon a customer's internal determinants and performance. In the Muslim-friendly medical care services context, Muslim patients expectations regarding the Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour may influence their satisfaction and loyalty intention.

Apart from these criterions, the research model also suggests that the Muslim-friendly medical services quality affects the Muslim patients' satisfaction. Satisfaction

refers to the evaluation, in terms of importance, unimportance, good or bad of the delivered medical care services encounter. Based on the review of literature and research model, 4 main hypotheses have been articulated to describe the relationships between the driving forces behind Muslim patients' satisfaction and their loyalty intention for future Muslim-friendly medical services at the hospitals in Malaysia. In the next section, the hypotheses developments are explained.

2.10   Research Hypotheses Development

The study focuses on 4 main hypotheses based on the research framework. In addition, the sub-hypotheses are articulated to reveal the relationships indicated in the theoretical model.

2.10.1   The Linkage between Criterions of Muslim-friendly Medical Service Quality and Patients' Satisfaction

This study considers whether the Islamic perspective medical care services quality (Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour) have a positive relationship with Muslim patients' satisfaction. The previous study suggests that these six criterions can have a considerable impact on satisfaction. Barry and Edgman-Levitan (2012) identified eight significant indicators of service quality which has a significant relationship with the satisfaction. These are patients' preferences and needs, respecting the patient's values, coordinated and integrated care, fear and anxiety, physical comfort, emotional support, high-quality information, access to care and involvement of family and friends. However, this study hypothesizes that the six criterions of Muslim-friendly medical services, which is justified in the literature review, have a positive impact on Muslim patients' satisfaction, which is discussed below.

2.10.1.1 *Shariah Amenities and Patients' Satisfaction*

Shariah is the backbone of the industry and the role of Islamic scholars is very pertinent to ensure that the credibility and integrity of the industry are maintained (Jafari & Scott, 2014). A Shariah board should have binding authority in their existence and function. The regulatory body of the Shariah amenities should appoint a Shariah supervisory board. A Muslim patient would definitely prefer medical care providers who provide a prayer room in the hospital (Timothy and Iverson, 2006) that suits his/her needs. Muslim friendly hospital should provide a copy of Al-Quran for reading, prayer amenities and gender segregation for medical treatment within the hospital (Kamaruzzaman, 2013; Kasule, 2011).

Besides, other amenities may be included, such as, providing separate swimming pools (Ozdemir & Met, 2012), accommodation (Timothy & Iverson, 2006), halal food, prayer amenities (Jafari & Scott, 2014; Eid & ElGohary, 2015), meat from properly slaughtered animals in accordance with the Islamic standard of practice, non-intoxicating beverages, Islamic TV channels and toilets which are suitable for cleansing and ablutionary purposes (Timothy & Iverson, 2006). These specific types of amenities may influence the outcome of the Muslim patients' satisfaction which is the intention to revisit for future medical treatment. Therefore, the following hypothesis is formulated.

H1a: Shariah amenities have a positive relationship with Muslim patients' satisfaction.

2.10.1.2 *Physicians' and Nurses' Services and Patients' Satisfaction*

Medical care hospitals can ensure patients' satisfaction and loyalty through service delivery, including quality service, efficient operations and employees' proactive service performances (Lee, Lee & Kang, 2011). They identified that high-performance work system in the medical care organizations influenced employees' reaction and service quality. According to Unützer et al. (2006), it is imperatively essential that in order to

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successfully improve the health of patients, appropriate services are required from experienced professional providers, monitoring devices, valid performance skills and management protocols. A qualified workforce can influence quality medical care service delivery (Yip et al., 2012), all of which can further enhance physicians' and nurses' services to influence Muslim patients' satisfaction.

It is to be emphasized that physicians' interactive behaviour, particularly listening and explanation-oriented behaviour, can influence patients' satisfaction through quality medical care delivery. The doctor-patient relationship is positively determined by the interactive relationship behaviour of doctors or service providers with patients. Gaur, Xu, Quazi and Nandi (2011) identified that physicians' interactive behaviour enhances the relationship with patients' satisfaction. Mosadeghard (2014) found that Muslim patients' satisfaction can also be influenced by Islamic medical care services. Hence, this leads to the following hypothesis:

H1b: Physicians' services have a significant relationship with patients' satisfaction.

H1c: Nurses' services have a significant relationship with patients' satisfaction.

2.10.1.3 Healthcare Technicality and Patients' Satisfaction

Failure in technical and operational management systems can cause patients' dissatisfaction and disenchantment in medical care delivery (Lee, Lee & Kang, 2011). The implementation of operational services, like the use of information technology for promoting patients' healthcare, patients' safety and the reliable performance of medical care employees, can have a positive impact on the quality of medical care services (Green, Savin & Lu, 2013). The understanding of management standards in everyday medical care practice is dependent more on the availability and appropriate application of existing technologies, information and standard procedures. As advocated by Hansson (2010), cost control, financial transparency and decentralization of management authority could

influence the quality of medical care service delivery. Likewise, technical health care quality (e.g. healthcare systems, resource and facilities, and collaboration) can influence Muslim patients' satisfaction. This leads to the following hypothesis.

H1d: Healthcare technicality has a positive relationship with patients' satisfaction.

2.10.1.4   *Hospital Environment and Patients' Satisfaction*

Sedevich-Fons (2014) found that government support of the financial viability of healthcare entities can be considered as an indicator which influences a quality medical care delivery system. However, the establishment of a quality medical care system can enhance patients' satisfaction and improve safety features. In addition, collaboration and integrated medical care information systems (i.e. radiology, emergency registration system, management system, financial system, hospital portal website, cost management system and outpatient appointment service system) for treatment can improve quality medical care delivery (Qiu, Zhen, Zhou & Li, 2012) and patients' satisfaction to a large extent.

Al-Abri and Al-Balushi, (2014) articulated that the environmental quality improvement process of medical care organizations could influence patients' satisfaction. According to Pouragha and Zarei (2016), physical environmental pleasantness and cordial informative verbal messages or advice to patients were the most important determinants of patients' satisfaction. Berkowitz (2016) indicated that good organizational environments can influence the patients' experience and satisfaction with the provision of caring medical services. Aiken et al. (2012) commended that quality services and good working environments in the hospital could influence patients' satisfaction. Accordingly, the study hypothesizes that:

H1e: Hospital environment has a positive relationship with patients' satisfaction.

2.10.1.5 *Administrative Behaviour and Patients' Satisfaction*

Administrative behaviour, including administrative systems and standards, can influence patients' satisfaction. The relationship among administrative staff, friendliness, and response to queries, helpfulness and effective team-based treatment has positive effects on quality medical care delivery (Chahal, 2010). The medical staff's behaviour might influence patients' satisfaction which is an important component (Jawahar, 2007; Prakash, 2010) for evaluating service quality (Prakash & Mohanty, 2012). Jawahar (2007) found that staff's performance and staff's behaviour might have an impact on patients' satisfaction.

Jawahar (2007) suggested that service providers should innovate the means and methods of improving friendliness of nursing staff and shortening waiting time for patients. Administrative quality in hospitals, including nursing units and management, can influence patients' satisfaction (Bacon & Mark, 2009). Bacon and Mark (2009) commended that good administrative behaviour and higher levels of work performance influence a higher level of patients' satisfaction. Thus, the following hypothesis is formulated.

H1f: Administrative behaviour has a significant relationship with Muslim patients' satisfaction.

2.10.2 *Patients' Satisfaction and Loyalty Intention*

Satisfaction is widely used in a medical care quality matrix which measures medical service outcomes, patients' satisfaction or experience (Browne et al., 2010; Fenton, Jerant, Bertakis & Franks, 2012). Kessler and Mylod (2011) identified that patients' satisfaction has an influence on medical care service performances. Thus, medical care services may determine specific influences on patients' satisfaction and their loyalty intention at hospitals. Debata et al. (2015) revealed that patients' overall satisfaction could

considerably influence the intention to revisit for future medical treatment. The understanding of patients' physiological satisfaction is influenced by the quality of service delivery, which can enhance patients' satisfaction and their loyalty intention for medical treatment at hospitals (Chahal, 2010).

Medical staffs and organizational infrastructural development can have an influence on patients' satisfaction (Drotz & Poksinska, 2014). Ali, Omar, and Amin (2013), as well as Ali and Amin (2014) examined customers' higher perceptions of physical satisfaction and found that it was influenced by the service delivery quality. Spiritual and emotional needs often arise in the environment of behavioural medical care services; hence, it is expected that Muslim patients usually receive spiritual health service facilities. Yet, despite this, Muslim patients often report that their spiritual needs are not fully and satisfactorily addressed. Hodge and Horvath (2011) identified six important components in the spiritual health service facilities such as spiritual practice, interpersonal connection, meaning and purpose of hope, religious obligations and professional staff interactions. These are interrelated to the patients' perceptions of their spiritual needs in a medical care setting.

Religious patients are more likely to desire to have a short discussion on spiritual matters, especially on aspects of their immediate circumstantial environment, in their medical care provided services (Williams, Meltzer, Arora, Chun & Curlin, 2011). Clark, Drain, and Malone (2003) found a strong relationship between staff's daily spiritual practices and overall patients' satisfaction. In addition, they saw that staff's prompt response, concern, and efforts in deciding on patients' treatment was positively influenced by spiritual needs or religious obligation. In light of that study, it is suggested that Muslim patients' spiritual satisfaction may have an overriding influence on their intention to revisit the hospital for further medical care treatment.

In addition, patients' satisfaction is thought to be a noteworthy pointer in the assessment of medical services (Saila et al., 2008). Patients' satisfaction is generally utilized by the service-oriented healthcare with a specific goal to relieve or cure illness. Satisfied patients normally have a deep appreciation of physicians and hospitals in which they have been cured, especially from critical illnesses, and this sense of deep appreciation will be converted into satisfaction. It will subconsciously cause them to return the favour through the expression of their intention to recommend others to visit the hospitals or even in their future revisit for medical attention (Hekkert et al., 2009). Patients' satisfaction is generally viewed as more closely aligned with loyalty intention. As it is hypothesised, the medical service quality has an effect on patients' satisfaction, which also found a relationship with loyalty intention. Hence, the relationship between patients' satisfaction and their loyalty intention would be assumed. The role of satisfaction is typically modeled as a mediating element in the relationship between criterions and patients' intention (Brady & Robertson, 2001). Accordingly, the research hypothesizes that:

H2: The Muslim patients' satisfaction has a significant relationship with their loyalty intention for future medical treatment at hospitals.

2.10.3 Direct Relationship between Muslim-friendly Medical Service Quality and Patients' Loyalty Intention

Patients' satisfaction and loyalty intention are the main indicators in assessing service quality (Kalaja, Myshketa & Scalera, 2016). Some pharmaceutical products are most certainly not considered as certifiable under the current JAKIM's halal accreditation system manual (Aziz, Ibrahim & Raof, 2014). The transparency of medicines being produced from halal ingredients or substances has not been fully and credibly attested by an authorized Shariah-compliant body on the assurance of their halal status. An overview

of medicine and permitted drug supply in hospitals indicates that the majority of the pharmaceutical products provided are not ensured as halal. Muslim patients are becoming more discerning and demanding the assurance that medicines and medical care supplements are not only of the highest quality but also fully certified as halal without doubt. Ariffin, Abdullah, and Bibon (2012) stated that a prayer room (surau) facility for Muslims had a significant relationship with customers' satisfaction and their loyalty intention.

In addition, adequate facilities and medical professional's (doctors and nurses) had a favourable influence on Muslim patients' loyalty intention for further treatment in the hospital of their choice. However, Kalaja et al. (2016) found that there was no significant impact between service-quality criterions and overall patients' satisfaction upon which research could have been conducted under a scarcity of academic resources. Guiry, Scott, and Vequist (2013) commented that service quality could influence patients' choice processes and their loyalty intention. Shafii et al. (2016) found six criterions - responsiveness, tangibles, assurance, security, health, communication and patients' orientation; which affect aspects of hospital-service quality and influence patients' loyalty intention for medical treatment. Shafii et al. (2016) also examined the dimension of medical-care quality services - which influenced patients' loyalty intention for medical treatment.

Tung and Chang (2009) revealed that physicians' technical and interpersonal communicative skills are mostly identified with patients' satisfaction, while recommendations, access and staff care are related to the overall satisfaction and loyalty intention. Chaiter et al. (2011) identified that technical-oriented functions of devices, administrative knowledge, and skills of the hospital personnel had a significant impact on loyalty intention. Debata et al. (2015) identified that medical services had a significant relationship with loyalty intention for future medical treatment. Hence, this study intends

to measure the direct effect of Islamic-perspective medical services on the Muslim patients' loyalty intention for future medical treatment at hospitals.

Zabkar, Brencic and Dmitrovic (2010) stated that the customers' intention is considered as one of the components of customers' loyalty. In this regard, patients' loyalty intention refers to their decision on the possibility of future revisits for treatment at the hospital, and whether they wish to recommend others to visit the hospital for medical treatment. Patients' satisfaction with quality medical care services may lead to future beneficent behaviour towards loyalty intention for medical treatment at a hospital. It also affects the formation of feelings of appreciation and gratitude to share this experience with others within their social network. Numerous studies have found a positive relationship between service quality and customers' loyalty intention to the hospital (Liu & Lee, 2016; Jung et al., 2015; Yan, Wang & Chau, 2015; Ranjbarian & Pool, 2015). In addition, this relationship gets more effective within the precinct of some intermediate variables, such as, customers' satisfaction, feelings of gratitude, perceived intrinsic values and so on (Jung et al., 2015; Lai, Chu & Petrick, 2016; Cho & Hyun, 2016). Based on these opinions, the following hypotheses are formulated:

H3a: Shariah amenities have a positive and direct relationship with Muslim patients' loyalty intention for future medical treatment at hospitals.

H3b: Physicians' services have a positive and direct relationship with Muslim patients' loyalty intention for future medical treatment at hospitals.

H3c: Nurses' services have a positive and direct relationship with Muslim patients' loyalty intention for future medical treatment at hospitals.

H3d: Healthcare Technicality is positively and directly related to Muslim patients' loyalty intention for future medical treatment at hospitals.

H3e: Hospital environment is positively and directly related to Muslim patients' loyalty intention for future medical treatment at hospitals.

H3f: Administrative behaviour is positively and directly related to Muslim patients' loyalty intention for future medical treatment at hospitals.

2.10.4 Muslim Patients' Satisfaction as a Mediator

Muslim patients' satisfaction is a broad psychological state of a cognitive mind which invokes emotions about experience arising from medical-treatment behaviour. Kim et al. (2008) interpreted the idea of consumers' satisfaction and defined patients' satisfaction as the judgment of perceived inherent values of medical services. Patients' satisfaction is concerned with how much the desires that have been satisfied with medical care services because service quality elements contribute significantly to consumers' behaviour, in one way or another. Ariffin, Abdullah, and Bibon (2012) found that the relationship between "Surau" (prayer room) and customers' behaviour was mediated by the satisfied element of intrinsic daily religion-oriented acts of subservience to Allah. As mentioned earlier, patients' satisfaction is a critical indicator of medical care service output.

According to Chang, Chen, and Lan (2013), medical care providers need to comprehend patients' coherent needs from spiritual to physical aspects which should be satisfactorily accommodated for. Hekkert et al. (2009) investigated that satisfied patients in hospitals are important individuals because they will probably continue using medical care services in terms of prescribed medical treatment follow-up plans, evoking a congenial relationship with a particular medical care provider and recommending the hospital to others as well. Kim et al. (2008) suggested that medical care services and personnel, such as physicians and nurses, medical care procedures and their reliability had a positive influence on patients' satisfaction. Zailani et al. (2016) pointed out that Islamic medical care practices had a positive impact on patients' satisfaction at hospitals.

Accordingly, Zailani et al. (2016) and Rahman et al. (2017) commented that while service quality has some weight on customers' satisfaction, the strength of the criterions' attendant parameters remains unreliable. A couple of studies on medical care services (e.g. Tucker & Adams, 2001; Gill & White, 2009; Ahmed et al., 2017) explained that patients' satisfaction is mediated by the patients' perceived service quality and intentions to revisit for further medical attention. With regards to Muslim culture where Muslim patients are concerned with halal pharmaceutical, a hospital's practice of serving halal substances to patients may influence patient's satisfaction (Zailani et al., 2016; Rahman & Zailani, 2017). Hospitals and medical specialists are duty bound to provide halal medication to Muslim patients. Some studies attested that halal pharmaceuticals and halal curative products influence Muslim patient's satisfaction and their intention to revisit at the hospital for further medical treatment (Zailani et al., 2016; Mohezar et al., 2017; Rahman et al., 2017). In view of these contentions, the researcher hypothesizes that:

H4a: Muslim patients' satisfaction mediates the relationship between Shariah amenities and loyalty intention for future medical treatment.

H4b: Muslim patients' satisfaction mediates the relationship between physicians' services and loyalty intention for future medical treatment.

H4c: Muslim patients' satisfaction mediates the relationship between nurses' services and loyalty intention for future medical treatment.

H4d: Muslim patients' satisfaction mediates the relationship between healthcare technicality and loyalty intention for future medical treatment.

H4e: Muslim patients' satisfaction mediates the relationship between hospital environment and loyalty intention for future medical treatment.

H4f: Muslim patients' satisfaction mediates the relationship between administrative behaviour and loyalty intention for future medical treatment.

2.11 Summary of Research Hypotheses

Based on the theoretical framework and support from literature, four main hypotheses of the study, in addition to sub-hypotheses have been formulated to reflect the relationships depicted in the theoretical framework (Figure 2.4). Out of total nineteen hypotheses, thirteen direct effects and six mediating effects are proposed to be tested in the explanatory part of the study (Table 2.10).

Table 2.10: Summary of the Research Hypotheses

No.	Hypotheses
Muslim-friendly medical service quality and Muslim patients' satisfaction	
H1a	Shariah amenities have a positive impact on Muslim patients' satisfaction.
H1b	Physicians' services have a positive impact on Muslim patients' satisfaction.
H1c	Nurses' services have a positive impact on Muslim patients' satisfaction.
H1d	Healthcare technicality has a positive impact on Muslim patients' satisfaction.
H1e	Hospital environment has a positive impact on Muslim patients' satisfaction.
H1f	Administrative behaviour has a positive impact on Muslim patients' satisfaction.
H2	**Muslim patients' satisfaction has a significant impact on their loyalty intention for future medical treatment.**
Muslim-friendly medical service quality and Muslim patients' loyalty intention	
H3a	Shariah amenities have a positive and direct relationship with Muslim patients' loyalty intention for future medical treatment at hospital.
H3b	Physicians' services have a positive and direct relationship with te Muslim patients' loyalty intention for future medical treatment.
H3c	Nurses' services have a positive and direct relationship with Muslim patients' loyalty intention for future medical treatment.
H3d	Healthcare technicality has a positive and direct impact on Muslim patients' loyalty intention for future medical treatment.
H3e	Hospital environment has a positive and direct impact on Muslim patients' loyalty intention for future medical treatment.
H3f	Administrative behaviour has a positive and direct impact on Muslim patients' loyalty intention for future medical treatment.

Table 2.10: Summary of the Research Hypotheses (continue)

	Hypotheses
	Mediating effects of satisfaction on Muslim-friendly medical service quality with loyalty intention
H4a	Muslim patients' satisfaction mediates the relationship between Shariah amenities and loyalty intention for future medical treatment.
H4b	Muslim patients' satisfaction mediates the relationship between physicians' services and loyalty intention for future medical treatment at hospital.
H4c	Muslim patients' satisfaction mediates the relationship between nurses' services and loyalty intention for future medical treatment at hospital.
H4d	Muslim patients' satisfaction mediates the relationship between healthcare technicality and loyalty intention for future medical treatment at hospital.
H4e	Muslim patients' satisfaction mediates the relationship between hospital environment and loyalty intention for future medical treatment.
H4f	Muslim patients' satisfaction mediates the relationship between administrative behaviour and loyalty intention for future medical treatment at hospital.

2.12   Control Variable

Demographic characteristics like age, gender, education level, marital status, professional experience, and nationality were measured with simple group level variables and used as control variables (Engle et al., 2011). Cappellari et al. (2014) and Brice et al. (2015) stated that these demographic characteristics have been found to affect the healthcare perceptions in previous studies. Based on the review of previous literature, there is a consistency in the role of the control variable, particularly, in studies of healthcare management of the hospitals and clinics. In this case, a number of researchers postulate that age, gender, education level, job experience and nationality are important control variables which have been used in the past healthcare management and operational studies (Ritter et al., 2001; Boselie, Dietz & Boon, 2005; McLean et al., 2011). A typical example can be observed from a study by Brice et al. (2015) who discovered that age, sex and education controlled health outcomes.

In this study, a set of demographic variables (gender, age, marital status, education, monthly income, occupation and country of origin) was used as control

variables with the aim to check how much of the observed variances they could explain in the research framework. Ahmad et al. (2014) found age and gender disparities in healthcare services with middle-aged and older people more associated with the need for medical care treatment. Educational and professional people are likely to have higher health awareness and intentions for medical treatment. Cappellari et al. (2014) and Hadjimanolis (2016) found that education was negatively associated with the entrepreneurial intention. People with higher education are likely to have a higher intention for medical treatment as they are more conscious of their health constitution as compared to non-educated people.

Besides, demographic characteristics can be measured through the receiving of healthcare facilities and satisfaction. Brice et al. (2015) stated that the service sectors have frequently used the control variables in the past study on healthcare quality. This is because each service sector will determine different types of healthcare issues generated and these would impact on the distinct type of management, regulations, and experience of the related healthcare providers. Furthermore, the current study suggests several control variables in the healthcare quality service study. For example, in a study of healthcare perceptions, Hadjimanolis (2016) used demographic variables, including gender, age, education, job status and nationality, as the control variables in the study. All the above discussion justifies the use of demographic characteristics as the control variables for further tests and investigations.

2.13   Summary of the Chapter

The literature review is basically utilized to define the problem of the study, identify study concepts and variables, and develop hypotheses and measurements of variables. This chapter discusses the empirical and subjective evidence drawn from previous studies in relation to the constructs that are examined in this study. The relationship among the

constructs and the gaps from the literature were discussed to provide justification for this study. This chapter discusses a comprehensive review of literature and identifies variables and ideas for establishing the research's conceptual framework. Additionally, this chapter discusses literature of previous studies on generic medical-care services, specifically Islamic medical care services, Muslim patients' satisfaction and their loyalty intention at hospitals in Malaysia. The research design will be discussed in the following chapter.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter presents the methodology used in the study. The chapter describes in detail research design and methods used for data collection and analysis. The chapter begins by describing general design of the research. This is followed by portraying methods used in the survey starting with specification of the unit of analysis, sample design, and respondents. Next, the chapter defines the variables of the study and their measurements in addition to validation of measures. Then, the chapter presents questionnaire design and survey administration. In the last part, the chapter describes the methods used for analysing survey data and testing the hypotheses.

3.2 Research Design

The research design distinguishes and delineates the borders of an investigation under which the research is performed and completed. The study identified the unit of analysis, the investigation categories and the issues which were connected to the research. In fact, a research design helps researchers or investigators to make relevant plans for investigating and answering the research questions (Cooper & Schindler, 2003; Zikmund, Babin, Carr & Griffin, 2012; Bryman & Bell, 2015). From the review of the literature, Kumar et al. (2013) indicated three forms of research designs, namely, i) causal/explanatory research, ii) descriptive research and iii) exploratory research.

The survey method is used mainly for the explanatory part of the study, i.e., to provide data that help in testing the hypotheses depicted in the theoretical framework. A cross-sectional survey was carried out to obtain quantitative data for statistical testing of the hypotheses. The survey will be conducted using mail questionnaire. Mail questionnaire method was employed in this study because of its advantage of covering

wide geographical area with less time and cost (Sekaran, 2003). The statistical data analysis will be carried out to derive the findings of the study. The findings are substantiated from the discussions, on which the appropriate conclusions will be drawn upon in the final part of the study. The research design for this study is as shown in Figure 3.1.

In summary, the initial step, the explanatory research design was adopted for this study with the background information from the literature. This study attained the literature review in the second step and generated the research hypotheses in the third step in order to identify the causal relationship among the constructs obtained from the review of past literature. In the fourth step, descriptive research was designed to identify the characteristics of the participants. This step firstly described the respondent's general profile and demographic information, and secondly identified the frequency distributions, percentages, means and standard deviations. In the fifth step, the descriptive research was followed by exploratory research to identify the relationship between the exogenous and the endogenous variables. The following subsections provide detailed description of the methodology used in the survey.
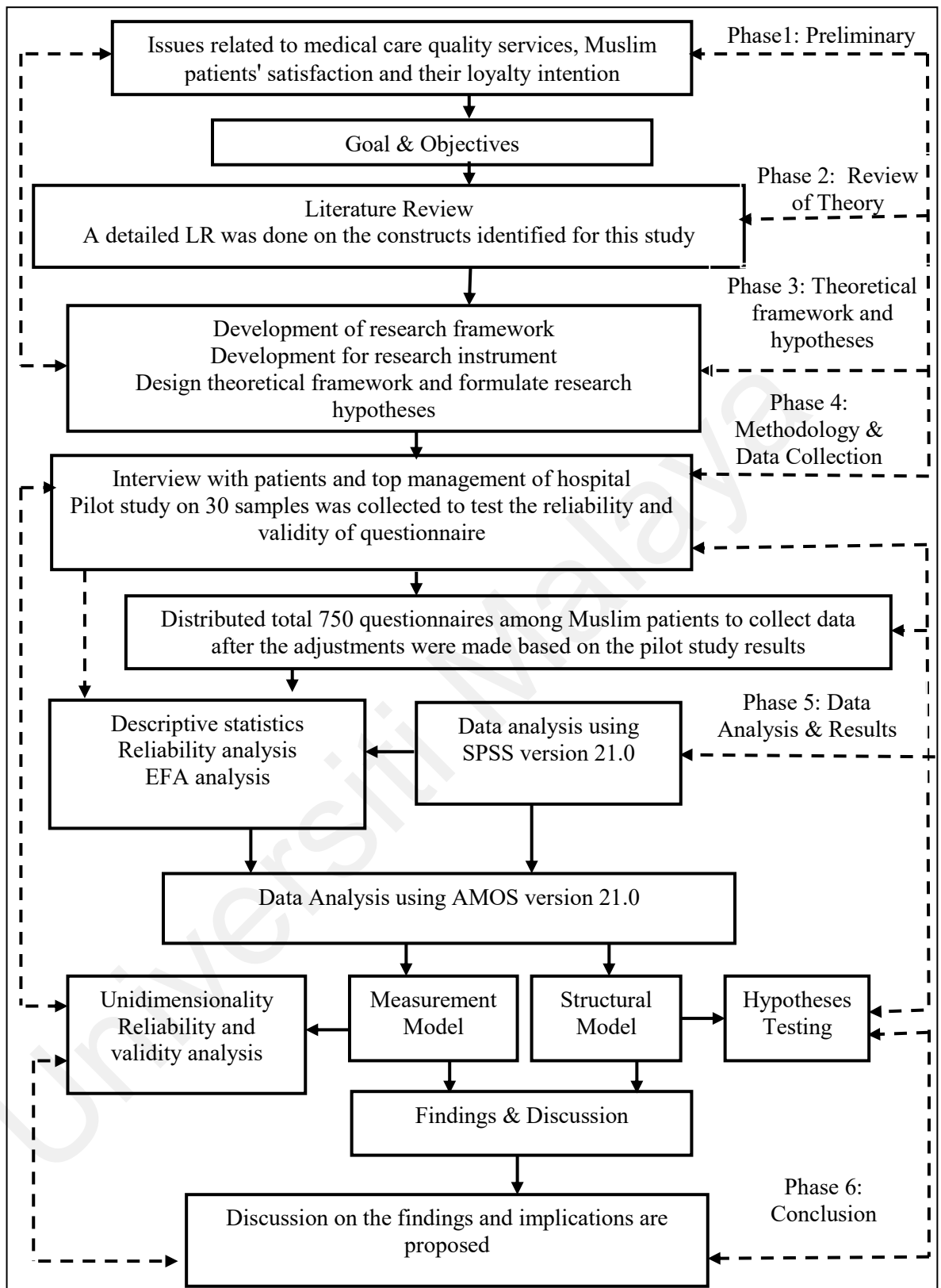
Figure 3.1: Study Design

Source: The study

The survey method and cross-sectional study were used in this study for collecting data from Muslim patients at hospitals. Yin (2013) concurred that the survey method is commonly used to measure the intention of customers because it directly dealt with the satisfaction and experiences of the respondents. Chandio (2011) postulated that a well-organized study plan gave more precise procedures to assess the data to arrive at a concrete conclusion. Sekaran (2003) also stated that a survey method was a quick and proficient approach to control a large sample. Additionally, a pilot study was conducted to check the reliability and validity of the measurement scale. The statistical tools, SPSS and AMOS, were used for data analyses. Firstly, the scale validity, descriptive statistics and exploratory factor analysis (EFA) were conducted by using the SPSS software version 22.0. Secondly, the AMOS was used for confirmatory factor analyses (CFA) to identify the relationship among the constructs, the reliability and the unidimensionality of the latent variables. Table 3.1 presents the research method, which was adopted from Chandio (2011) for this study.

Table 3.1: Study Method

Characteristic	Approach
Research method	Quantitative
Research approach	Deductive
Research Philosophy	Positivistic
Time Horizon	Cross-sectional
Data collection/survey method	Questionnaire
Analysis tool	SPSS & AMOS software (Version 21.0)

3.3   Data Type

Researchers need to identify which types of data are relevant for the study as they have to prepare a well-organized plan and decide on an appropriate data collection method. Usually, primary data are considered as raw data which are the first-hand information collected in a systematic order (Pope, Ziebland & Mays, 2000). This study used the primary data to identify the medical care services that might cast an influence on Muslim

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patients' satisfaction and their loyalty intention for further medical treatment at hospitals. Hox and Boeije (2005) believed that the primary data could genuinely measure both the subjective and the objective research phenomena in the selected criteria.

3.3.1   *Study Population of the Study*

This study measured the medical care quality services at the Malaysian private hospitals. Particularly, the target population of the study consists of the Muslim inpatients and the outpatients in the hospital. However, all Muslim outpatients we selected were among those who had been admitted or warded as inpatients at the hospital. Therefore, they had experienced the services provided by the hospitals. This study specifically considered only Muslim patients who received medical treatment from the Malaysian private hospitals.

The study was only focused on Muslim patients because the study believed that Non-Muslim patients will not be interested to answer the survey as the topic is not relevant to them, they do not have any knowledge or interest with the topic and also afraid of the sensitivity issue. Muslim patients are considered very potential for this study, because Muslims are more familiar with the basic idea and requirement of Islam or halal/haram and Shariah requirements (Malaysia Standard, MS2009:2014/2015). Non-Muslims have fewer interactions with Muslims friendly services quality, which itself can be an alien notion. Thus, the study has highlighted Muslims patients' perspective as the scope of study and addressed it as one of the limitations and recommended it to be in future study.

There are a total of 209 private hospitals, which offers medical care services in Malaysia (Association of Private Hospitals Malaysia (APHM), 2016). In addition, total of 40 private hospitals that were involved in medical tourism (Malaysian Health Travel Council, 2015; Zailani et al., 2016). Out of these lists, only 15 of them were Muslim or

Islamic friendly hospitals (Zailani et al., 2016). The majority of the hospitals were located in Selangor, Kuala Lumpur, Penang, and Johor. The choices of Muslum-friendly private hospitals in this study were subjected to temporal, financial and permission constraints. Fifteen hospitals chosen in this study were either from Kuala Lumpur or Selangor and they were selected purposely based on the constraints mentioned. Additionally, most hospitals are located in Selangor and Kuala Lumpur (Mahjom, Alias & Zulkifli, 2011) (refer to Table 3.2). These two areas are considered as offering the best medical facilities and treatment in the country (Tayeb et al., 2010; Mahjom et al., 2011).

Table 3.2: Muslim friendly Private Hospitals

No.	Name of the private hospitals	States
1	Hospital Islam Az-Zahrah	Selangor
2	Kelana Jaya Medical Center	Selangor
3	Salam Shah Alam Specialist Hospital	Selangor
4	KPJ Kajang Specialist Hospital	Selangor
5	Damansara Damai Medical Center	Selangor
6	KPJ Damansara Specialist Hospital	Selangor
7	Selangor Medical Center (KPJ)	Selangor
8	KPJ Ampang Puteri Specialist Hospital	Selangor
9	Pusat Perubatan Kohilal	Selangor
10	IIUM Health Center	Selangor
11	Hospital Danau Kota	Kuala Lumpur
12	Hospital Pakar Al Islam	Kuala Lumpur
13	Hospital Pusrawi	Kuala Lumpur
14	KPJ Tawakal Specialist Hospital	Kuala Lumpur
15	Sentosa Medical Center	Kuala Lumpur

Source: Malaysian Health Travel Council (MHTC) (2015), Islamic Hospital Consortium Malaysia (2016), Associations of Private Hospital in Malaysia (APHM) (2016), KPJ (2015).

In addition, the study has interviewed few of the personnel in Islamic Hospital Consortium (IHC) Malaysian hospitals in the preliminary study and they had claimed that they do offering Islamic/Muslim friendly medical care services to the patients. One of the objectives of IHC is to fulfil the criteria of Islamic medical institutions in areas of medical ethical standards, and application of Islamic principles in the field of medicine, etc. (IHCM, 2018). It is confirmed by SIRIM that the basic requirements for SIRIM's

MS1900:2014 will be easy to fulfil if they are the members of IHC. With this, the study remains the standpoint that the sampling done to IHC members is appropriate.

3.3.2 Sampling Plan

The sampling unit consisted of Muslim patients who received medical care service at least once within the listed 15 Muslim friendly private hospitals. Initially, the researcher contacted the manager of each of these hospitals by sending an email, and later physically visited the hospitals to seek permission to conduct the survey. Kothari (2004) suggested that a well-planned strategy is important while selecting a representative sample and suitable sample size. Thus, the key population of the study was identified clearly based on the sampling units, elements and time. Malhotra (2004) stated that the decisive element was generally intrinsic for participants in the survey study. Sampling errors can be present in a sampling design in which the scholar's biases can be controlled in a rational way (Kothari, 2004).

According to Malhotra (2004), a sampling unit contains the elements and extent that refer to the geographic limit as well as the time factors. In selecting or before developing a sampling design for the study, the researcher had considered several important factors and parameters, such as, identifying the target population, deciding on the sampling technique, sampling unit, sample size, population parameters, sampling procedure as well as the attendant financial constraints (Sekaran, 2000; Kothari, 2004).

Generally, researchers select a sampling method for their research project to guide the data collection process (Trochim, 2001). In this study, the purposive sampling method is employed as the researcher selected 15 private hospitals purposively, but respondents of this study are chosen randomly. Because the hospitals are predetermined by the researcher and respondents are unknown as a result researcher does not know how many patients are receiving medical care services from these selected hospitals. Purposive

sampling is an informant selection tool (Tongco, 2007) that widely used in various field of research. It is a type of non-probability sampling that is most effective when one needs to study a certain cultural domain with knowledgeable experts. Bernard (2002) stated that purposive sampling is especially exemplified through the key informant technique.

Choosing such a technique is fundamental to the quality of data gathered (Tongco, 2007). Thus, reliability and competence of the informant should be ensured. The respondents (Muslim patients) of the hospitals are choosing using random sampling technique as it is the most straightforward probability sampling strategy. The entire process of this sampling is done in a single step with each subject selected independently. In this technique, each Muslim patient (respondent) of the hospitals has an equal chance of being selected as the subject. Identifying Muslim patients in hospitals were very challenging for this study, as patients were reluctant to participate in the survey due to sickness, waiting for a call from doctors, nurses or administrative staff and so on. The researcher could not force the patients to participate in the survey unwillingly.

In addition, the data also gathered from three interviews with representatives from An Nur Specialist Hospital (ANSH), using the purposive sampling method. Interviews were conducted with the Tuan Haji Shaharom Md Sharif, the Chief Executive Officer (CEO), Mr Che Mahmud Mohd Noding, the Chief Operating Officer (CFO) and Ms Zawahil Ahmad Nadzir, the Customer Care Officer of An Nur Specialist Hospital on 19th June 2019.

3.3.3 Sample Size

The sample size is dependent on the population of the study. As the researcher decided to use the structural equation modeling (SEM) tool to obtain the reliable estimations, a standard sample size was required to run the SEM software program. Kline (2015) suggested that the sample size should be at least of 200, whilst, Hair et al. (2013) argued

that a minimum of 200 samples and a maximum of 400 samples are required to apply the SEM technique. Importantly, if the sample size exceeds 400, the SEM will then present a poor result of the goodness of fit indices (Wolf et al., 2013; Sideridis et al., 2014). Thus, a sample size of at least 200 was required to produce a good result (Wolf et al., 2013; Sideridis et al., 2014; Kline, 2015). Walum, Waldman, and Young (2016) postulated that an appropriate sample size is required before performing any data collection.

Accordingly, the sample size of this study was determined by using G*Power 3.1.9.2, as Faul et al. (2009) suggested that it is one of the most suitable analytical software programs for a statistical test in the social and behavioural sciences. The statistical test of the "Linear Multiple Regression fixed model, R-square increase" was used in selecting the effect size of 0.15, the alpha error probability of 0.01, power (1-β error probability) of 0.99 and number of predictor 7 (based on the theoretical model).
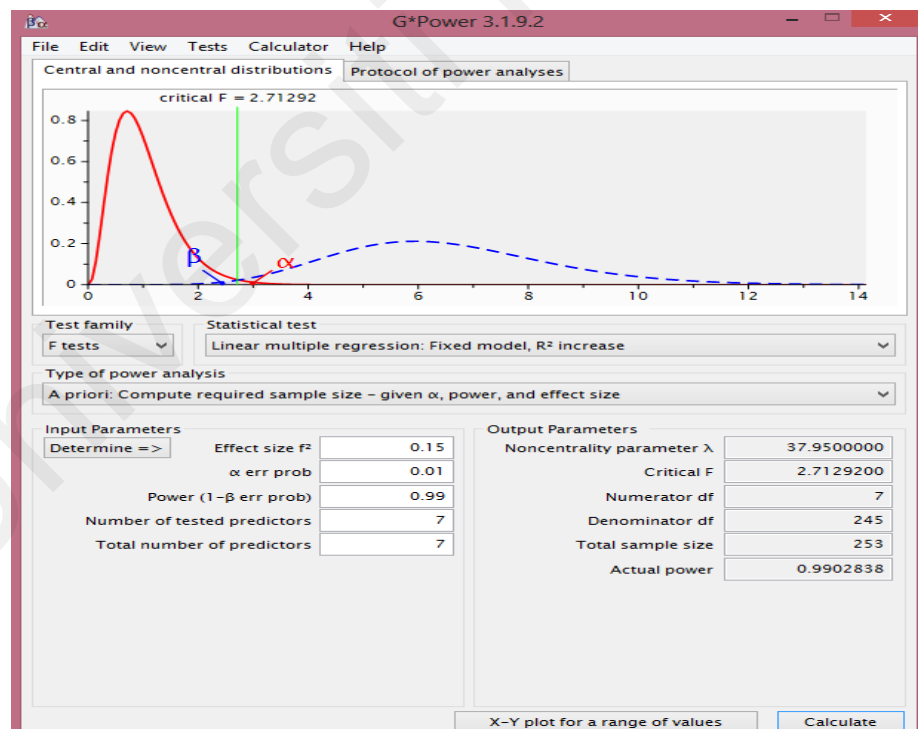
Figure 3.2: Sample Size Calculation

The result is shown in Figure 3.2 in which the sample size was calculated to be 253 respondents and the actual power was above 0.80, indicating a satisfactory level of sample power (Chin, 2001). The researcher could decrease the alpha level to 0.01 rather

than 0.05 because an increased power level could lead to an increased sample size. Thus, the minimum sample size of this study was maintained at 253 usable responses. Therefore, based on the above clarification and the 15 hospitals which were predetermined to be included in this study, the researcher decided to attain 50 respondents from each hospital based on the size and capacity of the hospital. Thus, a total number of (15*50) = 750 respondents as the sample size was set for distribution and collection of data for onward analyses in this study.

3.4 Survey Questionnaire

The survey questionnaire was kept simple and easy to understand by the respondents who were requested to give truthful answers to the questions. The researcher's contact information was given in the questionnaire just in case the respondents wished to know the results of the survey. The questionnaire of the study consisted of three sections. The respondents' general profile was included in the first part of this questionnaire. The second part consisted of constructs which were mentioned in the theoretical model. The third section consisted of demographic information, which included gender, age, income, education, marital status, job status, types of treatment sought and the respondent's country of origin.

3.4.1 Questionnaire Design

The questionnaire was developed in simple and easy to understand passages so that the respondents were willingly and interested in filling up the questionnaires. Hence, a self-administered close-ended questionnaire was developed to meet the aim of the research. As MacQueen et al. (2014) advocated, close-ended questions measured the respondents' answers more accurately, allowing the respondents to easily understand and express any opinion without being influenced by the researcher. All the items on the questionnaire were developed in English. The educational background of the participants was at least

SPM/O-Level certificate, which was mentioned in the 'demographic profile' of the questionnaire. All the target population of this study was educated, thus, the questionnaire in the English version could be understood by the respondents. Importantly, as most of the patients were local Muslims, an alternative version was developed where the English version was translated into Bahasa Malaysia.

In addition, the questionnaires were designed to be brief with simple and straightforward questions for the participants to clearly understand without ambiguous questions. Cooper and Schindler (2003) stated that the statements of survey questionnaires should be simple and explicitly clear. These experts' view was also used in the development of the questionnaire which was adopted from the past literature but accordingly modified to suit the setting of this research.

3.4.2 Response Formatting

The survey questionnaire was intended to get the individual's responses to medical care services, patients' satisfaction and their loyalty intention for medical treatment in the hospitals. Thus, the questionnaires were organized in the format of a scaled-response form. This approach helped to decrease the response biases and to make the participants feel relaxed in answering the questionnaire. Rossi, Wright, and Anderson (2013) advocated that the scale method helps to measure the level of agree/disagree decision of the respondents (Rossi, Wright & Anderson, 2013) which would considerably simplify the data analysis of the study.

The nominal and ordinal scales were used in this study in which the nominal scale was particularly designed for demographic information of the respondents. A 7-point Likert scale was used in this study to measure the respondents' view of medical care services, satisfaction, and loyalty intention. The 7-point Likert scale could provide a wide choice of answers from the participants as suggested by Vaus (2014). In the preparation

of the questionnaire design, this study considered the items adopted from previous studies

and the items to be measured and validated on the Likert scale.

Table 3.3: Measurement Scale for Level of Agree/disagree for Muslim-friendly Medical Service Quality and Muslim Patients' Loyalty Intention

Level	Description	Explanation
0	Not applicable	Experience and judgment are not in favor
1	Not at all agree	Experience and judgment are not in favour of one over the other.
2	Disagree	Experience and judgment are strongly not in favour of one over the other.
3	Highly disagree	Experience and judgment are extremely not in favour of one over the other.
4	Somewhat agree	Evidence and judgment are moderately in favour of one over the other.
5	Agree	Evidence and judgment are in favour of one over the other.
6	Highly agree	The evidence and judgment strongly favour one over the other

Source: Adapted from Coyle (2004)

Due to a lack of a proper measurement scale for measuring the Muslim-friendly

medical care quality services, this study developed a new measurement scale, which is

explained in Table 3.3 and 3.4 respectively. Particularly, a seven-point Likert scale for

eight factors was used: Shariah amenities; physicians' services; nurses' services;

healthcare technicality; hospital environment; administrative behaviour (independent

variables) and patients' loyalty intention (dependent variable) with anchoring as "not

applicable" to "highly agrees" (Table 3.3). For the factor of patients' satisfaction

(mediating variable), the researcher used the 7-point Likert scale as "not applicable" to

"very satisfied" (Table 3.4).

Table 3.4: Measurement Scale for Level of Satisfaction/Dissatisfaction of Muslim Patients

Level	Description	Explanation
0	Not applicable	Experience and judgment are not in favor
1	Not satisfied	Experience and judgment are not in favour of one over the other.
2	Very dissatisfied	Experience and judgment are strongly not in favour of one over the other.
3	Dissatisfied	Experience and judgment are extremely not in favour of one over the other.
4	Somewhat satisfied	Evidence and judgment are moderately in favour of one over the other.
5	Satisfied	Evidence and judgment are in favour of one over the other.
6	Very satisfied	The evidence and judgment strongly favour one over the other

Source: Adapted from Coyle (2004).

3.5   Mobilization of Variables

The constructs and variables of the study were mobilized to validate the items which were adopted or adapted from earlier literature. The adopted items were modified to fulfill the objectives of this study. The questionnaire is categorized as open-ended and close-ended questions (Kothari, 2004). Closed-ended questionnaires are the ones in which respondents can choose the answer from some pre-selected answers. Thus, it helps the researcher to compare the results from different respondents not only much more easily but also much faster (Neuman, 2006, 2007) and it was suggested that in terms of a large-scale survey, the use of close-ended questionnaires was suitable, because it made data collection easier for the researchers and the respondents.

To accomplish the aim of this study, a self-administered closed-ended questionnaire was developed while following the English language (refer to Annexure C). Importantly, to keep in tandem with the Malaysian scenario, the English version of the questionnaire was translated into Bahasa Malaysia (refer to Annexure D) because the

majority of the respondents were expected to be local patients. The questionnaire was divided into three parts:

i. The first part consisted of questions about the respondents' general profile, such as religious affiliation, reasons for visiting the hospital, the frequency of visits to the hospital and familiarity of receiving treatment from the medical care services at hospital.

ii. In the second section, the questions inquired about the Muslim-friendly medical service quality, Muslim patients' satisfaction, and Muslim patients' loyalty intention for medical treatment.

iii. The third section consisted of questions related to the respondents' demographic profile of gender, age, marital status, education, monthly income, country of origin and types of patients. To minimize the respondents' biases, all the items in the questionnaire were divided into subsections to ensure that the participants read each statement and answered it accordingly.

In addition, understanding the different characteristics of the measurement scale is essential, since it assists the investigators in avoiding the incorrect use of the metric and the non-metric data. It also helps the researcher to determine the most suitable multivariate technique applicable to the data in consideration of both the independent and the dependent variables (Hair et al. 2010a). The Likert scale provided an easy choice for the respondents to answer the questions to weigh their degree of agreement or disagreement accordingly. Gray (2004) suggested using the 7-point Likert scale as it provided the investigators with more varied than other scales.

Accordingly, this study used the 7-point Likert scale in the questionnaire. For Muslim-friendly medical services (Shariah amenities, physicians' services, nurses'

services, healthcare technicality, hospital environment and administrative behaviour) and patients' loyalty intention (dependent variable), the 7-point scale was used from 0 (not applicable) to 6 (highly agree) (refer to Table 3.3). For the construct of Muslim patients' satisfaction (mediating variable), the 7-point scale was also used from 0 (not applicable) to 6 (very satisfied) (refer to Table 3.5). A simple and straightforward question was used to aid the participants in filling up the questionnaire. The items in the questionnaire were limited to 69 items to measure Muslim patients' views of medical care service quality, satisfaction as well as their loyalty intention. Table 3.5 shows the variables and items used in this study. The mobilization of each variable and item is also discussed below.

Table 3.5: Variables and Items

Part	Constructs/Variables	Items
1	Respondent's general profile	6
	Shariah Amenities	8
	Physicians' services	7
2	Nurses' services	7
	Healthcare technicality	6
	Hospital Environment	7
	Administrative behaviour	6
	Physical satisfaction	7
	Emotional satisfaction	7
	Spiritual satisfaction	6
	Loyalty intention	8
3	Respondent's demographic profile	7

3.5.1   Shariah Amenities

Shariah amenities can be defined as where the medical care services rendered in the hospital area are in accordance with the Muslim-friendly or Islamic teachings (Shariff & Rahman, 2016). Hence, a total of eight items was used to measure the Shariah amenities using the 7-point Likert scale (i.e. 0=not applicable; 1=not at all agree; 2=highly disagree; 3=disagree; 4=somewhat agree; 5=agree; 6=highly agree). Shariah amenities have been explained in different areas of different academic disciplines. Hence, all items related to Shariah amenities are adopted from the Malaysia Standard (MS 1900:2014, MS

2610:2014, MS 2610:2015), and also previous studies. Accordingly, Table 3.8 presents

the measurement items for the shariah amenities and their sources.

Table 3.6: Items for Shariah Amenities

No.	Items	Sources
1	The hospital provides a copy of the Holy Quran in the prayer room	Malaysia Standard (MS 2610:2014), Abdelkader (2015).
2	The hospital provides Shariah-compatible toilets	Abdelkader (2015)
3	The hospital provides halal foods and drinks	Malaysia Standard (MS 2610:2015), Abdelkader (2015)
4	The hospital provides a prayer room for each ward for Muslim patients	Abdelkader (2015)
5	The hospital provides prayer amenities (times [Azan], mats, direction of Qiblat, wudhu) in the prayer room	Abdelkader (2015)
6	The hospital provides the healthcare staff of the same sex for the patients where possible.	Zailani et al. (2016)
7	The hospital provides an ablution (wudhu') pipe for *solat (prayer)* purpose.	Malaysia Standard (MS 1900:2014), Moghavvemi et al. (2015).
8	The hospital provides halal medicines for the Muslims.	Zailani et al. (2016)

3.5.2   *Physicians' and Nurses' Services*

Physicians' services id defined as doctors in the hospital who practice medicine for

patients through treatment (Mahr et al., 2017). Nurses' services is defined as a group of

medical nurses who provide nursing care for patients in the hospital (Zailani et al., 2016).

A total of fourteen items was used to measure physicians' and nurses' services using the

7-point Likert scale (i.e. 0=not applicable; 1=not at all agree; 2=highly disagree;

3=disagree; 4=somewhat agree; 5=agree; 6=highly agree). Though, physicians' and

nurses' related factors are a vast area for the academicians, however, the statements

chosen here are related only to the physicians' and nurses' competency, understanding,

tangibility and assurance and other related items relevant to Muslim patients' satisfaction

and their loyalty intention for future medical treatment at hospitals. The Prophet (peace

be upon him) not only instructed people with illnesses to take medicine, but he himself invited expert physicians to treat and cure them (Ibrahim, 2015).

Table 3.7: Items for Physicians' Services

No.	Items	Sources
1	Physicians inform me regarding the use of vaccines that are porcine in origin	Adopted from Zailani et al. (2016)
2	Physicians seek clarification from me when they are unsure about Islamic protocols	Adopted from Zailani et al. (2016)
3	Physicians respond promptly to my request	Adopted from Sower et al. (2001); Webster et al. (2011)
4	Physicians understand my specific problem	Adapted from Sower et al. (2001)
5	Physicians are very sympathetic towards me	Adapted from Sower et al. (2001); Chakravarty (2011)
6	Physicians respect my privacy	Adopted from Sower et al. (2001); Anand and Sinha (2010)
7	Physicians respect my modesty and religious beliefs	Adapted from Sower et al. (2001)

Abu Hurayarah narrated that the Prophet Muhammad (saws) said; "there is no disease that Allah (SWT) has created without its remedy" (Bukhari 7.582). Moreover, Usamah Ibn Shuraik narrated that "O Allah's Messenger! Should we seek medical treatment for our illness? He replied: 'Yes, you should seek medical treatment, because Allah (SWT), the Exalted, has let no disease exist without providing for a cure, except for one ailment, namely, old age" (Tirmidhi). In fact, taking quality care of one's health is considered as Sunnah which is mentioned by the Prophet Muhammad (peace be upon him) (Bukhari As-Sawm, 55, A-Nike 89, Muslim As-Siyyam 183, 103, Nisai). Table 3.7 presents the measurement items for physicians' services and Table 3.8 for nurses' services related factors and their sources.

Table 3.8: Items for Nurses' Services

No.	Items	Sources
1	Nurses clean body parts that are contaminated by blood, or urine so that the patient may conduct prayers	Adapted from Zailani et al. (2016); Webster et al. (2011)
2	Nurses are ever willing to help me	Adapted from Webster et al. (2011)
3	Nurses respond promptly to my request	Adapted from Webster et al. (2011)
4	Nurses respect Muslim values and principles	Adopted from Zailani et al. (2016)
5	Nurses are very sympathetic towards me	Adapted from Webster et al. (2011)
6	Nurses respect my privacy	Adopted from Adopted from Naidu (2009); Chakravarty (2011)
7	Nurses respect my modesty and religious beliefs	Adapted from Naidu (2009); Chakravarty (2011)

3.5.3 Healthcare Technicality

Healthcare technicality is defined as the medical care systems in the hospital which are reliable. Healthcare technicality related factors refer to the quality of medical care services and operational management quality at the hospital. A total of six items was used to measure technical healthcare-related factors using the 7-point Likert scale (i.e. 0=not applicable; 1=not at all agree; 2=highly disagree; 3=disagree; 4=somewhat agree; 5=agree; 6=highly agree). The study only considered the statements related to medical technology capability, cooperation, responsiveness, communication, reliability, access and international reputation and services for medical care to measure healthcare technicality as criterions for patients' satisfaction and their loyalty intention for medical treatment at hospitals. Thus, Table 3.9 shows the measurement items for healthcare technicality related factors.

Table 3.9: Items for Healthcare Technicality

No.	Items	Sources
1	This hospital uses up-to-date equipment.	Adopted from Chakravarty (2011); Nurunnabi and Islam (2012)
2	This hospital provides service on time.	Adopted from Kazemi et al. (2013); Nurunnabi and Islam (2012)
3	This hospital performs the promised service at the promised time.	Adapted from Kazemi et al. (2013); Nurunnabi and Islam (2012)
4	This hospital keeps accurate records and documents.	Adapted from Kazemi et al. (2013)
5	This hospital has adequate consultation rooms.	Adapted from Alhassan et al. (2015); Nurunnabi and Islam (2012)
6	This hospital provides stable amenities (e.g. water and electricity).	Adapted from Alhassan et al. (2015); Nurunnabi and Islam (2012)

3.5.4 Hospital Environment

Hospital environment refers to the sum of the elements and conditions in the hospital which have an impact of patients through good healthcare system (Malik et al., 2016). A total of seven items were identified to measure hospital environment related factors using a 7-point Likert scale (i.e. 0=not applicable; 1=not at all agree; 2=highly disagree; 3=disagree; 4=somewhat agree; 5=agree; 6=highly agree). This study only considered the statements related to the healthcare system, government support, resources and facilities, collaboration and partnership development and other related items to investigate the environment and infrastructure related factors as criterions to patients' satisfaction. Accordingly, Table 3.10 lists the measurement items of the hospital environment and their sources.

Table 3.10: Items for Hospital Environment

No.	Items	Sources
1	This hospital has a clean and hygienic appearance	Adopted from Webster et al. (2011); Chakravarty (2011)
2	Waiting rooms of this hospital are pleasant	Adapted from Webster et al. (2011), Chen et al. (2013),
3	The surrounding area of this hospital is quiet	Adapted from Webster et al. (2011)
4	The rooms of this hospital are pleasant	Adapted from Webster et al. (2011), Chen et al. (2013)
5	This hospital is located in a safe and secure place	Adapted from Markovic et al. (2014)
6	The consulting rooms of this hospital are clearly signposted	Adapted from Markovic et al. (2014)
7	The hospital provides sophisticated praying infrastructures (e.g., prayer room, signage, ablution (wudhu) facilities)	Adapted from MS 2610:2014; Zailani et al. (2016)

3.5.5 *Administrative Behaviour*

Administrative behaviour is defined as the duties of administrative staff in the hospital which cover matters relating medical care systems (Meyer et al., 2015). This study has adapted administrative behaviour related components from various sources. A total of six items was adapted to measure the administrative behaviour related factors using the 7-point Likert scale (i.e. 0=not applicable; 1=not at all agree; 2=highly disagree; 3=disagree; 4=somewhat agree; 5=agree; 6=highly agree). This research only considered the statement related to the administration system in medical care, administrative standards, and infrastructure to measure Muslim patients' satisfaction. Table 3.11 lists the measurement items for administrative behaviour and their sources.

Table 3.11: Items for Administrative Behaviour

No.	Statement	Sources
1	The administrative procedures of this hospital (paperwork and paying off bills) are fast and easy	Adapted from Gasquet et al. (2004)
2	The administrative staff of this hospital respect my concerns	Adapted from Gasquet et al. (2004); Flannelly et al. (2005)
3	The administrative staff of this hospital are courteous	Adapted from Gasquet et al. (2004)
4	The administrative staff of this hospital greet me with *Salam*	Adapted from Gasquet et al. (2004)
5	The administrative staff of this hospital are treating me with respect and dignity	Adapted from Sower et al. (2001); Flannelly et al. (2005)
6	Overall, I have confidence in this hospital's administrative system	Adapted from Dagger et al. (2007)

3.5.6 *Muslim Patient's Satisfaction*

Patient's satisfaction is the choice of perceived value (Kim et al., 2008; Erikson, 1987) toward medical care services. Patients' satisfaction as a measure of the extent to which an individual (patient) is satisfied with the quality medical care services. One of the most contributing factors is patients' satisfaction with their health. Muslim patients' satisfaction for this study has been divided into physical, spiritual, and emotional. Thorp (2018) stated that health psychology and integrative medicine are beginning to identify that health is influenced not only by the physical body but also by the spiritual and emotional bodies. People's spirit depends on their emotional life, whereas emotions depend on psychological well-being. Spirituality is an inner resource or aspect of a person that is used to cope with major stressors (Wei et al., 2016). Spiritual is an ability of person to understand right from wrong, whereas, emotional is an ability to feel what people are experiencing (Thorp, 2018). Spiritual is the non-physical part of a person which is the seat of emotions and character, and the soul.

3.5.6.1 Physical Satisfaction

Psychological balance depends on biological structure, which depends on people's physical environment (Baigent, 2018). A total of seven items was used to measure Muslim patients' physical satisfaction using the 7-point Likert scale (i.e. 0=Not applicable; 1=Not satisfied at all; 2=Very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied). These statements, as enumerated in Table 3.14 emphasize patients' physical satisfaction and their loyalty intention for future medical treatment at hospital. Table 3.12 records the items used to measure patients' physical satisfaction and their sources.

Table 3.12: Items for Physical Satisfaction

No.	Items	Sources
1	I am satisfied with the medical treatment provided in this hospital	Adapted from Kazemi et al. (2013)
2	I am satisfied with the feeling of security in receiving treatment here	Adapted from Flannelly et al. (2005); Zailani et a. (2016)
3	I am satisfied with the physicians who treated me	Adapted from Sower et al. (2001)
4	I am satisfied with the nurses who attend to me	Adapted from Sower et al. (2001)
5	I am satisfied with the prayer facilities in this hospital	Adapted from Battour et al. (2014); Zailani et a. (2016)
6	I am satisfied with the Islamic dress code in this hospital	Adapted from Battour et al. (2014), Zailani et a. (2016)
7	I am satisfied with the availability of halal foods and drinks	Adapted from Battour et al. (2014), Zailani et a. (2016)

3.5.6.2 Emotional Satisfaction

Understanding patients' emotions are often a critical success factor in the outcome of medical care. Dube, Belanger, and Trudeau (1996) mentioned that patients' emotions can influence health-related outcomes such as satisfaction, compliance and adjustment to therapeutic interventions. In this research, a total of seven items was developed to measure Muslim patients' emotional satisfaction using the 7-point Likert scale (i.e. 0=Not

applicable; 1=Not satisfied at all; 2=Very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied). This study only considered the statements related to Muslim patients' emotional satisfaction and their experiences with medical care services at hospitals. Table 3.13 lists the measurement items for Muslim patients' emotional satisfaction and their sources.

Table 3.13: Items for Emotional Satisfaction

No.	Items	Sources
1	Medical professionals in this hospital offer advice on the atonement (*Tauba*) to seek divine grace through prayer	Adapted from Ghorbany et al. (2014)
2	Medical professionals in this hospital offer advice on seeking Allah's love, protection, and care	Adapted from Ghorbany et al. (2014)
3	Medical professionals in this hospital help me to overcome my fears/concerns about the outcome of medical treatment	Adapted from Flannelly et al. (2005)
4	Medical professionals in this hospital give me credible hope or encouragement	Adapted from Flannelly et al. (2005)
5	Medical professionals in this hospital respect my beliefs and opinions	Adapted from Flannelly et al. (2005)
6	Medical professionals in this hospital listen to my fears, hopes, pain, and dreams	Adapted from Flannelly et al. (2005)
7	Medical professionals in this hospital help me cope with my sense of loss	Adapted from Flannelly et al. (2005)

3.5.6.3 Spiritual Satisfaction

From a physician's standpoint, understanding patients' spirituality is quite valuable (Puchalski, 2001). Spiritual satisfaction may be dynamic in the patients' understanding of the disease. In this study, an aggregate of six items was produced to measure Muslim patients' spiritual satisfaction using the 7-point Likert scale (i.e. 0=Not applicable; 1=Not satisfied at all; 2=Very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied). These statements emphasize Muslim patients' spiritual satisfaction with medical treatment. Table 3.14 records the measurement items for the Muslim patients' spiritual satisfaction and their sources.

Table 3.14: Items for Spiritual Satisfaction

No.	Items	Sources
1	Medical professionals in this hospital pray for me for my health and rapid recuperation	Adapted from Flannelly et al. (2005).
2	Medical professionals in this hospital advise me to read the Holy Qur'an	Adapted from Adapted from Ghorbany et al. (2014).
3	Medical professionals in this hospital recite "Bismillah" before my medical procedure	Adapted from Moghavvemi et al. (2015).
4	Medical professionals in this hospital help me to appreciate Allah's favour and mercy	Adapted from Ghorbany et al. (2014).
5	Medical professionals in this hospital actively address my other spiritual needs (trust, faith, love for Allah)	Adapted from Ghorbany et al. (2014), Astrow et al. (2007).
6	Praying makes me feel better	Adapted from Battour et al. (2014).

3.5.7 *Loyalty Intention*

Loyalty is the key to business success for organization (Zhou et al., 2017). In this study a total of eight items was adapted to measure Muslim patients' loyalty intention for future medical treatment using the 7-point Likert scale (i.e. 0=not applicable; 1=not at all agree; 2=highly disagree; 3=disagree; 4=somewhat agree; 5=agree; 6=highly agree). Generally, loyalty intention represents repetitive purchasing of the same products and services over a period by the customer. Loyalty intention is mainly concerned with how loyalty is operationalized. It is very important to understand how we should measure loyalty. Table 3.15 lists the measurement items for Muslim patients' loyalty intention for future medical treatment at hospitals and their sources.

Table 3.15: Items for Muslim Patients' Loyalty Intention

No.	Items	Sources
1	I would visit this hospital again due to its ease of accessibility to treatment.	Adapted from Markovic et al. (2014) and Shafaei (2016)
2	I would recommend other people this hospital for its Muslim friendly medical services.	Adapted from Abdelkader (2015) and Shafaei (2016)
3	I would visit this hospital again because healthcare professionals are consistently courteous and respectful to me.	Adapted from Abdelkader (2015) and Shafaei (2016)
4	I would visit this hospital again due to its Muslim friendly healthcare practices.	Adapted from Abdelkader (2015) and Shafaei (2016)
5	I intend to revisit this hospital because the physicians are aware of the presence of potentially non-Halal ingredients in medicines.	Adapted from Zailani et al. (2016)
6	I intend to revisit this hospital because the physicians discuss with me any Haram ingredients of medicines.	Adapted from Markovic et al. (2014)
7	I intend to revisit this hospital due to its explanations of Halal alternatives of medication.	Adapted from Zailani et al. (2016)
8	I intend to revisit this hospital due to its precise and clear explanation of my treatment results.	Adapted from Zailani et al. (2016)

3.6   Pre-Test Study

The pre-test study should be carried out before the pilot study so that the questionnaires could be validated (Sekaran, 2006). This study conducted the pre-testing process by consulting 5 experts in the area of service quality, medical tourism, and Islamic tourism to scrutinize the questionnaire. During the pre-testing study, some errors were identified in the questionnaire, such as repeated questions, very general questions, ambiguity and some biases in the questions. Accordingly, keeping in view of the experts' valuable comments and suggestions, the study re-checked the questionnaire and minor changes were incorporated as needed for the validity of the questionnaire.

3.6.1 Pilot Study

A pilot study is important for testing the survey questionnaire. Sekaran (2006) postulated that a pilot study is needed to be carried out before the actual survey so that the measurement scale can be validated. If there is any ambiguity in the questionnaire, it can be rectified as well. Kothari (2004) pointed out that a pilot study helps to identify the weakness of the questionnaire prior to the main survey. Neuman (2007) also suggested that it is strategic to conduct a pilot study on a small group of people from the actual population. He also explained that a pilot study is necessary to identify the participants' answer to each statement of the survey questionnaire.

Thus, this study chose to conduct a pilot study to identify the validity and reliability of measurement scales. Johanson and Brooks (2010) postulated that 30 samples are enough to be used in the pilot study. A total of 50 questionnaires were distributed to Muslim patients from the hospitals located in Kuala Lumpur and Selangor, out of which 30 completed questionnaires were returned, providing a 60% response rate. The questionnaires were distributed and collected mainly during the period 14th July to 26th July 2016.

A few interesting comments and suggestions were obtained from the respondents, for instance, a few respondents suggested adding an option for "don't know/not sure or not applicable" in the Likert scale. Some respondents also commented that the statements of some questions were more or less similar to one another and this confused them to respond accordingly. Therefore, the questionnaire was rechecked and changes were made based on their comments and suggestions. Moreover, a few items from the pilot study were deleted and new items were added based on the feedback from the respondents. The data analysis of the pilot study was done using the SPSS software version 22.0. The findings are illustrated as follows.

Table 3.16: Demographic Profile of Pilot Study

Characteristics	Category	Frequency	Per cent (%)
Gender	Male	17	56.7
	Female	13	43.3
Age	14- 20 years	6	20.0
	21-30 years	17	56.7
	31-40 years	5	16.7
	41-50 years	2	6.7
Marital status	Single	24	80.0
	Married	6	20.0
Education	College diploma	2	6.7
	Bachelor degree	21	70.0
	Master's degree	5	16.7
	Doctorate degree	1	3.3
	Foundation studies	1	3.3
Occupation	Unemployed	16	53.3
	Freelance professionals	3	10.0
	Corporate firms' employees	2	6.7
	Business Owners	3	10.0
	Student	6	20.0
Monthly income (USD)	1000 and below	20	66.7
	1001-3000	10	33.3
Country of Origin	Indonesia	2	6.7
	Malaysia	10	33.3
	China	2	6.7
	Bangladesh	10	33.3
	Thailand	1	3.3
	Nigeria	1	3.3
	Saudi Arabia	2	6.7
	Comoros	1	3.3
	Jordan	1	3.3

Table 3.16 presents the respondents' demographic information. The findings revealed that the majority (56.7 per cent) of them were male and 43 per cent were female. The age of the respondents was one of the most critical attributes in comprehending their perspectives on the particular issues. It is obvious from Table 3.16 that the range of the age was between less than 20 years and 50 years to above 61 years. If the quartile value

is considered, approximately 20 per cent were between 14-20 years old, whereas one-fourth of the respondents were between 31 to 50 years old. To be more specific, a large number of respondents were between 21-30 years old.

The perceptions and attitudes of an individual can vary with marital status. After getting married, individuals are observed to be more responsible and mature in outlook while giving any opinion about an issue. The result showed that an overwhelming number of respondents (80 per cent) were married while the remaining (20 percent) were still unmarried, and no respondents were found to be divorcees and widows/widowers. Education stands out as the most important characteristic that may influence an individual's attitudes to respond rationally as the response of an individual is likely to be determined by his or her educational status. Thus, it is quite necessary to know the educational background of the respondents before the answered questionnaire can be analysed. The findings indicated that approximately 70 per cent of respondents were educated up to a bachelor degree and, a relatively lesser number of them, about 17 per cent, were educated up to a master's degree. The number of respondents attaining a much higher education was very low, accounting for only about 3 per cent with a doctorate degree, whereas a similar percentage were undergoing foundation studies. Nonetheless, a considerable number of the respondents (6.7 per cent) had a college diploma.

The individual's occupation does have a bearing on his or her integrity and self-confidence, thus, it also reflects the willingness and attentiveness involved in answering the questionnaire with rationally mindful thought. In other words, the individual's response to an issue is conceivably determined by the category of occupation and the level of education, thereby being a decisive factor in an investigation by the researcher. It is also evident from Table 3.18, that more than half of the total respondents (53.3 per cent) were unemployed, while approximately 20 per cent were students. A number of the

respondents were also engaged in the sphere of freelance professionals (10 per cent), business owners (10 per cent) and corporate firm employees (6.7 per cent).

Income plays an important role in shaping the economic status of a person which in turn is likely to have a bearing on the responses on an issue posed to him. Accordingly, the researcher in this study attempted to investigate income as a factor. The results showed that an overwhelming number of respondents' income (66.7 per cent) was USD1000 and below, while about 33 per cent of them had an income of USD1001-3000 per month. In terms of the country of origin, an equal majority of respondents were from Bangladesh (33.3 per cent) and Malaysia (33.3 per cent) respectively, while those from Indonesia, China, and Saudi Arabia were found to be 7 per cent, followed by Thailand, Nigeria, Comoros and Jordan.

In order to look at the reliability of the pilot study, the Cronbach's Alpha value of 0.70 is considered as the fundamental value of any statistical exploration (Hair et al., 2010). Accordingly, for the pilot test, the reliability of the adopted items of a scale was measured using the Cronbach's Alpha. After collecting and analysing the data, the overall Cronbach's Alpha value of 0.910 with 66 items was obtained. Moreover, variable-wise Cronbach's Alpha was also computed to confirm the reliability of this study. Following the Cronbach's Alpha test, the accumulated test of reliability for the pilot study at hand ranged from 0.799 to 0.915 which revealed a significantly higher reliability (Table 3.17), hence, the reliability of the questionnaire in this study does not cast any shadow of doubt on ambiguity.

Table 3.17: Reliability Statistics of Pilot Study

Name of Variables	Cronbach's Alpha	Number of items
Shariah amenities	0.804	8
Physicians' services	0.877	7
Nurses' services	0.870	7
Healthcare technicality	0.799	6
Hospital environment	0.915	7
Administrative behaviour	0.899	6
Physical satisfaction	0.901	7
Emotional satisfaction	0.811	7
Spiritual satisfaction	0.886	5
Loyalty intention	0.898	6
All variables altogether	0.910	66

3.7   Data Collection Method

The questionnaires were distributed to both inpatients and out-patients at the fifteen hospitals in Malaysia. The researcher only focussed on the adult patients from three hospital units. These were orthopedic, surgery and medicine. Potential patients who came for a consultation for medical treatment were informed about the study and given the questionnaire. As mentioned earlier that random sampling technique was used for distributing and collecting questionnaires from both out-patients and in-patients in the hospitals. For out-patients, the respondents were chosen among those who had been hospitalised in the hospitals before. This ensured that the respondents had experience with services provided by the hospitals.

Data collection at the hospital is more challenging (Byrne, Jordan & Welle, 2013). It is due to the constraints of resources, time and reluctance of the hospitals to participate in the survey (Cheng Lim & Tang, 2000). Thus, to avoid the challenges that arise during data collection, at each hospital the researcher sought assistance from a medical administrative officer to distribute and collect the questionnaire. The medical administration officer introduced the researcher to the patients and explained the research. This quickened the data collection and helped ensure the data were collected from an

appropriate sample. This technique was also used by Aziz et al. (2003) who claimed its advantage in terms of speedy distribution and attainment of more reliable responses.

In quantitate research, it is mentioned that the larger the sample size, the smaller the sampling error would be, and the result would be more representative (Marshall, 1996; Seaman et al., 1999). Marshall (1996) postulated that larger sample sizes reduce bias and increase precision. This study distributed 750 questionnaires within the identified precincts. Before collecting the data, an ethical research approval letter (refer to Annexure E) was obtained from the University of Malaya Research Ethics Committee (UMREC). An introductory letter (refer to Annexure F) was also obtained from the supervisory committee, which clearly expressed the reason for this study to acquire consent from the chosen hospitals for conducting the study. The self-distribution approach was used for collecting data from the respondents.

Using the random sampling method, self-administered questionnaires were distributed to patients in Muslum friendly hospitals, in two major areas of the Klang Valley. Campbell et al. (2007) and De Chesnay (2014) suggested that administrative staff should cooperate during the data collection process to avoid the occurrence of any potential problems. Thus, for each hospital, a medical administration officer was selected as an enumerator to distribute and collect the questionnaires. This helped in speeding up the data collection and obtaining answers in terms of gender, ethnicity, etc. For this study, fifteen Muslim friendly private hospitals were purposively selected from Klang Valley enclaves (refer to Table 3.18), in which ten hospitals are located in Selangor and five hospitals are located in Kuala Lumpur. There is no record of the total number of Muslim patients who have received medical services in the aforementioned surveyed hospitals; therefore, the questionnaires were distributed based on the size of the hospitals using the random sampling technique.

The respondents' responses were essential for the success of this study, hence, the respondents were politely approached and requested to give their honest and truthful answers in completing the questionnaires, and they were ensured that their identities would be kept strictly confidential and would remain anonymous. The survey data were analysed in aggregate forms and used only for academic purposes. This process was started in July 2016 and completed in February 2017.

Table 3.18: Number of Hospitals in the Enclaves

Region	Enclave	No. of hospitals
Klang Valley	Kuala Lumpur	5
	Selangor	10
	Total	15

Out of the fifteen hospitals, two rejected the researcher's request to distribute questionnaires in their premises due to privacy concerns. However, the data collection continued until the 750 questionnaires were distributed in the other thirteen hospitals. Within each hospital, a minimum of 50 questionnaires and a maximum of 65 questionnaires were distributed based on the hospital capacity (refer to Table 3.19). On average, approximately ten to fifteen questionnaires were randomly distributed and collected from each of the hospitals every day. Using the random sampling technique, the researcher of this study was gathering data from the respondents in hospitals until the required number of sample is achieved.

As mentioned earlier that random sampling technique was used for distributing and collecting questionnaires from both out-patients and in-patients in the hospitals. For out-patients, the respondents were chosen among those who had been hospitalised in the hospitals before. Respondents comprised of patients from the wards (inpatients) - orthopedic, surgery and medicine departments-, and the out-patient clinics of the stated three departments in the hospitals. Respondents comprised of patients from the wards

(inpatients) - orthopedic, surgery and medicine departments-, and the out-patient clinics of the stated three departments in the hospitals. Based on the capacity of hospitals, a proportionate number of questionnaires were randomly distributed to the wards and at the clinics. Using the random sampling method, self-administered questionnaires were distributed to patients as respondents. A medical administration officer in every selected hospital was approached as an enumerator to distribute and collect the questionnaires.

The respondents of this study consisted of Muslim patients who had received services for at least one day from the hospitals and already discharged. Permission from the hospitals was requested before the survey conducted at their premises. Some of the hospital managers allowed the researcher to distribute the questionnaires and asked patients to return the questionnaires at the information/registration desk. While others preferred the researcher to wait on the premises until the respondents completed he questionnaires. The researcher physically distributed the questionnaire to Muslim patients and asked them to fill up the questionnaire. Most of the respondents completed the questionnaire willingly, while some respondents were not interested in participating in the research due to their illnesses. The researcher did not force them to fill up the questionnaire. Face-to-face communication was conducted as the medium of data collection for this survey. No monetary incentive was given to the respondents for participating in this study. Usually, data were collected from 9:00 a.m. to 3:30 p.m. on an alternate day over a period of 7.5 months, 18 July 2016 to 28 February 2017.

Envelopes were also provided with the questionnaires in order to ensure confidentiality of respondents. This was to encourage the participants to express their true feelings about the quality of services. The researcher then collected the envelopes containing the completed questionnaires. 750 questionnaires were distributed to the patients in hospitals, and 507 responses were received. Of these, 128 were found to have missing data. This finding of missing data was consistent with the study of Manaf (2012)

who found 173 missing data on the study title on "patient satisfaction in Malaysian public hospitals." Besides, Hair et al. (1998) and Manaf (2012) mentioned that one of the remedies in dealing with missing data is to delete the offending cases. Accordingly, cases with missing data were deleted and the remaining 379 usable questionnaires were analysed, which gave a response rate of 50.53 percent. This percentage of the usable response rate is considered to be very good, as it takes into consideration several constraints in terms of the patients' circumstantial condition, time and privacy. These constraints were postulated by Manaf and Abdullah (2012) as possible due to the patients' uneasy situation as well as their mental stress and ailing physical condition and inconvenient time.

According to Table 3.19, out of the fifteen hospitals that have been approached, two of the hospitals rejected the request to distribute questionnaires in their premises due to privacy concerns and only thirteen hospitals were agreed to allow the study to collect the data from their patients. The study has to use the quota / proportionate sampling based on the capacity of hospitals to these thirteen hospitals as to get the benefits of sufficient numbers of patients from every selected hospital to avoid the issue of bias (refer to Table 3.19). Then, the random sampling technique was used to select the patients (respondents). In sum, the study purposely selected Muslim Friendly private hospitals, whereby the proportionate for the numbers of patients from every hospitals and lastly, random sampling for collecting from patients.

Table 3.19: Questionnaire Distribution to Hospitals

No.	Name of hospitals	State	Distributed	Returned
1	Hospital Islam Az-Zahrah		55	40
2	Kelana Jaya Medical Center		65	52
3	Salam Shah Alam Specialist Hospital	Selangor	58	42
4	KPJ Kajang Specialist Hospital		60	42
5	Damansara Damai Medical Center		54	33
6	KPJ Damansara Specialist Hospital		55	29
7	Selangor Medical Center (KPJ)		50	33
8	KPJ Ampang Puteri Specialist Hospital		55	29
9	Pusat Perubatan Kohilal		-	-
10	IIUM Health Center		55	43
11	Hospital Danau Kota	Kuala Lumpur	-	-
12	Hospital Pakar Al Islam		65	45
13	Hospital Pusrawi		65	41
14	KPJ Tawakal Specialist Hospital		57	35
15	Sentosa Medical Center		56	43
	Total		**750 (D*)**	**507 (R*)**

Note: D*= Distribution questionnaire, R*= Return questionnaire.

3.8 Data Coding and Cleaning

To establish uniformity, the items in the questionnaire, including the respondent's general profile, main constructs, and the respondent's demographic profile, were coded in numeral values. Data cleansing is highly required for stringent accuracy of the estimation. It is a way of identifying the missing data which helps to correct and detect inconsistent values in the data (Robert, 2006; Han, Pei & Kamber, 2011). After collecting the questionnaires, the data cleansing technique was used to avoid any inconsistencies arising therefrom.

3.8.1 Missing Data

Missing data were identified in this study as those items were not answered by the participants, which had been inadvertently included in the data entry by the researcher. Ader (2008) suggested that the missing data could be minimized by the case-wise deletion

and ignoring the case that had a missing value. Sekaran and Bougie (2010) postulated that if the quantity of the missing data was more than 25 per cent, then it was better to exclude these questionnaires from the analysis. However, the missing data for nominal and ordinal (categorical), and scale types (quantitative) were checked through missing value analysis in SPSS Version 22.

The results revealed that the total survey item responses are composed of less than eight per cent of incomplete datasets. Thus, it was justifiable for them to be accepted for further analysis due to the minimum impact caused by the missing data. Further analysis was conducted to test whether the missing data can influence the observed data, which could potentially affect the overall results of the study. Through the use of Little's Missing Completely at Random (MCAR) test –for quantitative data test, the effects on the results were found to be statistically insignificant, as portrayed in Table 3.20.

Table 3.20: Missing Completely at Random Results

Characteristic	Value
Chi-Square	190.820
Def	221
Sig.	0.893

Table 3.20 shows the effects on the results statistically insignificant with 0.893 (p>0.05), which indicates that the data were missing in a random way. Thus, the missing data and their effects are not a problem with this study. However, further analysis was performed to estimate and impute the missing values through the expectation-maximization method. In this method, the quantitative data were grouped together based on similar subscales so that SPSS will calculate the missing data. A step was taken to reduce the indent value without the decimal points. The details of the replaced missing value using expectation-maximization are shown in Table 3.21.

Table 3.21: Replaced Missing Value Using Expectation-Maximization Method

ID Number	Item number	Original data value	Replace missing data value
56	Q3	Missing value	2
102	SA5	Missing value	3
70	PQ1	Missing value	1
201	NQ6	Missing value	5
62	PQ4	Missing value	2
96	TQ6	Missing value	6
234	PS4	Missing value	3

As shown in Table 3.21, there are seven items with missing values and were replaced with values estimated using the expectation-maximization method in SPSS. In relation to this, Q3 and PQ4 were replaced with scale response of 2, SA5 and PS4 with a scale response of 3 respectively, and lastly PQ1, NQ6 and TQ6 with a scale response of 1, 5 and 6 respectively. Thus, the incomplete data set of the study was replaced with no missing values for subsequent analysis in structural equation modeling technique.

3.8.2 Inconsistent Data

Sekeran and Bougie (2010) suggested that it is also essential to check the inconsistent and illogical data for the ascertainment of adequate estimation. In this study, a proper vigilance was mobilized to avoid this problem during the data entry. Using the structural equation modeling (SEM) technique, this issue was checked through using the Mahalanobis distance from the centroid, which helped, in one way or another, to detect outliers during the model estimation. Importantly, if the value of the P1 column is smaller than the P2 column, then the problem of outlier exists (Byrne, 2010). In this study, using the Mahalanobis test, the P1 column was found to be greater than the P2 column (refer to Annexure J) indicating that there was no inconsistent and illogical data present.

3.8.3 Normality and Outlier Assessment

A normality test was carried out in this study to check the skewness and kurtosis. Ghasemi and Zahediasl (2012) postulated that skewness and kurtosis explained the distribution of a dataset. Skewness measures the distribution of a data set, whilst kurtosis examines the flatness of a distribution. Trochim and Donnelly (2006), Field (2009), Gravetter and Wallnau (2014) suggested that validation of normality is determined by using a threshold value of ±2. Hence, all items have maintained an appropriate level of skewness and kurtosis ±2. This implies that the data are normally distributed. In addition, Hair et al. (2006) stated that within the value of ±2 standard errors of skewness and within ±3 standard errors of kurtosis, the normality of the data can be established. The results of the skewness and kurtosis values are as illustrated in Table 3.22.

Table 3.22: Skewness and Kurtosis Statistic

Constructs and Item	Mean Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
Shariah Amenities					
SA1	3.7467	-0.766	0.125	-0.520	0.250
SA2	4.1557	-1.035	0.125	0.697	0.250
SA3	4.6491	-1.090	0.125	0.879	0.250
SA4	4.0026	-0.851	0.125	0.340	0.250
SA5	4.2216	-0.811	0.125	0.644	0.250
SA6	4.2111	-0.952	0.125	0.513	0.250
SA7	4.1557	-0.996	0.125	0.447	0.250
SA8	4.8496	-0.890	0.125	2.227	0.250
Physicians' Services					
PQ1	4.3140	-1.038	0.125	0.965	0.250
PQ2	4.3562	-1.072	0.125	1.035	0.250
PQ3	4.3879	-0.571	0.125	0.421	0.250
PQ4	4.2876	-0.779	0.125	1.016	0.250
PQ5	4.1689	-0.984	0.125	0.849	0.250
PQ6	4.5409	-0.746	0.125	0.996	0.250
PQ7	4.7282	-1.061	0.125	0.953	0.250

Table 3.22: Skewness and Kurtosis Statistic (continue)

Constructs and Item	Mean	Skewness	Kurtosis	Constructs and Item	Mean
Nurses' Services					
NQ1	4.1451	-0.740	0.125	1.096	0.250
NQ2	4.3879	-1.058	0.125	0.989	0.250
NQ3	4.2982	-0.728	0.125	0.873	0.250
NQ4	4.1953	-0.714	0.125	0.829	0.250
NQ5	4.1768	-0.750	0.125	0.893	0.250
NQ6	4.4828	-1.027	0.125	0.729	0.250
NQ7	4.5752	-0.863	0.125	0.877	0.250
Healthcare Technicality					
TQ1	3.9789	-0.829	0.125	1.057	0.250
TQ2	3.8496	-0.614	0.125	0.486	0.250
TQ3	4.0185	-0.455	0.125	0.362	0.250
TQ4	4.4274	-0.904	0.125	0.790	0.250
TQ5	4.2401	-0.804	0.125	0.961	0.250
TQ6	4.6544	-0.914	0.125	0.764	0.250
Hospital Environment					
EI1	4.6544	-0.885	0.125	1.051	0.250
EI2	4.4802	-0.836	0.125	0.948	0.250
EI3	4.2876	-0.761	0.125	0.533	0.250
EI4	4.4274	-0.678	0.125	0.162	0.250
EI5	4.5910	-0.881	0.125	0.661	0.250
EI6	4.5066	-0.913	0.125	0.770	0.250
EI7	4.0079	-0.990	0.125	0.787	0.250
Administrative Behaviour					
AB1	3.9868	-0.741	0.125	0.735	0.250
AB2	4.2216	-0.866	0.125	0.692	0.250
AB3	4.2823	-0.749	0.125	0.818	0.250
AB4	3.7124	-0.638	0.125	0.144	0.250
AB5	4.3325	-0.815	0.125	1.003	0.250
AB6	4.2559	-0.719	0.125	0.572	0.250
Physical Satisfaction					
PS1	4.0976	-0.890	0.125	1.092	0.250
PS2	4.2718	-0.879	0.125	0.769	0.250
PS3	4.2032	-0.864	0.125	0.927	0.250
PS4	4.1689	-0.993	0.125	0.986	0.250
PS5	3.9578	-1.032	0.125	0.789	0.250
PS6	4.4142	-0.940	0.125	1.003	0.250
PS7	4.3272	-0.881	0.125	0.856	0.250

Constructs and Item	Mean	Skewness	Kurtosis	Constructs and Item	Mean
Emotional Satisfaction					
ES1	3.3351	-0.753	0.125	-0.164	0.250
ES2	3.4485	-0.610	0.125	0.116	0.250
ES3	3.8417	-0.795	0.125	0.587	0.250
ES4	4.0343	-0.786	0.125	0.693	0.250
ES5	4.2454	-1.066	0.125	0.688	0.250
ES6	4.0580	-0.964	0.125	0.866	0.250
ES7	3.8575	-0.992	0.125	0.867	0.250
Spiritual Satisfaction					
SS1	3.3747	-0.661	0.125	-0.157	0.250
SS2	3.1557	-0.559	0.125	-0.384	0.250
SS3	3.5356	-0.703	0.125	-0.017	0.250
SS4	3.6385	-0.732	0.125	0.099	0.250
SS5	3.5910	-0.750	0.125	0.098	0.250
SS6	4.7652	-0.981	0.125	0.801	0.250
Loyalty Intention					
IR1	4.1873	-0.893	0.125	1.048	0.250
IR2	4.0449	-0.814	0.125	0.984	0.250
IR3	4.1135	-0.835	0.125	0.816	0.250
IR4	4.1478	-1.011	0.125	0.761	0.250
IR5	3.9710	-0.922	0.125	0.830	0.250
IR6	3.6332	-0.844	0.125	0.145	0.250
IR7	3.7493	-0.896	0.125	0.337	0.250
IR8	4.2401	-1.078	0.125	0.852	0.250

From Table 3.22, the results indicated that no skewness and kurtosis values were in the extreme range (Skewness>2 or kurtosis>3), and it could be readily inferred that the data set was normally distributed. Importantly, the average highest mean score among all the variables was for hospital environment (4.422), whilst the lowest mean score was for spiritual satisfaction (3.876). The normality assessment was also carried out by measuring the skewness and kurtosis for every item using the SEM through the Maximum Likelihood Estimator (MLE). The results indicated that the absolute value of skewness was lower than 2.0 and the critical region did not exceed 8.0 (Zainudin, 2012). Similarly,

a critical region for the kurtosis did not exceed 3.0, which indicated that the data were normally distributed (refer to Annexure J).

A normality check is the pre-criteria to analyse the data using the SEM approach. Byrne (2013) indicated that normality was an important assumption to conduct the SEM approach. Ghasemi and Zahediasl (2012) postulated that a parametric test depended on the normality of the data. The normality test helps to identify the parametric/non-parametric technique to test the hypotheses. Bianchi and Saleh (2010) suggested that data outliers might cause the dataset not to be normally distributed. Thus, an attempt was made to find the outlier cases to test the Mahalanobis distance from the centroid using the SEM technique (refer to Annexure K). The results showed that there was no outlier, as the P2 column was smaller than the P1 column as suggested by Byrne (2010).

3.9   Reliability and Validity Assessment

The assessment of reliability and validity is the core of any research, as it measures the instrument's consistency over time (Gray, 2004). The reliability and validity are discussed below.

3.9.1   Reliability Assessment

Generally, instruments are confirmed reliable once they offer similar outcomes over time (Sekaran, 2000). Hair et al. (2006) commentated that reliability was the extent to which the variable is error-free and measures an accurate result. The reliability test refers to data analysis to determine the internal consistency using the Cronbach's alpha. Pallant (2010) indicated that the internal consistency is the point to which all items in the scale measured the same underlying characteristics. Hair et al. (2006) identified that a Cronbach's alpha value greater than 0.70 is considered as reliable while Malhotra (2010) suggested a value above 0.60 could also be accepted. However, Malhotra (2007) suggested that a higher alpha value indicates a higher reliability, whilst Hair et al. (2006) indicated a greater

reliability value provides a good prediction to the endogenous variables. Table 3.23 illustrates an overview criterion of the reliability.

Table 3.23: Assessment of Reliability

Characteristic	Description
Internal reliability	To measure the internal consistency, this study used Cronbach's alpha (α) coefficient value (cut-off point ≥ 0.70).
Construct reliability	Construct reliability is used to measure the composite reliability (cut-off point CR≥ 0.60).
Average variance extraction (AVE)	AVE was used to measure the relativity of this study (cut-off point AVE≥ 0.50).

Prior to the Cronbach's alpha test, the inter-item correlation was measured. From the literature, the inter-item correlation in the range of 0.15 to 0.50 is considered as an indicator of an acceptable level of consistency. Typically, Cronbach's alpha tested items producing values below 0.15 are considered as a poor inter-item correlation, suggesting that it is not well related to one another and may not be suitable for measuring a single construct. However, Cronbach's alpha tested items that are above 0.80 tend to be similar to one another or redundant. The inter-item correlation coefficient should not be too high (0.85) because this can give a problem of multicollinearity. In this study, the inter-item correlation was not less than 0.15 and did not exceed 0.85 (refer to Annexure I). Thus, the inter-item correlation result is considered to have no multicollinearity issues.

Accordingly, after the items were identified, the Cronbach's alpha test was carried out in this study. Cronbach's alpha is an indicator of scale reliability. This study employed the Cronbach's alpha coefficient value to measure the reliability of the measurement items where the Cronbach's alpha coefficient value lies between 0 and 1 whereby 1 is considered to be the highest value (Hair et al., 2010a). In this study, the Cronbach's alpha value was achieved at 0.913 with 69 items, indicating a significantly high reliability of this study (Table 3.24).

Table 3.24: Reliability Statistics

Characteristic	Value
Cronbach's alpha	0.913
Number of items	69

As a matter of fact, reliability is an extent of how reliable the said measurement model in is measuring the intended latent construct. The reliability can be evaluated by the following criteria, particularly, for a measurement model.

i.   Construct reliability: Construct reliability can be defined as the degree to which measurement items are explaining a factor. It is also determined by the composite reliability (CR) and the average variance extracted (AVE).

ii. Internal reliability: It can be defined as how strong the measurement items are holding together in assessing the variables. An internal reliability may be achieved if Cronbach's alpha value exceeds 0.70 by using SPSS.

iii. Composite reliability: It indicates the internal consistency of latent variables. Composite reliability can be achieved for a construct when its value is greater than 0.60.

Importantly, Lu et al. (2007) postulated that a composite reliability indicates the consistency of the items within the same construct. Taylor and Hunter (2003) advocated the concept that an AVE indicates the amount of variance that signifies the construct in relation to the variance caused by a measurement error. However, Lawson-Body and Limayem (2004) suggested that the acceptable CR value is 0.60 while Sridharan et al. (2010) postulated that CR>0.50 is also acceptable. Fornell and Larker (1981) stated that AVE>0.50 is required for a construct while Bourgeois et al. (2011) recommended that AVE>0.40 is also acceptable. The average variance extraction and composite reliability are calculated using the given formula (Table 3.25).

Table 3.25: Formula for AVE and CR

$\text{AVE} = \sum K^2 / n$	K = factor loading of every item and n = number of items in a model
$\text{CR} = (\sum K)^2 / [(\sum K)^2 + (\sum 1 - K^2)]$	

3.9.2   *Validity Assessment*

Usually, validity is considered as the capacity of instruments to measure the latent construct. The content validity refers to what extent the items represent the intended meaning of the construct. It is ensured by the review of literature and expert's opinion from the interview. Table 3.26 illustrates an overview criterion of the validity of this study.

Table 3.26: Assessment of Validity

Characteristic	Description
Content validity	The constructs of this study are investigated through the review of literature and expert's (Muslim patients) opinion from the interview.
Construct validity	Construct validity is measured by using exploratory factor analysis (EFA) under SPSS. It is also measured by using the SEM technique through the convergent and discriminant validity as well as fitness indexes of the structural model.
Convergent validity	To measure the convergent validity of this study, an average variance extraction was employed (cut-off point AVE≥0.50).
Discriminant validity	To measure the discriminant validity of the study, a correlation among exogenous constructs was used (cut-off point ≤0.85).

There are three types of validity that are required for a measurement model, namely, a) convergent validity, b) construct validity and c) discriminant validity. The assessment of validity for a measurement model can be made by using the following criteria.

i.   Construct validity: Construct validity can be achieved by acceptable requirement levels of fitness indexes. The fitness indexes signify how fit the

items in measuring the latent variables are. Construct validity is also identified by using a convergent validity and a discriminant validity.

ii. Convergent validity: It is achieved when all items in a measurement model are significant. It is also verified by computing the AVE of a construct. The AVE value must be ≥ 0.50 for attaining the validity. Thus, the lower factor loading items in a model may cause the variable to fail in the convergent validity. Hair et al. (2010a) suggested that the standardized factor loading value >0.50 was acceptable to achieve the convergent validity.

iii. Discriminant validity: It indicates that the measurement model of variables is free from redundant items which can be identified through the Modification Indices (MI). The researchers can either delete the identified items or constrain the redundant pair as a 'free parameter estimate'. In addition, discriminant validity can also be identified through a correlation among the independent variables that should not exceed 0.85. The correlation value exceeding 0.85 indicates the presence of a serious multicollinearity problem. Nusair and Hua (2010) stated that discriminant validity could be assessed by using the average variance extracted. Hair et al. (2006) suggested that an AVE ≥ 0.50 was acceptable for discriminant validity. However, for determining a construct validity, an Exploratory Factor Analysis (EFA) was conducted in this study.

3.10   Assessment of EFA

An Exploratory Factor Analysis (EFA) is an important method of statistical assessment as it combines a sizeable number of data into a smaller number of factors with little loss of information (Hair et al., 2010). In this study, an EFA was used to identify the medical care quality services that influenced the Muslim patients' satisfaction and the loyalty intention for future medical treatment at hospitals. Typically, the purpose of an EFA is to

refine the data so as to identify a set of interrelated constructs that reveal the original structure of the constructs. According to Malhotra (2007), an EFA is used for summarizing the data of interrelated constructs. In fact, an EFA is used to check whether the items are in the right constructs.

Additionally, the purpose of the EFA is to identify whether the items of the variables are to be loaded together with some items of the variables taken from various sources. Moreover, the EFA may define the number of factors and correlations that exist. Hair et al. (2010) indicated that if the Kaiser-Meyer-Olkin (KMO) value is within the range of between 0.50 and 1.0 then the EFA could be significantly appropriate for the data. Bartlett's test of sphericity is also used to ensure the appropriateness of an EFA, which is achieved when the p-value is significant.

To assess the criterions of the constructs, this study had analysed 379 respondents through the exploratory factor analysis which was conducted by using the Principal Component Analysis (PCA) under the SPSS. The EFA also helped to identify the internal consistency among the constructs. The initial interrelationship among the 69 items was verified using the communalities analysis. The results found that three items, namely, EI7 (The hospital provides sophisticated praying infrastructures (eg. prayer room, signage, wudhu facilities), PS6 (The Islamic dress code in this hospital), and SS6 (Praying makes me feel better) had an extraction value of less than 0.50 (refer to Annexure L). Sekaran and Bougie (2010) suggested that a value of less than 0.50 should be excluded. Therefore, these items (EI7, PS6, and SS6) were deleted for further analyses and the rest of the 66 items had shown a significance of above 0.50 with an internal consistency. Pallant (2010) also postulated that a lower factor loading value of <0.50 should be deleted for further analyses.

3.10.1 Assessment of KMO and Bartlett's Test

A Kaiser-Meyer-Olkin (KMO) test and Bartlett's test are required to check the sample adequacy of the data. The KMO values of the exogenous and the endogenous variables altogether were 0.850, indicating a very significant adequacy of data in this study. Hair et al. (2010b) suggested that the KMO values should be within the range between 0.50 and 1.0.

Table 3.27: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.850
Bartlett's Test of Sphericity	Approx. Chi-Square	20932.464
	df	2346.000
	Sig.	0.000

The Bartlett's test of sphericity is also very significant when the p-value = 0.000, indicating that no multicollinearity exists among the constructs and all the constructs are appropriate for the factor analysis. Table 3.27 presents the KMO measurement of sampling adequacy and Bartlett's Test of Sphericity.

3.10.2 Scree Plot and Variance Explained

The number of factors can be identified with the given Eigenvalue through the scree plot. Hence, Eigenvalue >1 as a benchmark, identifies the eight extracted factors with a total of 69 items. Figure 3.3 presents the scree plot of the Eigenvalues for all the extracted factors. This graph helps to identify the number of factors that can be retained for further analyses. According to the graph, it is assumed that the curve starts to flatten between factor 7 and 9. Table 3.27 also explains eight factors having an Eigenvalue greater than 1. Thus, this study had retained eight factors for further analysis.
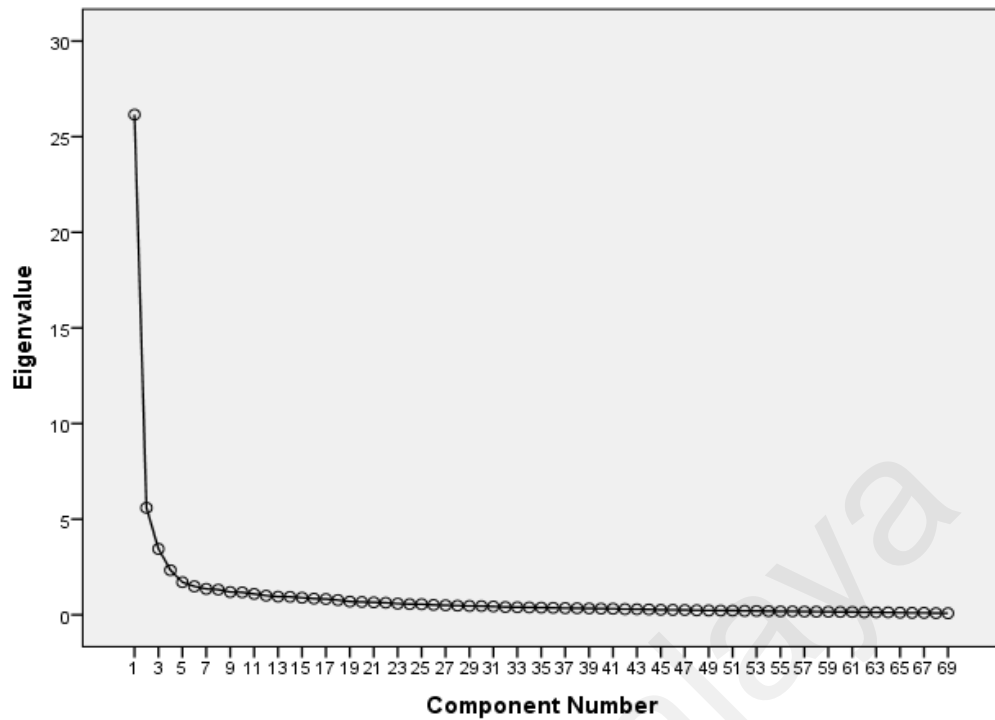
Figure 3.3: Scree Plot

Table 3.28 shows the extracted eight factors which explain 61.41% of the total variance, which is suitable for social science research as suggested by Hair et al. (2010a). All these eight factors were named as: i) Shariah amenities, ii) physicians' services, iii) nurses' services, iv) healthcare technicality, v) hospital environment, vi) administrative behaviour, vii) satisfaction and viii) loyalty intention.

Table 3.28: Total Variance Explained

Co	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Var.	Cum %	Total	% of Var.	Cum %	Total	% of Var.	Cum m%
1	44.52	36.14	36.14	44.52	36.14	36.14	16.17	13.12	13.12
2	10.78	8.75	44.89	10.78	8.75	44.89	13.26	10.76	23.89
3	8.57	6.96	51.85	8.57	6.95	51.84	16.47	13.37	37.26
4	3.69	2.99	54.84	3.69	2.99	54.84	10.36	8.41	45.67
5	3.34	2.71	57.55	3.34	2.71	57.55	4.78	3.88	49.56
6	2.81	2.28	59.84	2.81	2.28	59.84	5.10	4.14	53.70
7	2.49	2.02	61.86	2.49	2.02	61.86	5.17	4.19	57.90
8	2.37	1.93	63.79	2.37	1.93	63.79	4.31	3.50	61.41

Note: Extraction Method: Principal Component Analysis. Only components with Eigen values ≥1 are shown. Co=Component, Var. =Variance, Cum=Cumulative.

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3.10.3   Rotated Factor Matrix

This study determined eight-factor solutions and illustrated the correlation between the variables and the measured items. Table 3.29 shows the rotated eight-factor matrix which depicts the association of each item to the related factors which, to a greater extent, is related to the Muslim patients' needs. The findings indicated that 66 items were sorted into eight factors, with the exception of items EI7, PS6 and SS6. These 3 items were found to have a lower factor loading (cut-off point ≥0.50) and were misplaced in the rotated factor matrix. Therefore, these items were deleted for the internal consistency of the study.

The factor loadings for all these items were loaded together to give a value >0.50, which were indicated as significant (Hair et al., 2010a). In addition, Sekaran and Bougie (2010) stated that the item communalities value should be ≥ 0.50 for each item. The result also identified that none of the item communalities were less than 0.50 after deleting the three items. Thus, all items of the different constructs were significant for further analyses.

Table 3.29: Rotated Factors Matrix

Characteristics	Factor loading	Communalities
Factor 1: Shariah amenities	F1	F1
[SA1] The hospital provides a copy of the Holy Quran in the prayer room	0.677	0.584
[SA2] The hospital provides Shariah-compatible toilets	0.588	0.535
[SA3] The hospital provides halal foods and drinks	0.718	0.570
[SA4] The hospital provides a prayer room for each ward for Muslim patients	0.792	0.673
[SA5] The hospital provides prayer amenities (times [Azan], mats, direction of Qiblat, wudhu) in the prayer room	0.789	0.674
[SA6] The hospital provides the health care staff of the same sex for the patient where possible	0.548	0.545
[SA7] The hospital provides an ablution pipe for *solat* purposes	0.728	0.649
[SA8] The hospital provides halal medicines for the Muslims	0.579	0.604

Characteristics	Factor loading	Commu nalities
Factor 2: Physicians' services	F2	F2
[PQ1] Physicians inform me regarding the use of vaccines that are porcine in origin	0.626	0.565
[PQ2] Physicians seek clarification from me when they are unsure about Islam protocols	0.675	0.600
[PQ3] Physicians respond promptly to my request	0.684	0.626
[PQ4] Physicians understand my specific problem	0.692	0.641
[PQ5] Physicians are very sympathetic towards me	0.646	0.539
[PQ6] Physicians respect my privacy	0.636	0.637
[PQ7] Physicians respect my modesty and religious beliefs	0.582	0.656
Factor 3: Nurses' services	F3	F3
[NQ1] Nurses clean body parts that are contaminated by blood, or urine so that I may conduct prayers	0.661	0.590
[NQ2] Nurses are ever willing to help me	0.718	0.662
[NQ3] Nurses respond promptly to my requests	0.707	0.689
[NQ4] Nurses respect Muslim values and principles	0.700	0.686
[NQ5] Nurses are very sympathetic towards me	0.695	0.663
[NQ6] Nurses respect my privacy	0.661	0.635
[NQ7] Nurses respect my modesty and religious beliefs	0.627	0.644
Factor 4: Healthcare Technicality	F4	F4
[TQ1] This hospital uses up-to-date equipment	0.579	0.564
[TQ2] This hospital provides service on time	0.646	0.595
[TQ3] This hospital fulfills the promised service at the promised time	0.632	0.594
[TQ4] This hospital keeps accurate records and documents	0.589	0.538
[TQ5] This hospital has adequate consulting rooms	0.612	0.538
[TQ6] This hospital provides a stable of amenities (e.g. water and electricity).	0.603	0.533
Factor 5: Hospital Environment	F5	F5
[EI1] This hospital has a clean and hygienic appearance	0.676	0.633
[EI2] The waiting room of this hospital is pleasant	0.692	0.642
[EI3] The surrounding area of this hospital is quiet	0.632	0.505
[EI4] The rooms of this hospital are pleasant	0.711	0.661
[EI5] This hospital is located in a safe and secure place	0.686	0.604
[EI6] The consultation rooms of this hospital are clearly sign-posted	0.608	0.547

Table 3.29: Rotated Factors Matrix (continue)

Characteristics	Factor loading	Communalities
Factor 6: Administrative behaviour	F6	F6
[AB1] The administrative procedures of this hospital (paperwork and paying off bills) are fast and easy	0.538	0.597
[AB2] The administrative staffs of this hospital respect my concerns	0.565	0.621
[AB3] The administrative staff of this hospital are courteous	0.553	0.642
[AB4] The administrative staff of this hospital give me *salam*	0.507	0.607
[AB5] The administrative staff of this hospital are treating me with respect and dignity	0.547	0.666
[AB6] Overall, I have confidence in this hospital's administrative system	0.604	0.657
Factor 7: Physical satisfaction	F7	F7
[PS1] I am satisfied with the medical treatment provided in this hospital	0.662	0.595
[PS2] I am satisfied with the feeling of security in receiving treatment here	0.681	0.617
[PS3] I am satisfied with the physicians who treated me	0.649	0.612
[PS4] I am satisfied with the nurses who treated me	0.614	0.557
[PS5] I am satisfied with the prayer facilities in this hospital	0.572	0.570
[PS7] I am satisfied with the availability of halal foods and drinks	0.527	0.573
Factor 8: Emotional satisfaction	F8	F8
[ES1] Medical professionals in this hospital offer advice on the atonement (*Tauba*) by seeking divine grace through prayer	0.665	0.685
[ES2] Medical professionals in this hospital offer advice on seeking Allah's love, protection, and care	0.699	0.718
[ES3] Medical professionals in this hospital help me to overcome my fears/concerns about the outcome of medical treatment	0.525	0.670
[ES4] Medical professionals in this hospital give me credible hope or encouragement	0.591	0.703
[ES5] Medical professionals in this hospital respect my beliefs and opinions	0.604	0.672
[ES6] Medical professionals in his hospital listen to my fears, hopes, pain, and dreams	0.719	0.714
[ES7] Medical professionals in this hospital help me cope with my sense of loss.	0.536	0.756

Table 3.29: Rotated Factors Matrix (continue)

Characteristics	Factor loading	Communalities
Factor 9: Spiritual satisfaction	F9	F9
[SS1] Medical professionals in this hospital pray for/with me for my health and rapid recuperation	0.721	0.671
[SS2] Medical professionals in this hospital advise me to read the Holy Qur'an	0.774	0.733
[SS3] Medical professionals in this hospital recite "bismillah" before my medical procedure	0.759	0.665
[SS4] Medical professionals in this hospital help me to appreciate Allah cares for people whom I love.	0.813	0.725
[SS5] Medical professionals of this hospital actively address my other spiritual needs (trust, faith, and love to Allah).	0.810	0.716
Factor 10: Loyalty intention	F10	F10
[IR1] I would visit this hospital again due to its ease of accessibility to treatment	0.625	0.578
[IR2] I would recommend other people to this hospital because of the Muslim-friendly medical services.	0.517	0.684
[IR3] I would visit this hospital again because healthcare professionals are consistently courteous and respectful to me	0.620	0.686
[IR4] I would visit this hospital again due to its Muslim friendly healthcare practices	0.544	0.628
[IR5] I intend to revisit this hospital because the physicians are aware of the presence of potentially non-Halal ingredients in medicines	0.579	0.586
[IR6] I intend to revisit this hospital because the physicians discuss any Haram ingredients of medicines with me	0.726	0.636
[IR7] I intend to revisit this hospital due to its explanations of Halal alternatives of medication	0.727	0.626
[IR8] I intend to revisit this hospital due to its precise and clear explanation of my treatment results	0.531	0.506

3.10.4 Variable-Wise Reliability Test

A variable-wise Cronbach's alpha coefficient value was computed to ensure the reliability of the extracted variables and items from the exploratory factor analysis. The reliability results indicated that all the variables had the required level of Cronbach's alpha values > 0.70. Hence, the Cronbach's alpha value of each variable ranged between 0.828 and 0.939, indicating the presence of a significantly high reliability, thus achieving the internal consistency (Table 3.30).

Table 3.30: Reliability Score

Variables	Cronbach's Alpha value	Item
Shariah amenities	0.869	8
Physicians' services	0.828	7
Nurses' services	0.847	7
Healthcare Technicality	0.872	6
Hospital Environment	0.903	6
Administrative behaviour	0.885	6
Physical satisfaction	0.842	7
Emotional satisfaction	0.905	7
Spiritual satisfaction	0.886	6
Loyalty intention	0.890	8

3.10.5 Multicollinearity Assessment

Multicollinearity refers to a high correlation among the predictors (independent variables) that provide redundant information on the responses. High multicollinearity among the independent variables weakens the predicting power of the independent variables (Hair et al., 2006). Kothari (2004) postulated that a high multicollinearity among the independent variables gives ambiguous results, while Hair et al. (2006) indicated it reduces the total variance explained into dependent variables.

A multicollinearity may also be checked through the Tolerance and Variance Inflation Factor (VIF). O'Brien (2007) stated that any VIF above 10 indicates the presence of a serious multicollinearity problem. According to Hair et al. (2006) and Robert (2006), the 'Tolerance' value of less than 0.10 and a VIF value of more than 10 indicate a redundancy in the independent variables. By considering the suggested conditions, the dataset was analysed using the SPSS and the results are as shown in Table 3.31. However, in this study, a coefficient result showed that the 'Tolerance' value is greater than 0.10 and the VIF value is less than 10 (Table 3.31), which are within the acceptable range as suggested by Hair et al. (2006). Thus, it can be rationally assumed that there are no serious issues regarding any occurrence of multicollinearity problems in this study. Therefore, further statistical analyses can be carried out to test the proposed model and hypotheses.

Table 3.31: Coefficients

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constants)	1.376	1.475		0.933	0.352		
	SA	0.100	0.035	0.100	2.857	0.012	0.665	1.505
	PY	0.227	0.035	0.227	6.485	0.000	0.399	2.509
	NQ	0.231	0.052	0.231	4.442	0.000	0.387	2.450
1	HT	0.134	0.080	0.134	1.675	0.095	0.357	2.799
	AB	0.164	0.080	0.164	2.050	0.046	0.329	3.042
	HE	0.024	0.074	0.024	0.321	0.748	0.304	3.292
	MPS	0.285	0.021	0.285	13.395	0.000	0.432	2.315

Note: Dependent Variables: Loyalty intention, SA=Shariah amenities, PY= Physicians' service, NS= Nurses' service, HT=Healthcare technicality, AB=Administrative behaviour, HE= Hospital Environment, MPS=Muslim patients' satisfaction.

3.11 Structural Equation Modelling (SEM)

A structural equation modeling (SEM) is a sophisticated statistical tool which requires the sample size to be adequate and accurate to successfully run the test on the SEM (Iacobucci, 2010; Byrne, 2010; Hair et al., 2016). Hair et al. (2006) suggested three techniques in SEM analysis; confirmatory modelling technique (single model analysis), competing model analysis and model develop strategy (respecoifcation model). SEM is used to assess the single model analysis technique in line with Hair et al. (2006). The factor solution of exploratory factor analysis was measured in confirmatory factor analysis using SEM and the fit of the model was assessed which reflects the validity and reliability of the scale.

Hair et al. (2010b) suggested that the sample size needs to be large to carry out the SEM technique because the outcomes might become unreliable with smaller samples. Hair et al. (2013) commented that a minimum sample size of 200 and a maximum size of 400 are the standard range for the SEM statistical tool. Sideridis et al. (2014) speculated that a sample size exceeding 400 in using the SEM might produce a poor result of the goodness-of-fit indices. Thus, an appropriate standard sample size is preferable as it allows data analyses to achieve good results. Schumacker and Lomax (2004) stated that

several researchers have tested the theoretical model hypotheses by using the SEM technique that produces good confirmatory results.

This study used the SEM technique for data analyses. In fact, the SEM is a multivariate analytical technique that can explain the relationship between the endogenous and the exogenous constructs. Byrne (2010) stated that a measurement error could be assessed by the SEM (Structural equation modeling) which performs a confirmatory factor analysis (CFA), causal relationship, path analysis and a covariance structural analysis (Sekaran & Bougie, 2011). Iacobucci (2010) postulated that the number of items to measure the variables through the SEM should be a minimum of 3 and the data should be normal to carry out the SEM technique. Hair et al. (2010a) indicated that data from a normal distribution might inflate the chi-square statistics. Thus, normality is a significant assumption that needs to be reviewed prior to the use of a structural equation modeling approach which is confirmatory in nature.

Sekaran and Bougie (2011) indicated that an SEM has two parts which are a measurement model and a structural model. A confirmatory factor analysis is used to check the relationship among all constructs. It is also used to identify the reliability, validity, and unidimensionality of a structural model. The SEM was used in this study to test the measurement model and causal relationship among the constructs. Generally, the SEM combines both the measurement model and the structural models. The structural model is carried out after conducting the measurement model through the confirmatory factor analysis. Kumar et al. (2008) stated that the SEM has a higher analysing ability to check measurement errors, nonlinearities, correlated error terms, modelling interactions and dependent/independent relationships, thus, this study used the SEM technique to test the relationship between the independent variables (medical care quality services) and the mediating variables (Muslim patients' satisfaction) as well as the dependent variables (Muslim patients' loyalty intention for medical treatment) on the conceptual framework.

3.11.1 Model Fit Indices

The purpose of exploratory-model fit indices is to determine the degree to which the data reflects the fitness of the model by using the structural equation modeling technique (Schumacker & Lomax, 2004). There are numerous model fit indices which are recognized in the literature. However, Zainuddind (2012) stated that the evaluation of a model fit for a measurement model and a structural model is not universally agreed upon among the researchers regarding which fitness index should be used. Accordingly, Hair et al. (2010a) and Holmes-Smith et al. (2006) suggested that it is not necessary to resort to the entire model fit indexes to measure the model as they could be unnecessarily redundant. Thus, Chinna (2009) and Hair et al. (2010b) suggested 3 types of fit indices that could be used to assess the model fit, namely, absolute fit, incremental fit, and parsimony fit.

3.11.2 Absolute Fit

An absolute fit measures the model's overall fitness with a sample data. Hooper et al. (2008) and Hair et al. (2010a) postulated that an absolute fit indicates how well the proposed theory could comfortably fit the data. There are many measures available for absolute fit measurements. However, the most important measure of absolute fit is the chi-square (χ^2) statistic and root mean square error of approximation (RMSEA). The chi-square value and the associated degree of freedom (df) are commonly well-known as 'cmindf' which should be less than 3. Nonetheless, in some cases, a chi-square value of 5 is acceptable as suggested by Hair et al. (2010b). In terms of RMSEA, Hair et al. (2010a) postulated that the value should be less than 0.08.

3.11.3 Incremental Fit

An incremental fit helps to measure how good a specified model fits the relationship with a null model and an alternative model. Shah and Goldstein (2006) posited that there are many incremental fit indices which frequently used, such as, the compared fit index (CFI) and the incremental fit index (IFI). Hair et al. (2010b) suggested that the GFI, TLI, CFI and the IFI values should be ≥ 0.90, whilst, Hooper et al. (2008) and Maroco (2010) recommended that a lower value is acceptable for the complex model.

3.11.4 Parsimony Fit

A parsimony fit index examines the adjusted R^2 values. Byrne (2010) mentioned that a parsimony fit index helps to evaluate the hypothesized model. The most common parsimony fit indices can be determined based on the Parsimony Comparative of Fit Index (PCFI) and the Parsimony Normed Fit Index (PNFI). These two goodness-of-fit indices help to find the best model (Meyers, Gamst & Guarino, 2006; Hsu et al., 2014). Hair et al. (2010a) and Kline (2011) postulated that the recommended threshold ≥ 0.50 is considered as a good fit for both the PCFI and the PNFI.

3.11.5 Model Specification

Generally, fit indices cannot possibly embrace the entire requirements of the model with respect to judging the adequacy of its fit to the data (Byrne, 2010). Fit indices cannot guarantee that a model is useful, rather it yields information bearing specifically only on the model's lack of fit. Thus, an assessment of a model's adequacy should be based on multiple criteria, such as theoretical, practical and statistical considerations. The recommended value of a goodness-of-fit index only provides a statistical significant aspect to a specific model (Marsh, Hau & Wen, 2009). Therefore, it is suggested that proper attention needs to be focused on the limitations of using the goodness-of-fit

indices. Hair et al. (2010a) posited that a goodness-of-fit index depended on the model characteristics, for example, the sample size and the model complexity.

A simple model with small samples can be made into a standard model while a complex model with large samples can contain a large number of measured constructs and parametric estimates. Therefore, for the model complexity, multiple fit indices need to be used in assessing a model's goodness-of-fit. The fit indices must be included at least in one measurement from each type of the fit indices. Table 3.32 presents the model fit indices and the recommended cut-off points with sources of research.

Table 3.32: Model Fit Indices and Acceptance Level

Types	Index	Source	Threshold Value	Comments	Sources of acceptance level
Absolute Fit	cimn(χ^2)/ df	Hair et al. (2010a)	< 3.0	<3.0-5.0 acceptable.	Byrne (2006)
	RMSEA	Hair et al. (2010a)	≤ 0.08	Lower value suggests a better model fit.	Hooper et al. (2008), Tabachnick and Fidell (2007)
Incremental Fit	CFI	Hair et al. (2010a)	≥ 0.90	Range 0 to 1, higher value indicates better fit.	Chinna (2009), Hair et al. (2010a)
	GFI	Hair et al. (2010a)	≥ 0.90	Range 0 to 1, higher value indicates better fit.	Chinna (2009)
	IFI	Akhavan et al. (2013)	≥ 0.90	Range 0 to 1, a higher value indicates better fit.	Chinna (2009)
	TLI	Hair et al. (2010a)	≥ 0.90	Range 0 to 1, a higher value indicates better fit.	Chinna (2009), Hair et al. (2010a)

Types	Index	Source	Threshold Value	Comments	Sources of acceptance level
Parsimony Fit	PCFI	Kanchana pibul et al. (2014)	> 0.50	A higher value suggests a better model fit	Meyers et al. (2006)
	PNFI	Hair et al. (2010a)	> 0.50	A higher value suggests a better model fit	Meyers et al. (2006)
	CMIN/D F (χ^2/df)	-	≤5.0	Less than 3.00 is preferred	Schumacker and Lomax (2004)
	PRATIO	-	>.90	-	Hair et al. (2006)
Other Important Fit Indices	HOELT ER 0.05	-	>200	-	Hair et al. (2006) and Kline (2005)
	HOELT ER 0.01		>200		

3.12   Summary of the Chapter

The chapter focuses on the research framework and proposed hypotheses that illustrate the effects of medical services quality from a Muslim perspective (input) on the Muslim patients' satisfaction and their loyalty intention for future medical treatment (output). It also explains the mediating effect of Muslim patients' satisfaction between Muslim-friendly medical service quality and loyalty intention of Muslim patients. The chapter discusses a detailed data collection method. Prior to that, an ethical approval letter was obtained from the University of Malaya ethics committee, and a cover letter was obtained from the supervisory committee for conducting this study. Permission from the selected hospitals was acquired before the data collection. The participants were assured of the confidentiality before answering the questionnaire. This chapter also discusses the survey instruments and sampling designs covering the target population and sampling

techniques. Prior to the final data collection, the researcher performed pre-tests and a pilot test to ensure the reliability of the instrument. The survey medium and data analysis plan are as illustrated in this section. The procedure of the reliability and validity tests are also explicitly explained. Lastly, the analytical procedure of the SPSS and structural equation modeling technique, exploratory factor analysis (EFA) and fit indices for the confirmatory factor analyses are broadly discussed.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.1   INTRODUCTION

This chapter explains the results which were obtained from the data analysis of the study. The data was run into the statistical package for the social science (SPSS) and analysis of moment structures (AMOS) software to analyse and validate the research framework. The statistical analyses performed included a descriptive analysis and a confirmatory factor analysis (CFA). The goals of this chapter are to describe the response rate of the participants, the respondents' general information and their demographic profiles using the SPSS software.

A structural equation modelling (SEM) technique was run to evaluate and analyse the overall measurement model and the structural model in this study. The SEM was used to explore the relationship among the different salient variables which in turn influenced the Muslim patients' satisfaction and their loyalty intention for medical treatment and to test the hypothesis of this study. Figure 4.1 enlightens the data analytical process using the two-step technique in the SEM analysis.
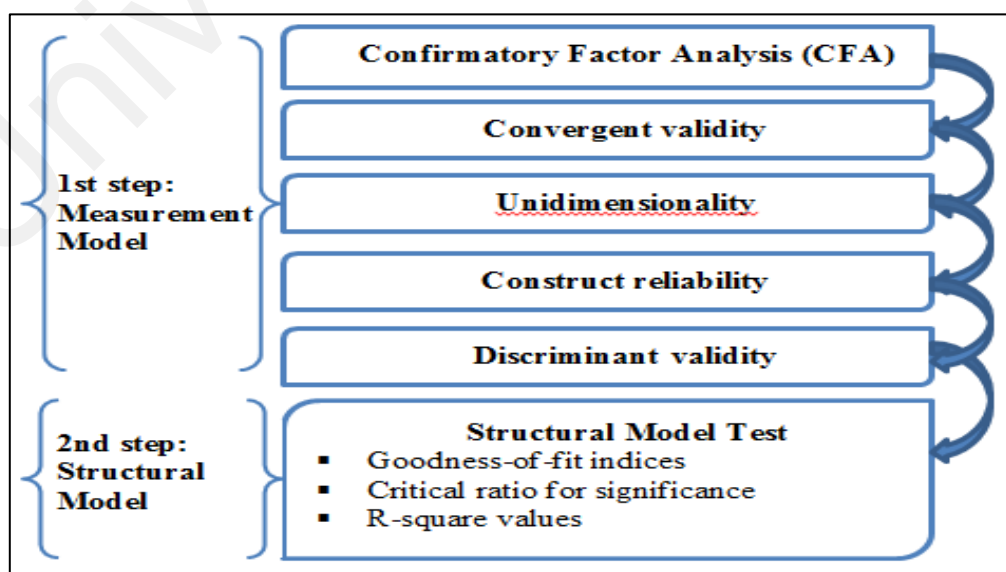
Figure 4.1 : SEM Analysis Process

4.2   Demographic Analysis

The respondents' demographic profile and general profile were analysed based on the 379 usable respondents' relevant responses. The demographic information of the participants was categorized into gender, age, marital status, education, monthly income, occupation and country of origin. The respondents' general profile included reasons to visit the hospital, the frequency of visits for medical treatment, hygienic standard of the hospitals, degree of interest in receiving the Muslim-friendly medical treatment at hospitals and the extent of familiarity with Malaysia as a Muslim-friendly medical service provider. Further explanations are as presented below.

4.2.1   Response Rate of the Participants

The sample size consisted of a total of 379 respondents and was used for data analysis from a total of 750 distributed questionnaires. A purposive sampling technique was used for collecting data from the selected fifteen private hospitals in Kuala Lumpur and Selangor area. The data collection process started on the first week of August 2016 and was completed on the first week of March 2017, taking more than seven months to perform the task. A total of 750 questionnaires were distributed of which 507 were returned, providing a return rate of 67.60 per cent.

Only 379 questionnaires were usable for data analysis with a response rate of 50.53 per cent. Hence, the respondents' response rate was significant and was accepted, as Manaf and Nooi (2009) and Manaf et al. (2012) suggested that if the survey population consisted of patients, the response rate would be low due to the fact that the patients were sick and not in their best mental and physical situation to rationally answer the questions. Thus, this response rate was good enough to conduct the analysis. Table 4.1 shows the respondents' response rate in this study.

Table 4.1: Response Rate

Characteristic	Sample size/response rate
Distributed questionnaires (Sample size)	750
Returned questionnaires	507
Incomplete questionnaires/missing information	128
Total valid questionnaire	379
Returned rate of the respondents	67.60%
Response rate of the respondents	50.53%

4.2.2 Background of the Participants

The Muslim patients' background is important when providing general views on the Muslim-friendly medical services. Accordingly, Table 4.2 presents the respondents' general profile. In terms of the respondents' visit hospital for medical treatment, the majority of the respondents visited the hospital for treatment of illness (58.3%) and for medical check-up (28.8%), as well as for improving their health (12.4%). Half of the respondents stayed at the hospitals for 1 to 2 nights (50.3%) followed by respondents who stayed at the hospital 3 to 4 nights (30.5%) and over 4 nights (19.2%) respectively. In the last one year, the majority of the patients visited the hospitals 1 to 2 times (48.3%) and 3 to 4 times (30.9%) respectively. The rest of them visited the hospitals 5 to 6 times (12.9%) and over 6 times (7.9%) for medical treatment.

In terms of the hygienic standard of the hospitals, the majority of respondents indicated that the hospitals were hygienic and very hygienic (64.1%), somewhat hygienic (15.6%), not sure (12.4%), and while the rest indicated very unhygienic and neither hygienic nor unhygienic (8.0%). The majority of the participants (78.5%) were interested and very interested to receive the Muslim-friendly medical treatment at the hospitals, whilst, only 21.6 per cent were somewhat interested, uninterested and not at all interested. Most of the respondents were quite familiar (34.8%) with Malaysia as a country which offers Muslim friendly medical services, while those who were a bit familiar was 24.0 per cent, whereas 16.9 per cent were unsure. However, only 14.8 per cent of them were

very familiar and 9.5 per cent were very unfamiliar or a bit unfamiliar about the country

offering Muslim friendly medical services.

Table 4.2: Respondents' Background

Characteristics	Frequency	Per cent
Reasons to visit hospital for medical treatment		
To have a medical check up	109	28.8
To improve my health	47	12.4
To cure an illness	221	58.3
Medical care	2	0.5
Stay at hospital for medical treatment		
1-2 nights	189	49.9
3-4 nights	131	34.6
Over 5 nights	59	15.5
Visit at hospital during the last 1 year		
1-2 times	183	48.3
3-4 times	117	30.9
5-6 times	49	12.9
More than 6 times	30	7.9
Hygienic standard at hospital		
Very unhygienic	15	4.0
Neither hygienic nor unhygienic	15	4.0
Unsure	47	12.4
Somewhat hygienic	59	15.6
Hygienic	185	48.8
Very hygienic	58	15.3
Interested to receive Muslim-friendly medical treatment at hospitals.		
Not at all interested	10	2.6
Uninterested	11	2.9
Somewhat interested	61	16.1
interested	127	33.5
Very interested	170	44.9
Familiar to be with Muslim-friendly medical service provider.		
Very unfamiliar	14	3.7
A bit unfamiliar	22	5.8
Unsure	64	16.9
A bit familiar	91	24.0
Quite familiar	132	34.8
Very familiar	56	14.8

4.2.3 *Demographic Information of the Participants*

The respondents' demographic profile is as shown in Table 4.3. Gender is a critical

component in Muslim-friendly medical services given at hospitals. In this study, from a

total of 379 respondents, 52.2% were females, whilst 47.8% were male patients. Age was one of the most important characteristics in understanding their views on Muslim-friendly medical-care quality services at hospitals.

Table 4.3: Respondents' Demographic Profile

Characteristics	Frequency	Per cent
Gender		
Male	181	47.8
Female	198	52.2
Age		
Less than 25 years old	10	2.6
26-35 years old	252	66.5
36-45 years old	77	20.3
46-55 years old	34	9.0
56 years and above	6	1.6
Marital status		
Single	135	35.6
Married	243	64.1
Divorce	1	0.3
Education		
SPM/O-Level	29	7.7
College degree	24	6.3
Bachelor degree	226	59.6
Master degree	63	16.6
Doctorate degree	37	9.8
Monthly income		
USD 1000 and below [RM 4000 and below]	282	74.4
USD 1001-3000 [RM 4001-10000]	71	18.7
USD 3001-5000 [RM 10001-20000]	18	4.7
USD 5001 and above [RM 20001 and above]	8	2.1
Occupation		
Gov. service	38	10.0
Private service	90	23.7
Business owner	30	7.9
Self-employed	61	16.1
Unemployed	75	19.8
House wife	14	3.7
Student	61	16.1
Retired/Pensioner	8	2.1
Professional Accountant	2	0.5

Accordingly, most respondents (66.5 per cent) were between 26 - 35 years old, followed by 36-45 years old (20.3 per cent) and 46 - 55 years old (9.0 per cent). Those between 14 and 25 years old were 2.6 per cent while those above 56 years old were 1.6

per cent. The results also revealed an overwhelming number of the participants (64.1%) were married and 35.6 per cent were single. Only 0.3 per cent of the respondents were divorcees. The participants' educational background formed one of the most important characteristics that might affect the person's perceptions and attitudes on the understanding of Muslim-friendly medical care quality services and social phenomena.

Table 4.4: Respondents' Country of Origin

Characteristics	Frequency	Per cent
Country of Origin		
United Arab Emirates	29	7.7
Saudi Arabia	16	4.2
Singapore	3	0.8
Indonesia	16	4.2
Malaysia	223	58.8
China	5	1.3
Bangladesh	20	5.3
Thailand	7	1.8
Jordan	2	0.5
Iraq	1	0.3
Libya	1	0.3
Nigeria	7	1.8
Kenya	3	0.8
Pakistan	2	0.5
Egypt	7	1.8
Somalia	3	0.8
Afghanistan	10	2.6
Syria	2	0.5
India	2	0.5
Yemen	2	0.5
Iran	3	0.8
Sudan	4	1.1
Palestine	2	0.3
Tanzania	2	0.5
USA	1	0.3
Brunei	1	0.3
Vietnam	1	0.3
East Africa	1	0.3
Comoros	1	0.3
Bosnia and Herzegovina	1	0.3

Hence, the academic level of respondents was investigated by the researcher. A total of 59.6 per cent of respondents have bachelor degrees, followed by 16.6 per cent with master's degrees, and 9.8 per cent with doctorate degrees. The number of respondents attaining only college level and SMP/O-Level was very few. The majority of

patients (74.4%) have a monthly income below USD1000 whereas 18.7 per cent have a monthly income level between USD1001 and USD3000. Only 4.7 per cent of the respondents have a monthly income between USD3001-5000 and 2.1% per cent of patients have a monthly income above USD5001. Most respondents were employed either in the private sector (23.7%) or unemployed (19.8%). The number of respondents engaged in self-employment or were students was over 32.2 per cent whereas those in the Government services were only 10.0 per cent, followed by business owners (7.9%), housewives (3.7%), retired/pensioners (2.1%) and professional accountants (0.5%) respectively. The respondents' countries of origin are shown at the bottom of the Table 4.4. Most respondents were Malaysians (58.8%) while the rest of them were of other nationalities (41.2%). Hence, less than half of the total respondents are foreign Muslim patients/tourists.

This implies that Muslim-friendly medical services quality of hospitals in Malaysia can attract more foreign Muslim tourists from a different country. Besides, there are countless reasons why Malaysia is an ideal or Muslim-friendly destination for Muslim tourists. Unique to the medical tourism service sector, Islamic tourism, halal tourism or Muslim-friendly tourism in Malaysia is that it is one of the few countries in the region where it is promoted by the government. This provides foreign tourists assurance of safety, quality standard and rules regarding medical care services within the industry. Moreover, the care cost is affordable in Malaysia and has fabulous hotels and resorts. It is a beautiful and suitable place to unwind and recuperate after medical care services.

4.3   Descriptive Analysis

This section provides a descriptive analysis on the constructs, which were carried out for Muslim-friendly medical services quality, Muslim patients' satisfaction and their loyalty intention for future medical treatment.

4.3.1 Shariah Amenities

Using a 7-point Likert scale, 8 items were used to measure the Shariah amenities factor. Table 4.5 presents the mean score and standard deviation of each item in the factor. The average mean value is leaning towards the 'somewhat agree' stance (4.249±1.048). The result identified that item SA8 (The hospital provides halal medicines for the Muslims) under the Shariah amenities had the highest mean score of 4.849 with a standard deviation of 1.376, whilst, item SA1 (The hospital provides a copy of the Holy Quran in the prayer room) had the lowest mean score of 3.746 with a standard deviation of 1.040.

Table 4.5: Descriptive Analysis for Shariah Amenities

Characteristics	Mean	Std. Deviation
[SA1] The hospital provides a copy of the Holy Quran in the prayer room	3.746	1.040
[SA2] The hospital provides Shariah-compatible toilets	4.155	1.056
[SA3] The hospital provides halal foods and drinks	4.649	1.107
[SA4] The hospital provides a prayer room for each ward for Muslim patients	4.002	1.044
[SA5] The hospital provides prayer amenities (times [Azan], mats, direction of Qiblat, wudhu) in the prayer room	4.221	1.035
[SA6] The hospital provides the health care staff of the same sex for the patient where possible	4.211	1.011
[SA7] The hospital provides an ablution pipe for *solat* purpose	4.155	1.019
[SA8] The hospital provides halal medicines for the Muslims	4.849	1.076
Average mean score	**4.249**	**1.048**

Note: The scale for Shariah amenities is: 0=Not applicable; 1= Not satisfied at all; 2=very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied.

4.3.2 Physicians' Services

The physicians' services were measured by 7 items with the 7-point Likert scale. As shown in Table 4.6, the average mean value leans towards the 'somewhat agree' stance (4.360±1.019). The specific Islamic medical services items (i.e. PQ7, PQ2, and PQ1) received among the highest mean values 4.73±1.00, 4.36±0.94 and 4.31±1.05 respectively. This indicates that the physicians' services practices play an important role for Muslim patients' loyalty intention at hospitals in Malaysia. Moreover, the result also

revealed that item PQ7 (Physicians respect my modesty and religious beliefs) had the highest mean score of 4.728. The generic medical services items PQ5 (Physicians are very sympathetic towards me) was found to be the lowest mean value (4.169) under the physicians' Islamic medical services quality.

Table 4.6: Descriptive Analysis for Physicians' Services

Characteristics	Mean	Std. Deviation
[PQ1] Physicians inform me regarding the use of vaccines that are porcine in origin	4.314	1.047
[PQ2] Physicians seek clarification from me when they are unsure about Islam protocols	4.356	0.943
[PQ3] Physicians respond promptly to my request	4.388	1.033
[PQ4] Physicians understand my specific problem	4.288	1.010
[PQ5] Physicians are very sympathetic towards me	4.169	1.044
[PQ6] Physicians respect my privacy	4.541	1.059
[PQ7] Physicians respect my modesty and religious beliefs	4.728	1.002
Average mean score	**4.360**	**1.019**

Note: The scale for physicians' services is: 0=Not applicable; 1= Not satisfied at all; 2=very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied.

4.3.3 Nurses' Services

Using a 7-point Likert scale, 7 items were used to measure the nurses' services factor. Table 4.7 presents the mean score and standard deviation of each item in the factor. The findings revealed that the item NQ7 (Nurses respect my modesty and religious beliefs) had a higher mean value of 4.575 with a standard deviation of 0.964, whilst, the lowest mean value of 4.145 was for item NQ1 (Nurses clean body parts that are contaminated by blood, or urine so that the patient may conduct prayers) with a standard deviation of 1.087. However, the average mean value is leaning towards the 'agree' stance (4.442±0.991). This indicates that the nurses' services influence Muslim patients towards hospitals in Malaysia.

Table 4.7: Descriptive Analysis for Nurses' Services

Characteristics	Mean	Std. Deviation
[NQ1] Nurses clean body parts that are contaminated by blood, or urine so that the patient may conduct prayers	4.145	1.087
[NQ2] Nurses are ever willing to help me	4.387	0.919
[NQ3] Nurses respond promptly to my request	4.298	1.007
[NQ4] Nurses respect Muslim values and principles	4.195	1.038
[NQ5] Nurses are very sympathetic towards me	4.176	0.949
[NQ6] Nurses respect my privacy	4.483	0.973
[NQ7] Nurses respect my modesty and religious beliefs	4.575	0.964
Average mean score	**4.442**	**0.991**

Note: The scale for nurses' services is: 0=Not applicable; 1= Not satisfied at all; 2=very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied.

4.3.4 Healthcare Technicality

The healthcare technicality factor was measured by 7 items using the 7-point Likert scale. As shown in Table 4.8, the average mean value leans towards the 'somewhat agree' stance (4.194±0.989). The findings also revealed that the item TQ6 (This hospital provides stable amenities (e.g. water and electricity)) had a higher mean value of 4.654 with a standard deviation of 0.988, whilst, the lowest mean value of 3.849 for item TQ2 (This hospital provides service on time) with a standard deviation of 0.968. The service quality equipment related items (i.e. TQ6, TQ4) received among the highest mean values 4.654±0.988 and 4.427±0.939 respectively. This indicates that the availability of healthcare technicality plays an essential role in making Muslim-friendly hospitals for medical treatment.

Table 4.8: Descriptive Analysis for Healthcare Technicality

Characteristics	Mean	Std. Deviation
[TQ1] This hospital uses up-to-date equipment	3.979	0.886
[TQ2] This hospital provides service on time	3.849	0.968
[TQ3] This hospital fulfils the promised service at the promised time	4.018	1.078
[TQ4] This hospital keeps accurate records and documents	4.427	0.939
[TQ5] This hospital has adequate of consulting rooms	4.240	1.080
[TQ6] This hospital provides stable amenities (e.g. water and electricity)	4.654	0.988
Average mean score	**4.194**	**0.989**

Note: The scale for healthcare technicality quality is: 0=Not applicable; 1= Not satisfied at all; 2=very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied.

4.3.5   Hospital Environment

Using the 7-point scale, 7 items were measured for the hospital environment factor. The result found that the item EI1 (This hospital has a clean and hygienic appearance) had a higher mean score of 4.654 while item EI3 (Surrounding area of this hospital is quiet) was found to have the lowest mean value of 4.288 (refer to Table 4.9). The cleanness and pleasant environment items (i.e. EI1, EI5, EI6, EI2) received among the highest mean values (4.654±1.056, 4.591±1.038, 4.506±0.922 and 4.480±0.893) respectively. This shows that the majority of the respondents preferred a good hospital environment for medical treatment at hospitals.

Table 4.9: Descriptive Analysis for Hospital Environment

Characteristics	Mean	Std. Deviation
[EI1] This hospital has a clean and hygienic appearance	4.654	1.056
[EI2] The waiting room of this hospital is pleasant	4.480	0.893
[EI3] The surrounding area of this hospital is quiet	4.288	0.940
[EI4] The rooms of this hospital are pleasant	4.427	0.939
[EI5] This hospital is located in a safe and secure place	4.591	1.038
[EI6] The consultation rooms of this hospital are clearly sign-posted	4.506	0.922
[EI7] The hospital provides sophisticated prayer infrastructures (e.g., prayer room, signage, ablution (wudhu) facilities)	3.879	1.092
Average mean score	**4.491**	**0.965**

Note: The scale for hospital environment is: 0=Not applicable; 1= Not satisfied at all; 2=very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied.

4.3.6 Administrative Behaviour

The administrative behaviour was measured by 6 items using the 7-point Likert scale. Table 4.10 presents the mean scores and standard deviation of each item in the construct. The item AB5 (The administrative staff of this hospital are treating me with respect and dignity) was found to have a higher mean value under the administrative behaviour factor, whilst, item AB1 (The administrative procedures of this hospital are fast and easy) was identified to have the lowest mean value of 3.987. However, the average mean values stand at 'somewhat agree' (4.132±0.983). Items related to administrative staff's behaviour (i.e. AB5, AB3, AB6) obtained the highest mean values (4.332±0.908, 4.282±1.041, 4.256±0.968) respectively. This indicates that the good administrative behaviour plays an essential role in attracting Muslim patients to hospitals for medical treatment.

Table 4.10: Descriptive Analysis for Administrative Behaviour

Characteristics	Mean	Std. Deviation
[AB1] The administrative procedures of this hospital are (paper work and paying of bills) fast and easy	3.986	0.953
[AB2] The administrative staff of this hospital respect my concerns	4.221	0.937
[AB3] The administrative staff of this hospital are courteous	4.282	1.041
[AB4] The administrative staff of this hospital give me *salam*	3.712	1.093
[AB5] The administrative staff of this hospital are treating me with respect and dignity	4.332	0.908
[AB6] Overall, I have confidence in this hospital's administrative system	4.256	0.968
Average mean score	**4.132**	**0.983**

Note: The scale for administrative behaviour is: 0=Not applicable; 1= Not satisfied at all; 2=very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied.

4.3.7 Physical Satisfaction

Muslim patients' physical satisfaction was measured by 7 items using the 7-point Likert scale. Table 4.11 shows that the average mean score leans towards 'somewhat agree' (4.155±0.957). Even though the mean score for item PS7 and PS3 are the highest (4.327±1.029, 4.203±0.958) respectively, the differences with the other items are rather minimal. Furthermore, the results also indicated that the highest mean score (4.327±1.029) was for item PS7 (I am satisfied with the availability of halal foods and drinks) while the lowest mean value of (3.958±0.921) was the item PS5 (I am satisfied with the prayer facilities in this hospital). This incidentally meant that all of the respondents were not in agreement with this statement.

Table 4.11: Descriptive Analysis for Physical Satisfaction

Characteristics	Mean	Std. Deviation
[PS1] I am satisfied with the medical treatment provided in this hospital	4.097	0.905
[PS2] I am satisfied with the feeling of security in receiving treatment here	4.272	0.862
[PS3] I am satisfied with the physicians who treated me	4.203	0.958
[PS4] I am satisfied with the nurses who treated me	4.169	1.007
[PS5] I am satisfied with the prayer facilities in this hospital	3.958	0.921
[PS6] I am satisfied with the Islamic dress code in this hospital	4.056	1.020
[PS7] I am satisfied with the availability of halal foods and drinks	4.327	1.029
Average mean score	**4.155**	**0.957**

Note: The scale for patients' physical satisfaction is: 0=Not applicable; 1= Not satisfied at all; 2=very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied.

4.3.8 Emotional Satisfaction

Using the 7-point scale, 7 items were used to measure the Muslim patients' emotional satisfaction. Table 4.12 presents the average mean scores and standard deviation of each item in the construct. The average mean value stands at 'somewhat agree' (3.952±1.012). Items related to emotional beliefs (i.e. ES5, ES6, ES4) obtained the highest mean values (4.245±1.062, 4.058±1.055, 4.034±1.047) respectively. On the other hand, the items related to emotional advice (i.e. ES2, ES1, ES2, ES7) are the least practiced emotional satisfaction in private hospitals. This indicates that all of the respondents were not in equal agreement with this statement.

Table 4.12: Descriptive Analysis for Emotional Satisfaction

Characteristics	Mean	Std. Deviation
[ES1] Medical professionals in this hospital offer advice on the atonement (*Tauba*) by seeking divine grace through prayer	3.835	0.940
[ES2] Medical professionals in this hospital offer advice on seeking Allah's love, protection and care	3.798	1.032
[ES3] Medical professionals in his hospital help me to overcome my fears/concerns regarding the outcome of medical treatment	3.842	0.990
[ES4] Medical professionals in this hospital give me credible hope or encouragement	4.034	1.047
[ES5] Medical professionals in this hospital respect my beliefs and opinions	4.245	1.062
[ES6] Medical professionals in this hospital listen to my fears, hopes, pain and dreams	4.058	1.055
[ES7] Medical professionals of this hospital help me cope with my sense of loss	3.857	0.964
Average mean score	**3.952**	**1.012**

Note: The scale for patients' emotional satisfaction is: 0=Not applicable; 1= Not satisfied at all; 2=very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied.

4.3.9 Spiritual Satisfaction

The 7-point Likert scale was used to measure the 6 items of the Muslim patients' spiritual satisfaction construct. The mean value and standard deviation of the construct is shown in Table 4.13. The average mean score leans towards the 'somewhat agree' stance (3.859±0.944). The items related to spiritual (i.e. SS5: Medical professionals of this hospital actively address my other spiritual needs (trust, faith, love of Allah)) received among the highest mean score (4.091±0.854). The other spiritual related items (i.e. SS6, SS2, SS3, SS1, SS4) seem to have among the lowest mean score (3.679±1.002, 3.785±1.019, 3.805±0.915, 3.814±0.909) respectively. The results suggest that the importance of spiritual satisfaction is considered by Muslim patients when visiting a hospital for medical treatment.

Table 4.13: Descriptive Analysis for Spiritual Satisfaction

Characteristics	Mean	Std. Deviation
[SS1] Medical professionals in this hospital pray for my health and rapid recuperation.	3.814	0.909
[SS2] Medical professionals in this hospital advise me to read the Holy Qur'an.	3.785	1.019
[SS3] Medical professionals in this hospital recite "bismillah" before my medical procedure.	3.805	0.915
[SS4] Medical professionals in this hospital help me to appreciate Allah cares for people whom I love.	3.798	0.969
[SS5] Medical professionals of this hospital actively address my other spiritual needs (trust, faith, and love to Allah).	4.091	0.854
[SS6] Praying make me feel better.	3.679	1.002
Average mean score	**3.859**	**0.944**

Note: The scale for patients' spiritual satisfaction is: 0=Not applicable; 1= Not satisfied at all; 2=very dissatisfied; 3=dissatisfied; 4=somewhat satisfied; 5=satisfied; 6=very satisfied.

4.3.10 Loyalty Intention

Using a 7-point scale, 8 items were used to measure the Muslim patients' loyalty intention for medical treatment at the hospitals in Malaysia. Table 4.14 shows the mean values and standard deviation of each item in the construct. The average mean score is leaning towards the 'somewhat agree' stance (4.010±0.988). The result also revealed that item IR8 (I intend to revisit this hospital because of precise and clear explanations of my treatment results) had a higher mean score of 4.240 and item IR6 (I intend to revisit this hospital because the physicians discuss with me any Haram ingredients in medicines) had a lower mean score of 3.459. Even though the mean score for some items are highest, the differences with the other items are rather minimal. Thus, the result indicates that all the items are almost equally important.

Table 4.14: Descriptive Analysis for Loyalty Intention

Characteristics	Mean	Std. Deviation
[IR1] I intend to revisit this hospital because of ease in accessibility to treatment	4.187	0.953
[IR2] I intend to revisit this hospital because it provides Muslim-friendly medical quality service	4.045	0.823
[IR3] I intend to revisit this hospital because healthcare professionals are consistently courteous and respectful to me	4.113	1.005
[IR4] I intend to continue to use this hospital for its Muslim-friendly healthcare practices	4.148	0.957
[IR5] I intend to revisit this hospital because the physicians are aware of the presence of potentially non-Halal ingredients in medicines	3.971	1.073
[IR6] I intend to revisit this hospital because the physicians discuss with me any Haram ingredients in medicines	3.733	1.028
[IR7] I intend to revisit this hospital because of explanations of Halal alternatives of medication	3.849	1.071
[IR8] I intend to revisit this hospital because of precise and clear explanations of my treatment results	4.240	0.994
Average mean score	**4.010**	**0.988**

Note: The scale for loyalty intention is: 0=Not applicable; 1=Not at all agree; 2=highly disagree; 3=disagree; 4=somewhat agree; 5=agree; 6= highly agree.

Importantly, the analysed results of all the items were quite close to or slightly above 4.00 with a standard deviation of more than 1.00, which denoted its consistency. Besides, based on the average mean value, all variables had achieved the mean score of above 4.00, for example, the Shariah amenities (4.249), physicians' services (4.360) and nurses' services (4.442), healthcare technicality (4.194), hospital environment (4.491), administrative behaviour (4.132), physical satisfaction (4.171), emotional satisfaction (3.952), spiritual satisfaction (3.859) and loyalty intention for medical treatment (4.010), all of which were important for the Muslim patients in determining their visit to the hospitals in Malaysia.

4.4   Assumption of Normality and Outlier

This study had checked the normality and outliers before conducting the confirmatory factor analysis (CFA). A structural equation modelling approach was used to test the normality through the indices of skewness and kurtosis. Tabachnic and Fidell (2007) prescribed that a skewness for the measurement items should be either positive or negative. In this study, all the constructs had achieved the normality since all the values (c.r) of skewness were negative and less than 3. Similarly, all of the kurtosis values were less than 7 which suggested that the kurtosis was normally distributed (refer to Annexure H). Kline (2011) postulated that a kurtosis value (c.r) should be less than 7 for a normal distribution of data.

To check the outliers, this study had tested the Mahalanobis distance from the centroid. The results found that the values of the P1 column were greater than the values of the P2 column (refer to Annexure I). Therefore, no outlier existed in this study. Byrne (2010) stated that the values in the P2 column should be less than the values of the P1 column which advocated that the confirmatory factor analysis could be put to further data analysis.

4.5   Confirmatory Factor Analysis

The following analytical mapping explains the investigated flow of the single measurement model for confirmatory factor analysis (CFA) which is based on the Structural Equation Modelling (SEM) technique following Hair et al. (2016) and Byrne (2010). After the exploratory factor analysis (EFA) (refer to Chapter 3, Section 3.15, p. 188) and descriptive analysis of all factors of the research framework, the researcher of this study has conducted CFA in this section. A total of 66 items were found during EFA. Besides, the study concerned with unidimensionality between construct error variance and within construct error variance therefore CFA was conducted. After the single factor

model test, a total of 58 items was found for further the combine measurement model analysis. To check the full measurement model validity, the average variance extraction (AVE), composite reliability (CR), goodness-of-fit (GOF) statistics like RMSEA, CFI, GFI, IFI, PCFI, PNFI, etc. Were used a key indicators that help in measuring the model validity.

Data analysis   Tests applied
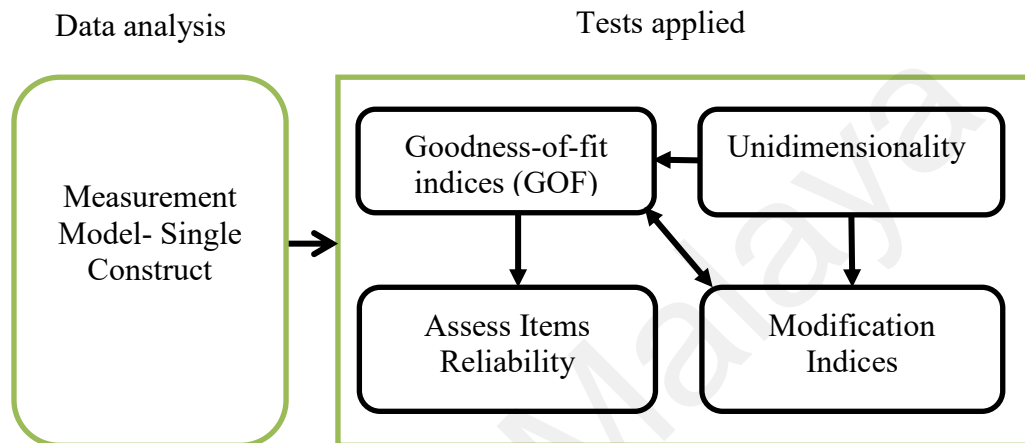
A CFA was conducted to verify the measurement models. A total of eight measurement models were examined including a model of the shariah amenities, physicians' quality, nurses' quality, technical healthcare quality, environmental infrastructure quality, administrative behaviour, Muslim patients' satisfaction and intention to revisit for medical treatment. The confirmatory factor analysis (CFA) was done to identify the significant items, factors and relationship among them. The CFA was also used to determine salient items that could indicate a particular variable (Malhotra, 2007), and measured a convergent and a discriminant validity (Ashill & Jobber, 2010). Ullman (2010) postulated that a CFA was used to test the hypothesized structure. Conway and Huffcutt (2003) stated that a CFA was better than an EFA in cases where it was necessary to produce a precise number of factors because it included a sampling error. The CFA was performed on all of the constructs used in this study. Thus, before conducting the structural model, the researcher needed to run a measurement model (single/full model) in order to address its reliability, validity and unidimensionality

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(Zainuddin, 2012). Hence, the measurement model was tested for each construct with the items which were earlier obtained from the resulting exploratory factor analysis.

As mentioned earlier, the first step in assessing the measurement model was to measure the items dimensionality and measurement properties through comparing the factor loading between the items. The model had been run and the low factor loading of < 0.50 was dropped. In the case where there were more than one factor loadings recorded below a value of 0.50, the discretion to remove the item should be based on the selection of the smallest factor loading first. The model was re-run and the item was subjected to removal if there was an additional low factor loading below the value of 0.50.

The assessment of the model goodness-of-fit index was done and in the case where the model was found not fit, the modification indices to set the correlation free should be carried out on the correlated items (in pairs). The suggestion given on structural equation modelling (SEM) might consist of more than one pair of the correlated items on the model. Here, the modification indices were done by firstly giving a priority to the path of the paired items with a value that could highly decrease the Chi-Square results. The model had been run again and continued with the modification indices with the subsequent high value to reduce the Chi-Square results. The process was continued until the model reached the acceptable fit conditions.

However, the following sections provide the assessment of the single measurement models for the observed variables by making alterations to each model to meet certain conditions of the model fitting items. In this context, the present model was considered to fit with the data if the acceptable conditions of the threshold level had been met accordingly.

4.5.1 Measurement Model for Shariah Amenities

The measurement model for the Shariah amenities had eight items initially based on the adapted version from Abdelkader (2015), Moghavvemi et al. (2015) and Zailani et al. (2016). Referring to Figure 4.2, the goodness-of-fit indices for the measurement model of Shariah amenities shows that the fitness index has not achieved the satisfactory level. Therefore, the model needed to be further examined based on the results of the modification index (MI). Evidently, this was required for the next move of the modification indices, as suggested by SEM. The MI for the error covariance of SA7 and SA8 was larger at 81.48 than the cut-off point at 15.

Zainuddin (2012) postulated that a correlated error occurred due to redundancy among the items. Thus, the errors in SA7 and SA8 needed to be correlated; hence item SA8 was removed for its lower regression weight. The new model fit: chiSq/df = 3.445 with a cut-off point≤ 3, RMSEA = 0.089 with a cut-off point ≤ 0.08, CFI = 0.954 with a cut-off point ≥ 0.90, IFI = 0.932 with a cut-off point ≥ 0.90, PCFI = 0.565 with a cut-off point ≥ 0.50, and PNFI = 0.640 with a cut-off point ≥ 0.50. The MI was then re-examined as the chi-square value of 3.445, but the RMSEA value of 0.89 still did not achieve the satisfactory level. Lastly, the error covariance of SA5 and SA6 at 65.34 was found to be much larger than 15. Hence, Item SA6 was deleted due to its lower standardized regression weight.
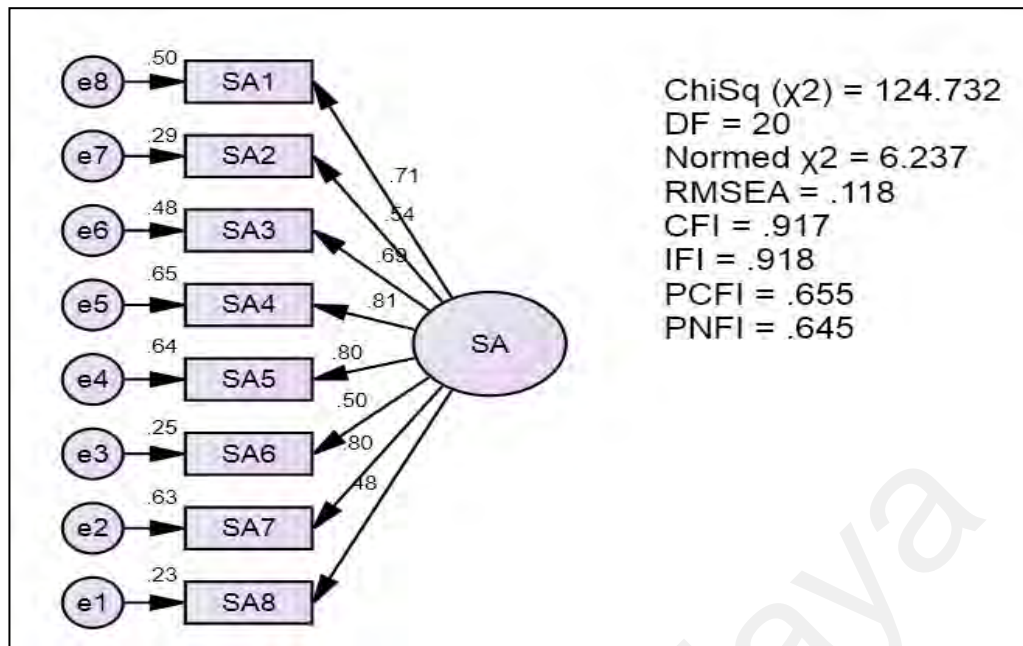
Figure 4.2: Measurement Model for Shariah Amenities

Accordingly, after a re-run of the model, the model fit index had significantly improved, namely: chiSq/df= 2.936, RMSEA = 0.074, CFI = 0.965, IFI = 0.966, PCFI = 0.579 and PNFI = 0.574 (Figure 4.3). Hence, the unidimensionality of the measurement model of the Shariah amenities had also been achieved as the factor loading was greater than 0.50 (Jackson et al., 2009).
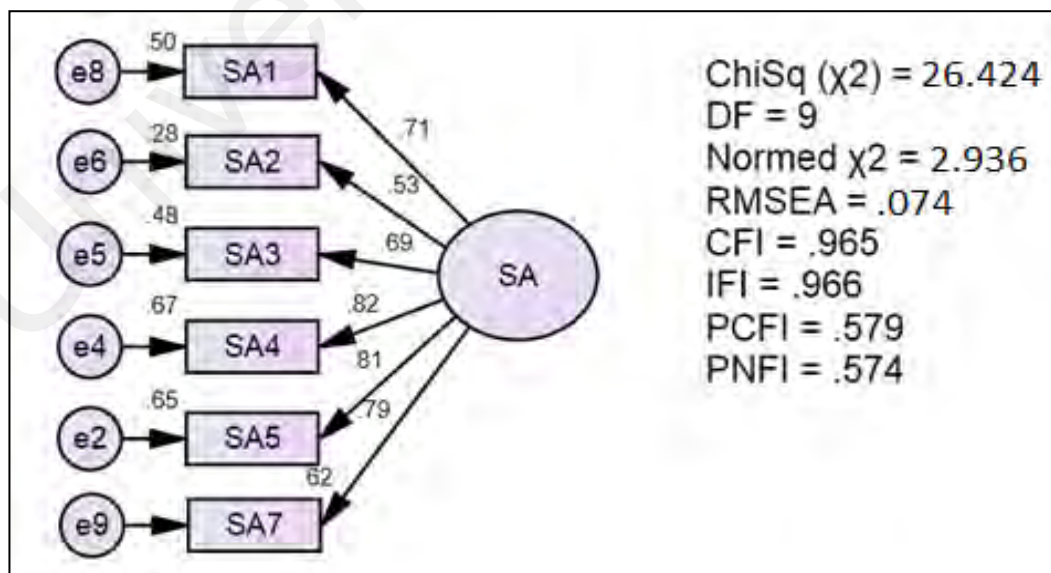
Figure 4.3: Modified Measurement Model for Shariah Amenities

Turning to the assessment of reliability for the measurement model of the Shariah amenities, Table 4.15 shows the reliability in the individual items based on R^2 values for

all indicators which are greater than 0.50 (Steenkamp & Trijp, 1991; Hair et al., 2012), except for Items SA2 and SA3. Jackson et al. (2009) postulated that a squared multiple correlation (R^2) for the items should be above 0.30. In this case, although Item SA2 is only slightly less than 0.30, this implied that these indicators moderately satisfied the cut-off point of the individual item reliability (Bollen, 1989; 2014). Importantly, the construct reliability was achieved, as the value of the composite reliability and variance extracted were 0.87 and 0.54 respectively, which were greater than the threshold value of 0.60 and 0.50 (Zainuddin, 2012). In addition, all standardized loading were greater than 0.50, indicating the evidence of convergent validity (Anderson & Gerbing, 1988; Weston & Gore, 2006; Kline, 2015). Moreover, all the critical ratios were significantly greater than 2.58 at the significant level of 0.01. Thus, the results of the measurement model for the Shariah amenities showed a strong evidence of unidimensionality, convergent validity and reliability.

Table 4.15: Results of Measurement Model: Shariah Amenities

Items	Factor loading	Composite reliability	Individual item reliability (R^2)	Variance extracted	Critical ratio
SA1	0.71	0.87	0.50	0.54	Fix. parameter
SA2	0.53		0.28		9.55
SA3	0.69		0.48		12.46
SA4	0.82		0.67		14.63
SA5	0.81		0.65		14.39
SA7	0.79		0.62		14.14

4.5.2 Measurement Model for Physicians' Services

Figure 4.4 shows the measurement model for the physicians' services with 7 items. The goodness-of-fit indices for the model were not significant, particularly for the criteria of the normed chi-square value which was 3.183 with a cut-off point ≤ 3 and the RMSEA

value which was 0.138 with a cut-off point ≤ 0.08. To improve this model, the MI was examined, and result found that the MI value between e1 (PQ6) and e2 (PQ7) was greater at 58.34 than 15. Thus, the errors PQ6 and PQ7 were required to be re-correlated by using a two-headed arrow. The new model fit had the relevant values of: normed chi-square = 3.084, RMSEA = 0.094, CFI = 944, IFI = 0.947, PCFI = 0.568 and PNFI = 0.565. Next, the error of e6 (PQ2) and e7 (PQ1) was re-correlated as the MI was greater at 57.45 than 15.
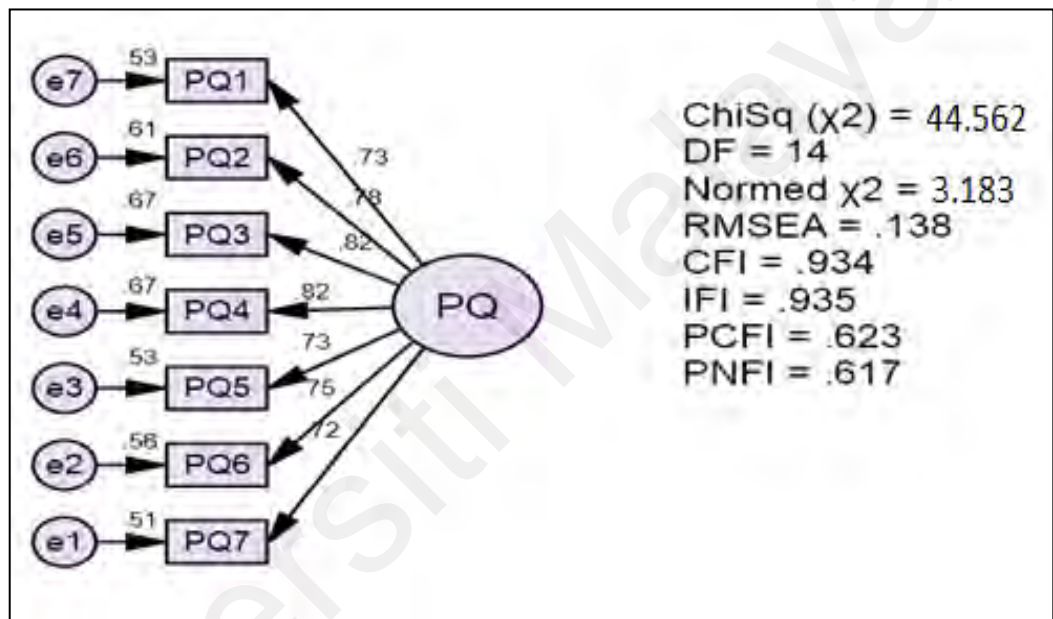
Figure 4.4: Measurement Model for Physicians' Services

After re-specifying the model, a double-headed arrow was used to set them to be a 'free parameter estimate' and the model was improved. The fitness indices of the modified model were: normed chi-square = 2.679, RMSEA = 0.069, CFI = 0.971, IFI = 0.971, PCFI = 0.555 and PNFI = 0.551 (Figure 4.5). The measurement model for the physicians' quality had a significant goodness-of-fit index and achieved the unidimensionality value greater than the threshold value.
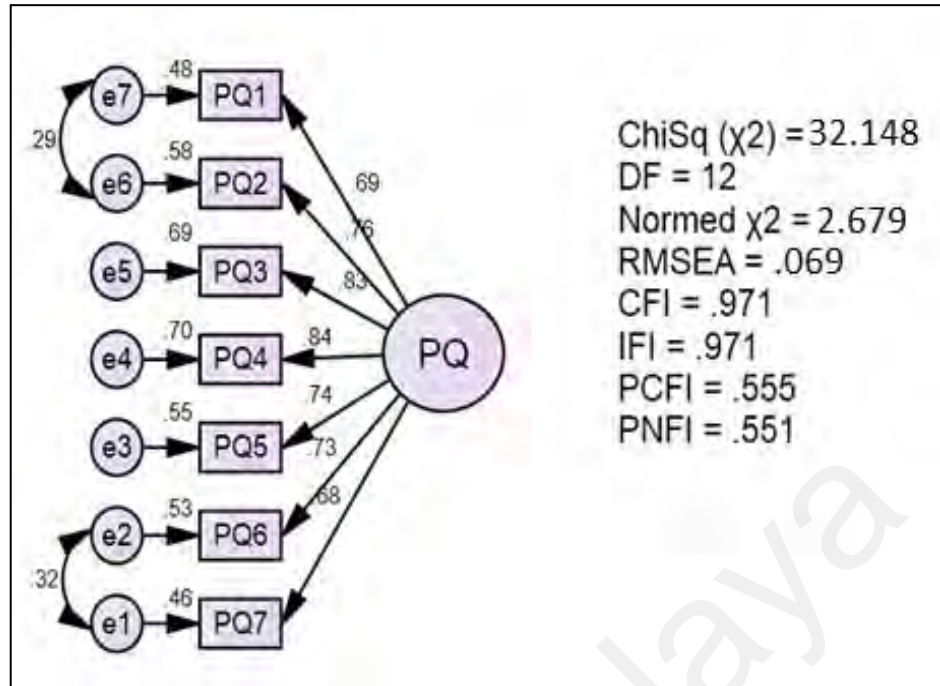
Figure 4.5: Modified Measurement Model for Physicians' Services

Table 4.16 shows a summary of the measurement model for the physicians' services. The result revealed that the critical ratio was significantly greater than 2.58 at the significant level of 0.01. The standardized loadings were also greater than 0.60, indicating the convergent validity had achieved the satisfactory level (Anderson & Gerbing, 1988; Kline, 2015). The reliability in the individual intem R^2 values were greater than 0.50 except for items PQ1 (0.48) and PQ7 (0.46). These items were slightly less than 0.50. This implied that the condition had moderately satisfied the cut-off point of the individual item reliabilities (Bollen, 1989; 2014). However, the construct reliability was achieved, as the AVE value was 0.57 and the CR value was 0.90 which were greater than the threshold value of 0.50 and 0.60 respectively (Fornell & Larker 1981; Zainudding, 2012).

Table 4.16: Results of Measurement Model: Physicians' Services

Items	Factor loading	Composite reliability	Individual item reliability (R^2)	Variance extracted	Critical ratios
PQ1	0.69	0.90	0.48	0.57	12.02
PQ2	0.76		0.58		13.12
PQ3	0.83		0.69		14.12
PQ4	0.84		0.70		14.24
PQ5	0.74		0.55		12.82
PQ6	0.73		0.53		15.42
PQ7	0.68		0.46		Fixed parameter

4.5.3 Measurement Model for Nurses' Services

The result of the measurement model for the nurses' services (Figure 4.6) shows that the unidimentionality has achieved the threshold level but the goodness of fit index is not significant as the normed chi-square value = 3.058 with a cut-off point< 3 and RMSEA = 0.110 with a cut-off point≤ 0.08. Therefore, an MI index was needed to examine the situation in order to find the error covariance of e1 (NQ7) and e2 (NQ6), which was larger at 88.31 than the cut-off point at 15. Therefore, a two-headed arrow was used to reset them and the results of the fit indices of the new model were: chi-square/df = 2.961, RMSEA = 0.089, CFI = 0.933, IFI = 0.945, PCFI =0.583 and PNFI = 0.587. Hence, the chi-square and the RMSEA had not achieved the required level. Thus, the MI was rechecked and was found that the MI value between e2 (NQ6) and e3 (NQ5) was more than 15. Hence, a double-headed arrow was used to reset them to be a 'free parameter'.
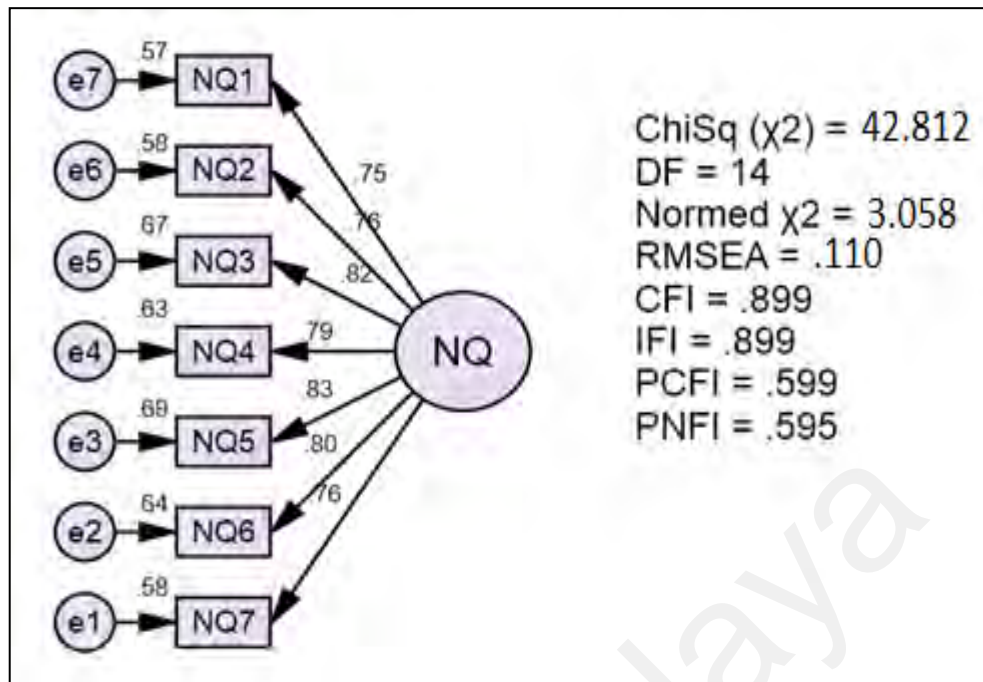
Figure 4.6: Measurement Model for Nurses' Services

After a re-run of the model, the unidimensionality and the goodness-of-fit indices achieved the acceptable level (Figure 4.7). The fit indices of the modified measurement model for the nurses' quality were: chi-square = 2.538, RMSEA = 0.072 (Absolute fit), CFI = 0.983, IFI = 0.983 (Incremental fit), PCFI = 0.562, PNFI = 0.558 (Parsimonious fit).
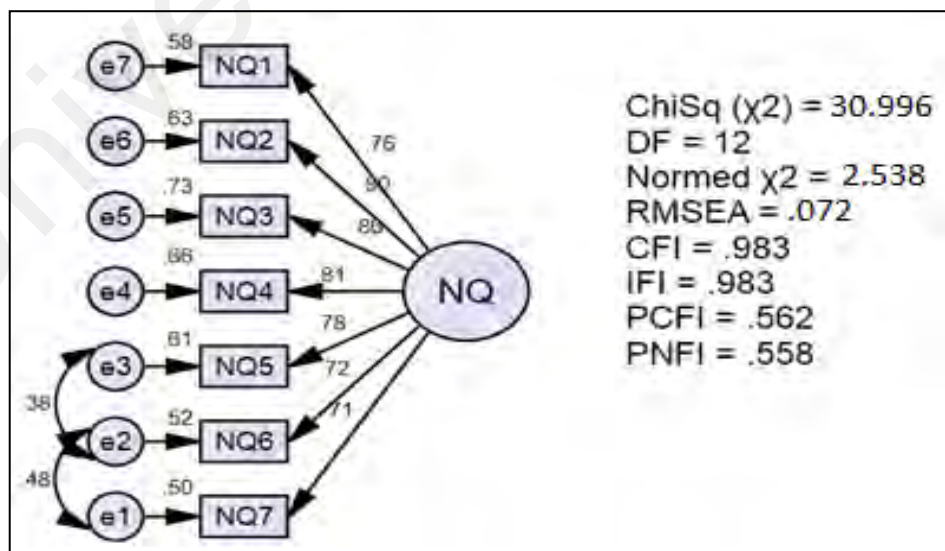
Figure 4.7: Modified Measurement Model for Nurses' Services

Turning to the assessment of the reliability of the nurses' services measurement model, Table 4.17 describes the reliability in the individual item based R^2 values of all

indicators which are above 0.50 (Bollen, 1989; Kline , 2015). The summarized results revealed that the construct reliability had achieved the value of a composite reliability of 0.92 with a cut-off point ≥ 0.60 and a variance extracted value of 0.61 with a cut-off point ≥ 0.50 respectively (Bagozzi & Yis, 1988; Baumgartner & Weijters, 2017). In addition, the critical ratio was significantly greater than 2.58 at the 0.01 level. Moreover, all the standardized loadings were greater than 0.60, indicating that the convergent validity was achieved (Fornell & Larker, 1981; Finney et al., 2017). In turn, the goodness-of-fit indices suggested that the measurement model should present a satisfactory fit to the data. Thus, the result of the evaluation of measurement model of the nurses' quality showed strong evidence of reliability, convergent validity and unidimensionality.

Table 4.17: Results of Measurement Model: Nurses' Services

Items	Factor loading	Composite reliability	Individual item reliability (R^2)	Variance extracted	Critical ratios
NQ1	0.76	0.92	0.58	0.61	14.00
NQ2	0.80		0.63		14.57
NQ3	0.86		0.73		15.60
NQ4	0.81		0.66		14.90
NQ5	0.78		0.61		14.34
NQ6	0.72		0.52		18.40
NQ7	0.71		0.50		Fixed parameter

4.5.4 *Measurement Model for Healthcare Technicality*

Figure 4.8 shows the result of a confirmatory factor analysis for the measurement model of the healthcare technicality. A one-factor model had been analysed for the viability of the dependent relationships between the construct and the indicators by using a covariance matrix of those indicators. Hence, Figure 4.8 shows that the measurement model test does not fit well as the chi-square/df has a value of 4.323 and the RMSEA has a value of 0.110 all of which do not achieve the cut-off points. Therefore, the MI needed

to be reinvestigated and it was found that the error covariance of e1 (TQ6) and e3 (TQ4) were large at a value of 48.85. Thus, the correlation of these errors was logically tenable.
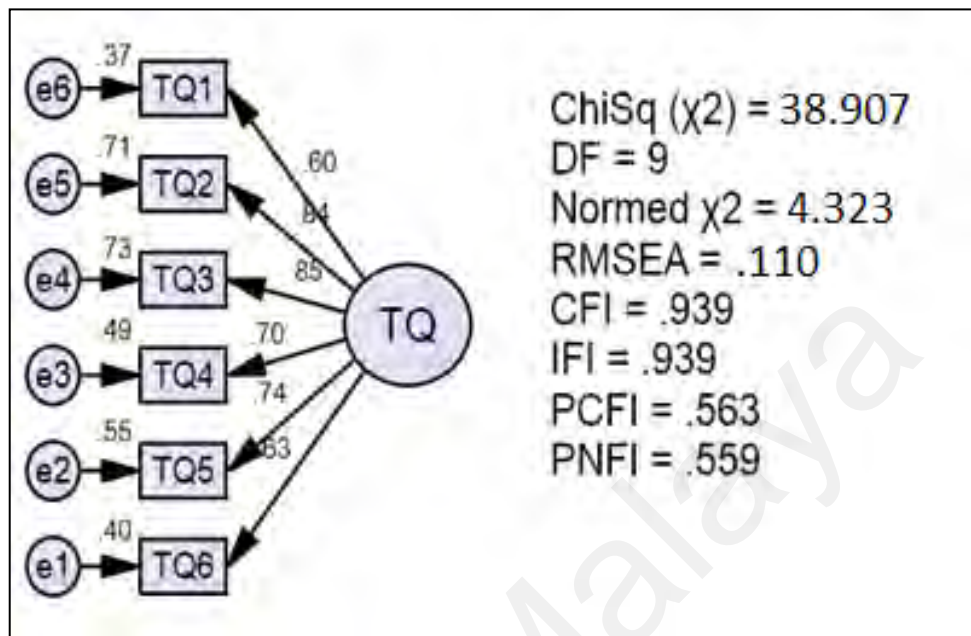
Figure 4.8: Measurement Model for Healthcare Technicality

After using the double-headed arrow to set them to be a 'free parameter estimate', the revised measurement model is as shown in Figure 4.9. The result revealed that the goodness-of-fit indices had been achieved with the new model fit which had the values of Chi-square/df = 2.614, RMSEA = 0.078, CFI = 0.966, IFI = 0.966, PCFI = 0.516 and PNFI = 0.511. Therefore, no new modification was needed for this measurement model.
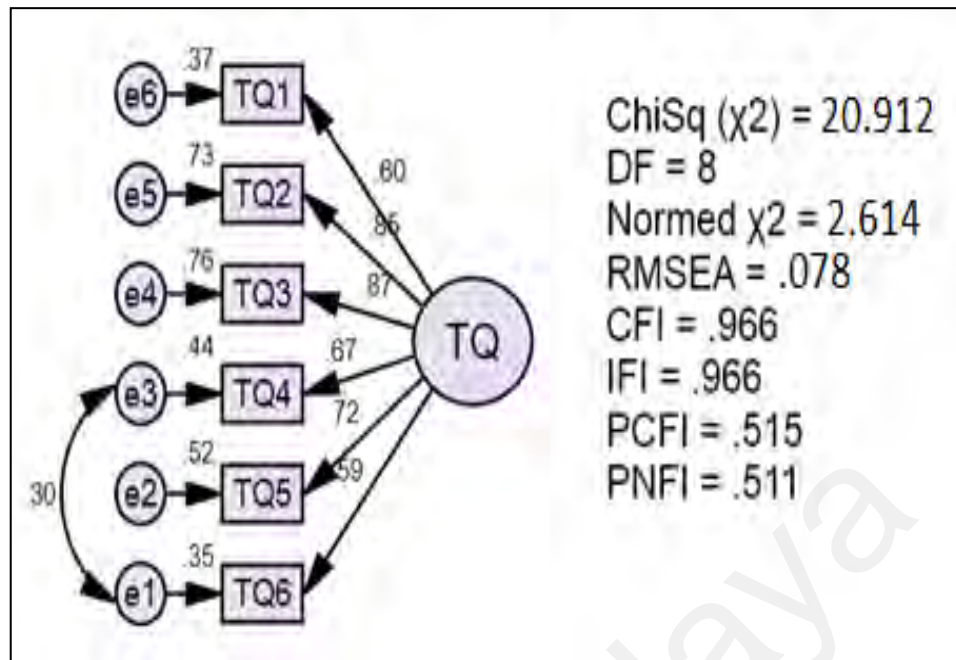
Figure 4.9: Modified Measurement Model for Healthcare Technicality

Table 4.18 shows the summarized results of the healthcare technicality measurement model. The findings revealed that the critical ratio (CR) was statistically significant as all the CR values were greater than 2.58 at the significant level of 0.01. In addition, the result also provided the evidence of a convergent validity as all the standardized loadings were greater than 0.60 (Anderson & Gerbing, 1988; Schumacker, 2017). Moreover, the R^2 values had explained that most of the indicators were greater than 0.30, which denoted that these indicators had satisfied the acceptable cut-off points of the individual item reliabilities (Jackson et al., 2009). Furthermore, the construct reliability was achieved at a composite reliability value of 0.87 and a variance extracted value of 0.53 which were greater than the threshold value (Zainuddin, 2012). Lastly, the results of the evaluation of measurement model for the technical healthcare quality showed strong evidence of reliability, unidimensionality and convergent validity.

Table 4.18: Results of Measurement Model: Healthcare Technicality

Items	Factor loading	Composite reliability	Individual item reliability (R^2)	Variance extracted	Critical ratios
TQ1	0.60	0.87	0.37	0.53	9.64
TQ2	0.86		0.73		12.10
TQ3	0.87		0.76		12.20
TQ4	0.67		0.44		12.42
TQ5	0.72		0.52		10.96
TQ6	0.59		0.35		Fixed parameter

4.5.5 Measurement Model for Hospital Environment

From the exploratory factor analysis, a one-factor measurement model for hospital environment was analysed. Figure 4.10 shows that although incremental fit values of CFI = 0.935, IFI = 0.935 and parsimonious fit values of PCFI = 0.561 and PNFI = 0.558 were achieved, the absolute fit had not been achieved yet as values of chi-square/df = 4.063 at a cut-off point < 3 and values of RMSEA = 0.098 failed to pass the threshold value ≤ 0.08. To improve the model fit, the MI needed to be rechecked. According to the MI, the error covariance of e1 (EI6) and e3 (EI5) were found to be large at a value of 59.32. Hence, to solve this problem, a double-headed arrow was used to set them to be a 'free parameter estimate' as this correlation error was logically tenable.
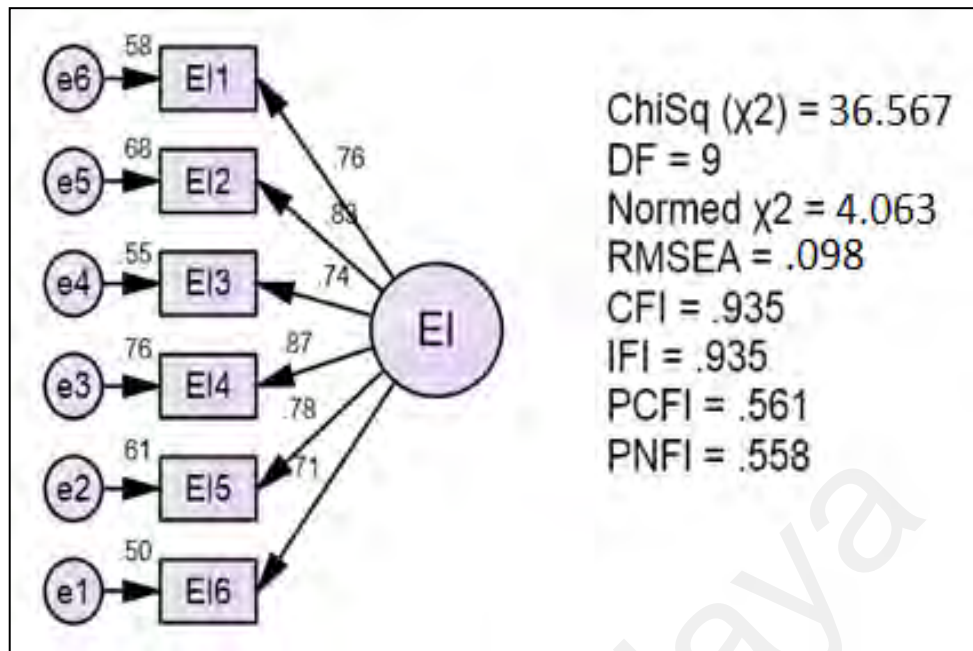
Figure 4.10: Measurement Model for Hospital Environment

Next, by re-specifying the measurement model of the hospital, the goodness-of-fit indices were achieved through the values of chi-square = 2.425, RMSEA = 0.070, CFI = 0.969, IFI = 0.969, PCFI = 0.517 and PNFI = 0.514 (Figure 5.11).
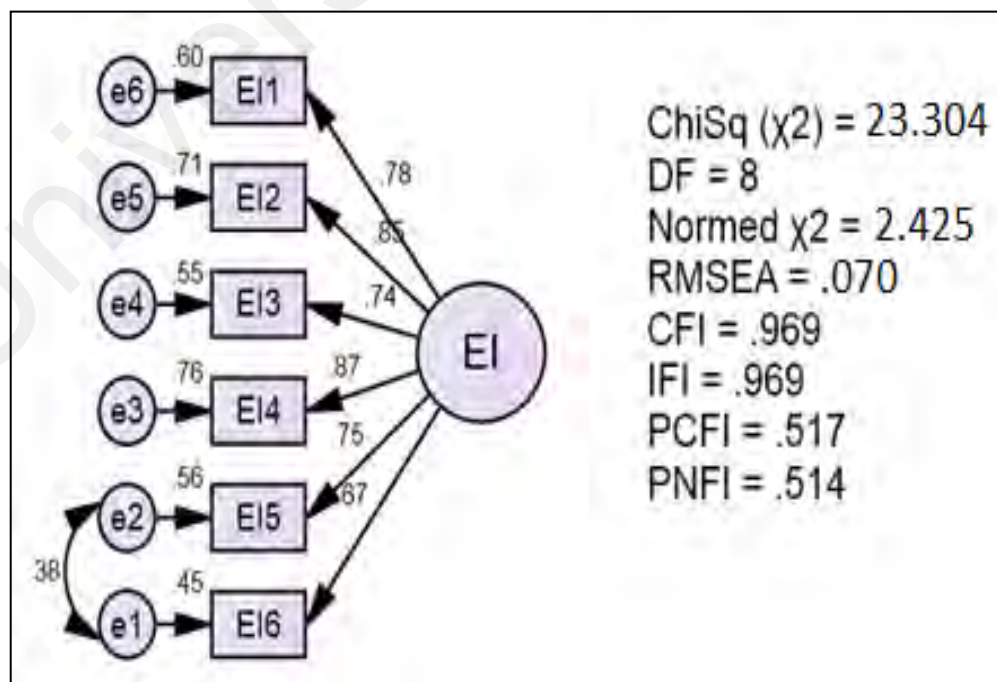
Figure 4.11: Modified measurement Model for Hospital Environment

Accordingly, Table 4.19 demonstrates that all of the indicators fall on their posited underlying factors and they are statistically significant. The results also revealed that all of the standardized loadings were greater than 0.60, indicating some evidence of unidimensionality (Schumacker, 2017). In addition, the R^2 values for most of the indicators were higher than 0.50 except for EI6 which had a value of 0.45. Thus, this implied that these indicators eventually satisfied the acceptable level of the individual item reliabilities (Bollen, 1989; Baumgartner & Weijters, 2017). Moreover, the construct reliability had achieved an average variance extracted value of 0.61 and the composite reliability value of 0.90 which was higher than the threshold value (Hair et al., 2010b; Kline, 2015). Furthermore, the entire critical ratios were significantly higher than 2.58 at the significant level of 0.01.

Table 4.19: Results of Measurement Model: Hospital Environment

Items	Factor loading	Composite reliability	Individual item reliability (R^2)	Variance extracted	Critical ratio
EI1	0.78	0.90	0.60	0.61	13.22
EI2	0.85		0.71		14.14
EI3	0.74		0.55		12.74
EI4	0.87		0.76		14.45
EI5	0.75		0.56		16.33
EI6	0.67		0.45		Fixed parameter

4.5.6   *Measurement Model for Administrative Behaviour*

Figure 4.12 shows the measurement model of the administrative behaviour for the viability of the dependence relationship between the construct and the indicators by using a covariance matrix of those indicators. In this measurement model, only the value of chi-square/df = 3.397 with a threshold value < 3 was not achieved at a satisfactory level and therefore, the MI was scrutinized. The modified indices for the error covariance of e5

(AB1) and e6 (AB2) were found to have a value of 51.18 which was larger than 15. Here, a correlation of these errors was logically tenable. The modified model is as shown in Figure 4.13. The new model fit indices achieved the satisfactory level values of chi-square/df = 2.037 and RMSEA = 0.054 (Absolute fit), CFI = 0.958 and IFI = 0.958 (Incremental fit), PCFI = 0.511 and PNF I = 0.508 (Parsimonious fit).
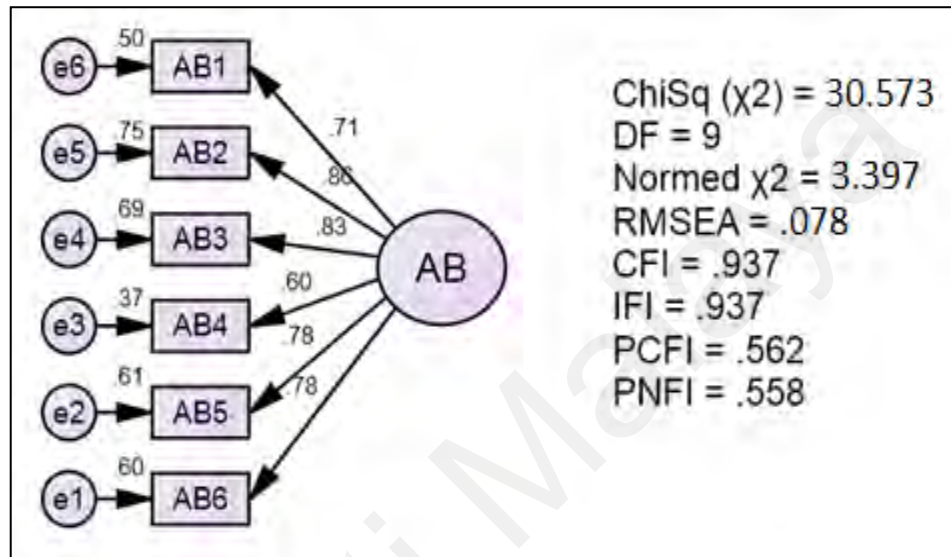
Figure 4.12: Measurement Model for Administrative Behaviour
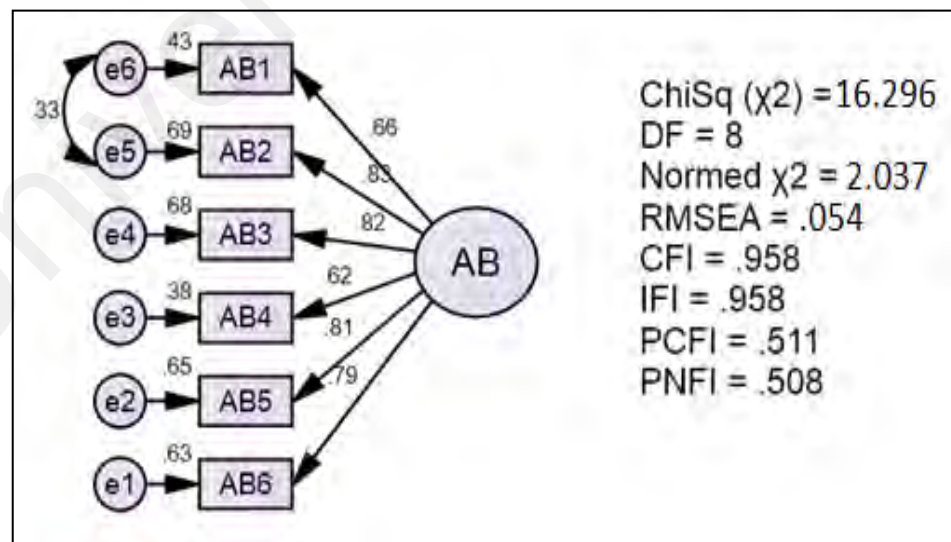
Figure 4.13: Modified Measurement Model for Administrative Behaviour

In turn, Table 4.20 shows the summarized results of the measurement model for the administrative behaviour. The findings revealed that the entire critical ratios were

statistically significant and higher than 2.58 at the significant level of 0.01. The assessment of the reliability was executed, and the result demonstrated that the R^2 values for most of the indicators were greater than 0.50 except for AB1 (The administrative procedures of this hospital are (paper work and paying of bills) fast and easy). In addition, the unidimensionality was also achieved as all the standardized loadings were higher than 0.60 (Hair et al., 2010a; Baumgartner & Weijters, 2017). Furthermore, the results also revealed that the composite reliability value of 0.89 and variance extracted value of 0.58 were higher than the threshold value, thus the construct reliability was achieved as suggested by Hair et al. (2010a).

Table 4.20: Results of Measurement Model: Administrative Behaviour

Items	Factor loading	Composite reliability	Individual item reliability (R^2)	Variance extracted	Critical ratio
AB1	0.66	0.89	0.43	0.58	12.26
AB2	0.83		0.69		16.00
AB3	0.82		0.68		15.96
AB4	0.62		0.38		11.16
AB5	0.81		0.65		17.37
AB6	0.79		0.63		Fixed parameter

4.5.7 Measurement Model for Patients' Satisfaction

From the EFA, a three-factor measurement model for the Muslim patients' satisfaction (PS) was analysed for the viability of the dependence relationship between the construct and the indicators using a covariance matrix of those indicators. Here, Figure 4.14 shows the measurement model test for Muslim patients' satisfaction (PS) that did not fit well, because in the first iteration, normed chi-square, RMSEA, CFI, IFI, TLI scores were less than the threshold point. Therefore, in the second iteration (refer to Table 21), two items (PS5 and PS6) were eliminated as the former's standardized regression weight was 0.477

< 0.5 and the latter's standardized residual covariance (SRC) > 2.5. The model fit of the

third iteration improved after re-specifying the fit indices.
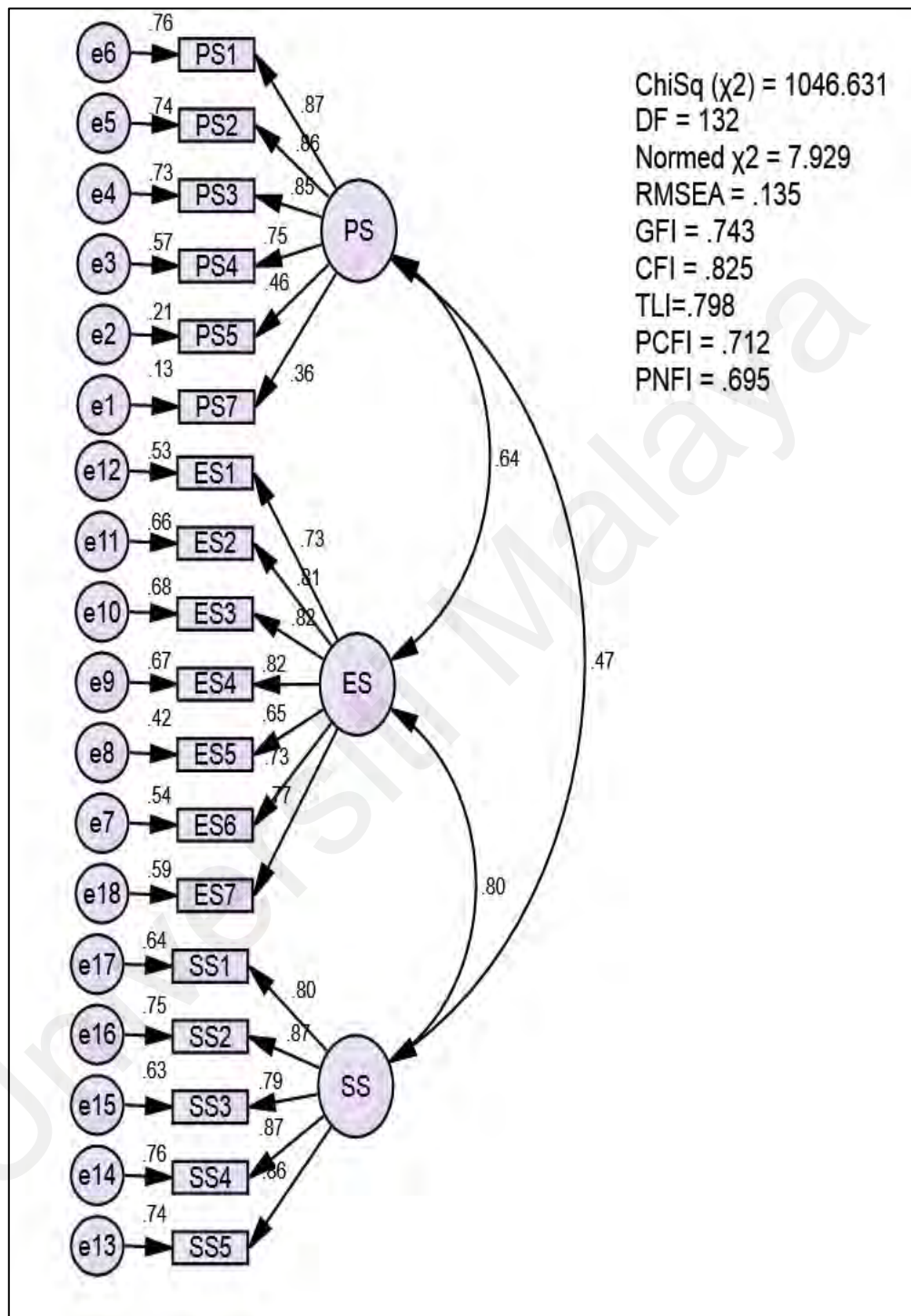
Figure 4.14: Measurement Model: Patients' Satisfaction

Table 4.21: GOF Measures of MPS

Model fit	Iteration 1 Value (s)	Iteration 2 Value (s) Del PS5; PS6	Iteration 3 Value (s) Del ES1; ES2; ES7	Iteration 4 Value (s) Cov e16 & e17
P-value>0.05	0.000*	0.000*	0.000*	0.000*
CMIN/df <3.0	7.929	8.004	4.609	3.138
RMSEA<0.08	0.135	0.136	0.098	0.075
GFI >0.90	0.743	0.768	0.893	0.927
AGFI>0.80	0.667	0.688	0.846	0.885
NFI>0.90	0.806	0.839	0.922	0.946
IFI>0.90	0.826	0.857	0.938	0.962
TLI>0.90	0.798	0.829	0.923	0.954
CFI>0.90	0.825	0.856	0.937	0.964
PARATIO	0.863	0.842	0.808	0.795
PNFI>0.50	0.695	0.706	0.745	0.754
PCFI>0.50	0.712	0.720	0.757	0.742

Note: *Significant level at 0.01.

The items ES1, ES2 and ES7 were deleted as the SRC> 2.5. Jackson et al. (2009) and Hair et al. (2013) suggested that items below 0.50 should be deleted in order to achieve unidimensionality. A large modification index of 83.76 suggested that the model should be modified to allow the error terms e16 (SS2) and e17 (SS1) to correlate. The fourth iteration demonstrated an excellent model fit (see Figure 4.16): normed chi-square (CMIN/df) = 3.138 (slightly greater than 3), significant p at 0.05 level, RMSEA= 0.075, GFI= 0.927, AGFI= 0.885, NFI= 0.946, IFI= 0.962, TLI= 0.954, CFI=0.964, PARATIO=0.795, PNFI=0.754, PCFI=0.742 (refer to Table 4.21).

Table 4.22: PS Regression Weights

			Estimate	S.E.	C.R.	P	SRW	SMC
PS4	<---	PS	0.862	0.050	17.399	***	0.751	0.537
PS3	<---	PS	0.959	0.044	22.033	***	0.869	0.670
PS2	<---	PS	0.949	0.044	21.537	***	0.857	0.655
PS1	<---	PS	1.000			***	0.871	0.819
ES6	<---	ES	1.000			***	0.757	0.750
ES5	<---	ES	0.910	0.071	12.738	***	0.703	0.668
ES4	<---	ES	1.246	0.078	16.050	***	0.884	0.781
ES3	<---	ES	1.226	0.079	15.451	***	0.817	0.594
SS5	<---	SS	1.000			***	0.870	0.574
SS4	<---	SS	1.055	0.044	24.053	***	0.905	0.759
SS3	<---	SS	0.927	0.047	19.865	***	0.809	0.734
SS2	<---	SS	0.948	0.047	20.208	***	0.818	0.755
SS1	<---	SS	0.867	0.051	16.876	***	0.733	0.564

Note: SRW (Standard regression weight), SMC (Squared multiple correlations)
*** (Regression weight of the prediction between the items is significantly different from zero at the 0.001 level (two-tailed).

Table 4.22 indicates that the regression weight of all the items illustrated positive directions and are statistically significant at 0.001 alpha. In addition, with the excellent goodness-of-fit index, this indicates the unidimensionality of the construct. The Muslim patients' physical satisfaction dimension consisted of 4 items (PS1, PS2, PS3, PS4). Also, patients' emotional satisfaction consisted of 4 items (ES3, ES4, ES5, ES6) while spiritual satisfaction consisted of 5 items (SS1, SS2, SS3, SS4, SS5) (refer to Figure 4.15).
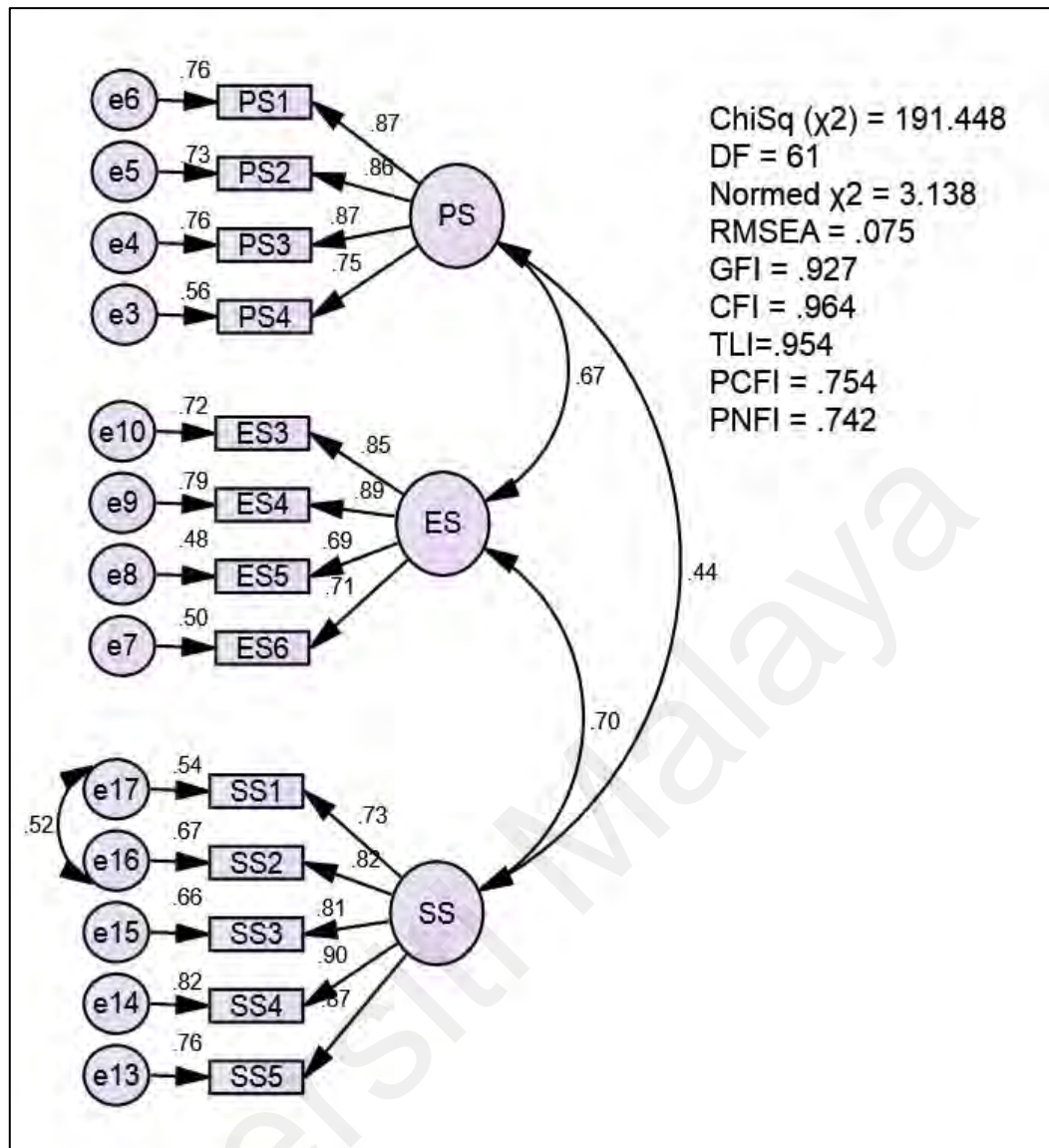
Figure 4.15: Measurement Model for Patients' Satisfaction after 4th Iteration

Moreover, according to Table 4.23, in assessing the squared multiple correlations (R^2) of the items, the results found that most of the indicators were greater than 0.50 (Jackson et al., 2009; Hair et al., 2006). This implied that the indicators eventually satisfied the acceptable threshold of the individual item reliabilities (Bollen, 1989; Hair et al., 1998). As the average variance extracted value was 0.56 and the composite reliability value was 0.95, these values exceeded the threshold value of the construct reliability (Hair et al. 2014). Additionally, the entire critical ratios were significantly higher than 2.58 at the 0.01 level. Moreover, all of the standardized loadings had values

above 0.60 (Zainuddin, 2012; Hair et al., 2011), indicating some evidence of unidimensionality.

Table 4.23: Results of Three-factor Measurement Model for the Muslim Patients' Satisfaction

Items	Factor loading	Composite reliability	Individual item reliability (R^2)	Variance extracted	Critical ratio
PS1	0.87	0.95	0.25	0.56	Fixed parameter
PS2	0.86		0.26		7.85
PS3	0.87		0.26		13.45
PS4	0.75				
ES1	0.78		0.52		9.55
ES2	0.85		0.64		10.02
ES3	0.82		0.57		9.77
ES4	0.80		0.56		9.75
ES5	0.58		0.34		8.51
SS1	0.80		0.60		9.87
SS2	0.87		0.65		10.08
SS3	0.79		0.59		9.84
SS4	0.87		0.67		10.13
SS5	0.86		0.64		10.04

4.5.8   *Measurement Model for Loyalty Intention*

Figure 4.16 shows the measurement model of the loyalty intention (LI) for medical treatment which was analysed with eight items. The model was examined for the viability of the dependence relationships between the construct and the indicators using a covariance matrix of those indicators. The measurement model test did not fit well as the values obtained were chi-square/df = 3.431 with a cut-off point ≤ 3, RMSEA = 0.077 with a cut-off point ≤ 0.08, CFI = 0.895 with a cut-off point ≥ 0.90, IFI = 0.896 with a cut-off point ≥ 0.90, PCFI = 0.568 with a cut-off point > 0.50 and PNFI = 0.562 with a cut-off point > 0.50. Therefore, the MI was re-examined and it was found that the error covariance of e7 (IR7) and e6 (IR6) value of 88.39 was larger than 15. However, to solve

this problem, a two-headed arrow was used to set them to be a 'free parameter estimate'.

Hence the error covariance of e7 and e6 was linked.
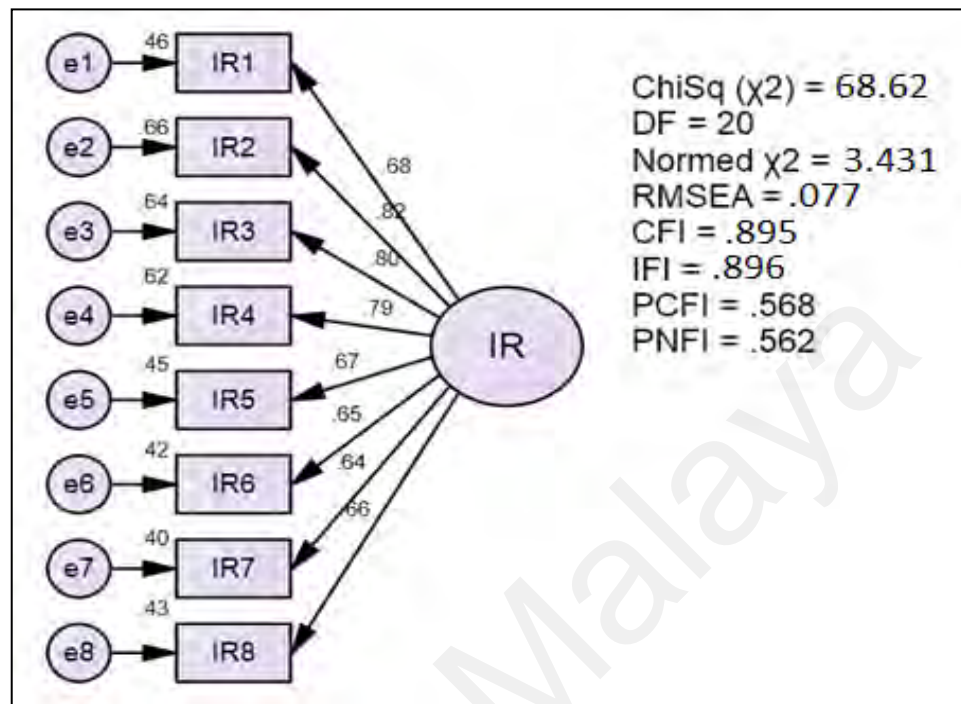
Figure 4.16: Loyalty Intention Measurement Model

Accordingly, the model was re-run and the result showed that the goodness of fit indices were achieved as in Figure 4.17 which showed values of chi-square/df = 2.052 and RMSEA = 0.047 (Absolute fit), CFI = 0.936 and IFI = 0.963 (Incremental fit), PCFI = 0.585 and PNFI = 0.579 (Persimonious fit).
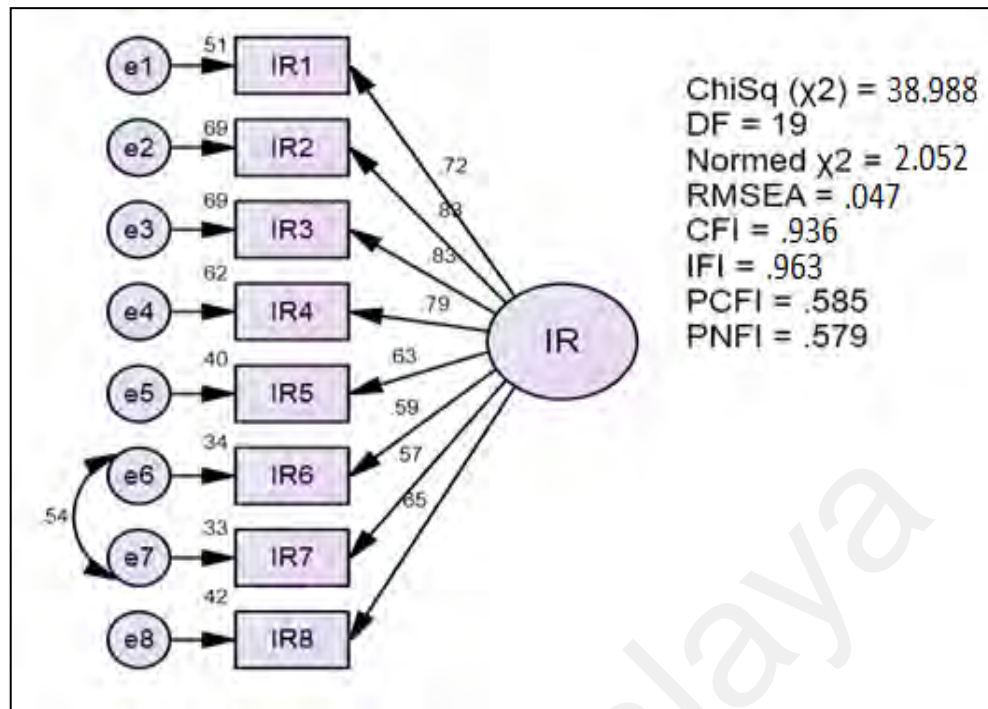
Figure 4.17: Loyalty Intention Measurement Model after 2nd Iteration

Turning to the assessment of reliability, Table 4.24 illustrates that all of the standardized loadings are greater than 0.60 and the squared multiple correlations (R^2) values for most of the indicators are also higher than 0.30 (Jackson et al., 2009; Schumacker, 2017). Thus, this implied that these indicators eventually achieved the acceptable threshold of the individual item reliabilities (Bollen, 1988; Hair et al., 2016) of the measurement model for the intention to revisit for medical treatment. The composite reliability value of 0.88 exceeded the cut-off point of 0.60 (Hair et al., 2010a) and an average variance extracted value of 0.57 was also higher than the threshold value of 0.50 (Hair et al., 2014), which depicted the construct reliability. Additionally, all of the critical ratios were significantly higher than 2.58 at the 0.01 level (Jackson et al., 2009).

Table 4.24: Results of the Measurement Model for the Loyalty Intention

Items	Factor loading	Composite reliability	Individual item reliability (R^2)	Variance extracted	Critical ratio
IR1	0.72	0.88	0.51	0.57	11.99
IR2	0.88		0.69		13.31
IR3	0.83		0.69		13.32
IR4	0.79		0.62		12.74
IR5	0.63		0.40		10.44
IR6	0.59		0.34		10.08
IR7	0.57		0.33		9.77
IR8	0.65		0.42		Fixed parameter

4.5.9   Combined Measurement Model for PS and LI

Figure 4.18 shows the combined measurement model of Muslim patients' satisfaction (PS) and their loyalty intention (LI) for future medical treatment at the hospitals in Malaysia. The model fit of the first iteration was normed chi-square (CMIN/df) = 5.021 >3, significant p at 0.05 level, RMSEA= 0.103> 0.080, GFI= 0.785< 0.90, CFI= 0.875< 0.90, TLI= 0.857<0.90, AGFI= 0.728<0.90, PCFI= 0.763, PNFI= 0.740. The items IR6 (e26) and IR7 (e27) were removed as the SRC> 2.5.

Table 4.25: GOF Measures Combined of MPS and MLI

Model fit	Iteration 1 Value (s)	Iteration 2 Value (s) Del IR7	Iteration 3 Value (s) Cov e16 & e17
P-value>0.05	0.000*	0.000*	0.000*
CMIN/df <3.0	5.021	3.786	2.965
RMSEA<0.08	0.103	0.083	0.072
GFI >0.90	0.785	0.872	0.892
AGFI>0.80	0.728	0.833	0.858
NFI>0.90	0.850	0.902	0.920
IFI>0.90	0.876	0.928	0.946
TLI>0.90	0.857	0.915	0.936
CFI>0.90	0.875	0.927	0.945
PARATIO	0.871	0.854	0.848
PNFI>0.50	0.763	0.770	0.780
PCFI>0.50	0740	0.792	0.802

Note: *Significant level at 0.01, MPS= Muslim patients' satisfaction, MLI= Muslim patients' loyalty intention.

The second iteration demonstrated a better goodness-of-fit index such as CMIN/df= 3.786>3, significant p at 0.05 level, RMSEA= 0.083>0.08, GFI=0872>0.90, AGFI=0.833, NFI=0.902, IFI=0.928, TLI= 0.915, CFI=0.927, PARATIO=0.854, PNFI= 0.770, PCFI=0.792. A large modification index of 78.95 suggested that the model should be re-specified to allow the error terms e16 (SS2) and e17 (SS1) to correlate (see Figure 4.19). The third iteration demonstrated excellent model fit, for example, CMIN/df= 2.965, significant p at 0.05 level, RMSEA= 0.072, GFI= 0.892 (close to 0.90), AGFI= 0.854, NFI= 0.920, IFI= 0.946, TLI= 0.936, CFI=0.945, PNFI= 0.780, PCFI= 0.802 (refer to Table 4.25).
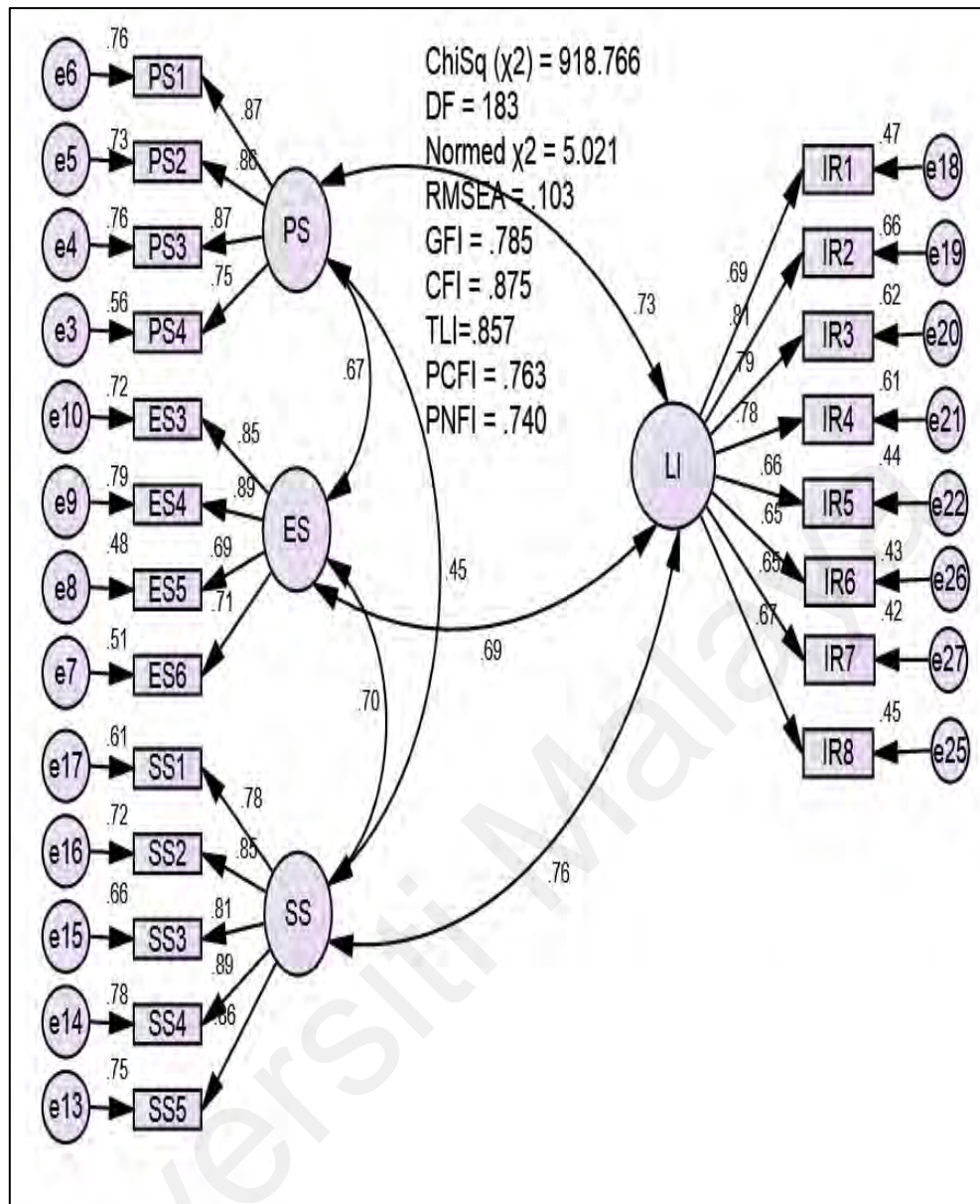
Figure 4.18: Combined Measurement Model of PS and LI

Byrne (2001) stated that unidimensionality was confirmed when all items indicate positive directions and are statistically significant at 0.001 alpha. Table 4.26 indicates that the regression weight of all the items were significantly associated with their respective latent constructs as hypothesized in this study. The convergent validity was achieved as all the factor loadings were above 0.60.

Table 4.26: Regression Weights of MPS and MPL

	Relationship		Estimate	S.E.	C.R.	P	SRW	SMC
PS4	<---	PS	0.861	0.049	17.427	***	0.749	0.346
PS3	<---	PS	0.965	0.043	22.481	***	0.873	0.597
PS2	<---	PS	0.949	0.044	21.702	***	0.856	0.701
PS1	<---	PS	1.000				0.869	0.693
ES6	<---	ES	1.000				0.710	0.556
ES5	<---	ES	0.910	0.071	12.767	***	0.694	0.531
ES4	<---	ES	1.244	0.077	16.061	***	0.889	0.661
ES3	<---	ES	1.225	0.079	15.469	***	0.848	0.667
SS5	<---	SS	1.000				0.869	0.817
SS4	<---	SS	1.055	0.044	24.184	***	0.904	0.756
SS3	<---	SS	0.936	0.046	20.214	***	0.817	0.720
SS2	<---	SS	0.943	0.047	20.053	***	0.813	0.790
SS1	<---	SS	0.862	0.051	16.773	***	0.729	0.482
IR1	<---	LI	1.000				0.745	0.504
IR2	<---	LI	1.268	0.077	16.395	***	0.832	0.756
IR3	<---	LI	1.135	0.069	16.499	***	0.837	0.732
IR4	<---	LI	1.040	0.069	15.125	***	0.773	0.762
IR5	<---	LI	0.927	0.082	11.267	***	0.588	0.561
IR8	<---	LI	0.908	0.072	12.551	***	0.651	0.346

Note: SRW (Standard regression weight), SMC (Squared multiple correlations)
*** (Regression weight of the prediction between the items is significantly different from zero at the 0.001 level (two-tailed).
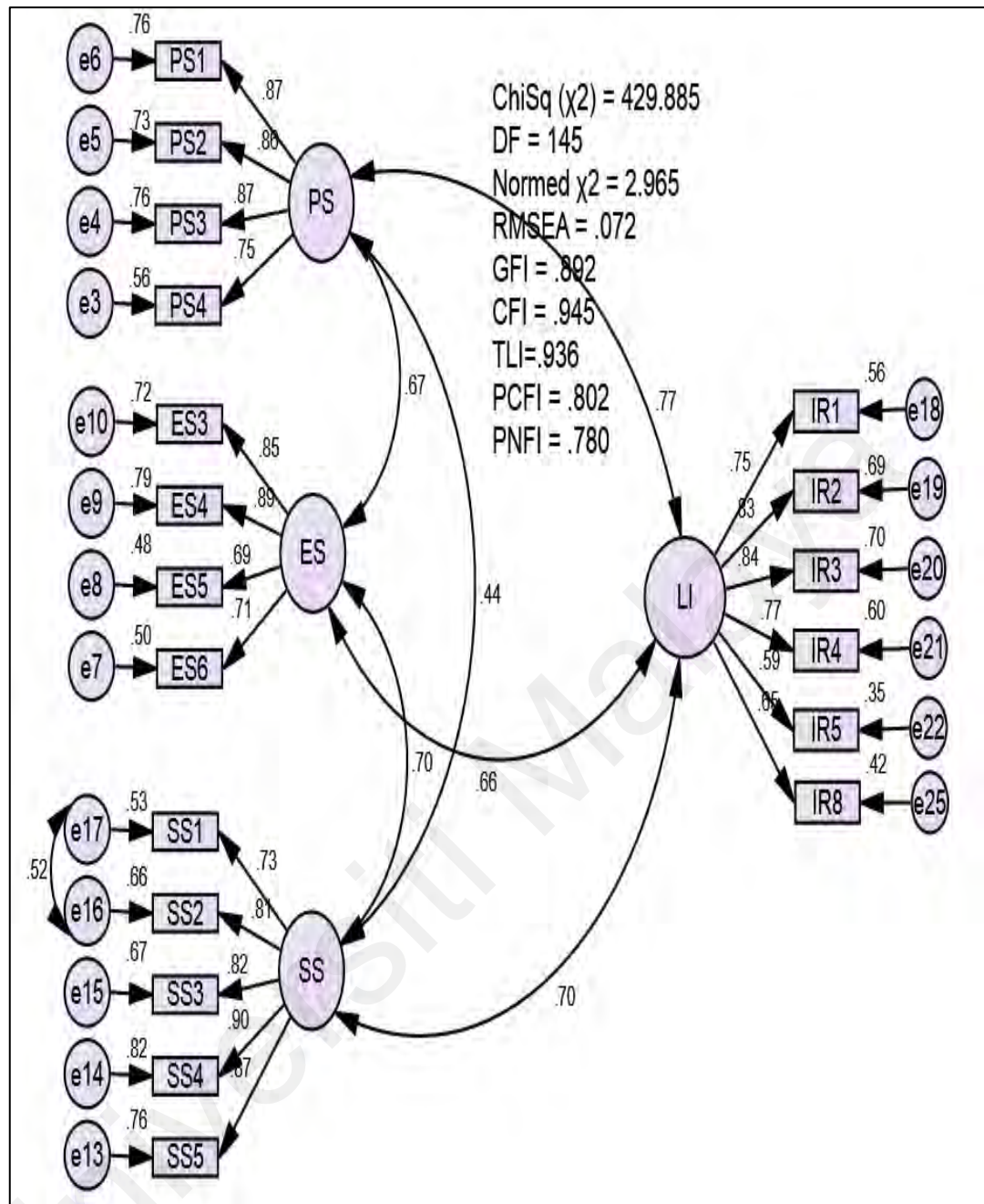
Figure 4.19: Combined Measurement Model of PS and LI after 3rd Iteration

Table 4.27 shows the removed and retained items after the single factor analysis of each construct. In this stage, a total of 66 items were run for the assessment of individual factor analysis. Among the 66 items, a total of 8 items were omitted due to lower factor loading which is less than cut-off point of 0.60 (Hair et al., 2016), and 58 items were retained (refer Table 4.27) for further analysis for the full measurement model in the next section. Tabachnick and Fidell (2007) follow Comreyand Lee (1992) in

suggesting using more stringent cut-off point from 0.32 (poor), 0.45 (fair), 0.55 (good),

0.63 (very good) or 0.71 (excellent).

Table 4.27: Item Removed and Retained in Single Factor Analysis Stage

Constructs	No. of items	Removed item(s)	Retained items	Description
Shariah amenities	8	1	[SA1]	The hospital provides a copy of the Holy Quran in the prayer room
			[SA2]	The hospital provides Shariah-compatible toilets
			[SA3]	The hospital provides halal foods and drinks
			[SA4]	The hospital provides a prayer room for each ward for Muslim patients
			[SA5]	The hospital provides prayer amenities (times [Azan], mats, direction of Qiblat, wudhu) in the prayer room
			[SA6]	The hospital provides the health care staff of the same sex for the patient where possible
			[SA7]	The hospital provides an ablution pipe for *solat* purpose
		[SA8]		The hospital provides halal medicines for the Muslims
Physicians' services	7	Not removed	[PQ1]	Physicians give individual attention to me
			[PQ2]	Physicians are ever willing to help me
			[PQ3]	Physicians respond promptly to my request
			[PQ4]	Physicians understand my specific problem
			[PQ5]	Physicians are very sympathetic towards me
			[PQ6]	Physicians respect my privacy
			[PQ7]	Physicians respect my modesty and religious beliefs
Nurses' services	7	Not removed	[NQ1]	Nurses give individual attention to me
			[NQ2]	Nurses are ever willing to help me
			[NQ3]	Nurses respond promptly to my request
			[NQ4]	Nurses understand my specific problem
			[NQ5]	Nurses are very sympathetic towards me
			[NQ6]	Nurses respect my privacy
			[NQ7]	Nurses respect my modesty and religious beliefs

Constructs	No. of items	Removed item(s)	Retained items	Description
Healthcare technicality	6	Not removed	[TQ1]	This hospital uses up-to-date equipment
			[TQ2]	This hospital provides service on time
			[TQ3]	This hospital fulfils the promised service at the promised time
			[TQ4]	The hospital keeps accurate records and documents
			[TQ5]	This hospital has adequate of consulting room
			[TQ6]	Hospital provides a stable amenities (e.g. water and electricity)
Hospital environment	7	Not removed	[EI1]	This hospital has clean and hygienic appearance
			[EI2]	Waiting room of this hospital is pleasant
			[EI3]	Surrounding area of this hospital is quiet
			[EI4]	The room of this hospital is pleasant
			[EI5]	This hospital is located in a safe and secured place
			[EI6]	The consultation room of this hospital is clearly sign-posted
Administrative behavior	6	Not removed	[AB1]	The administrative procedures of this hospital are (completing papers and paying) fast and easy
			[AB2	The administrative staffs of this hospital respect my concerns
			[AB3]	The administrative staffs of this hospital are courteous
			[AB4]	The administrative staffs of this hospital give me *salam*
			[AB5]	The administrative staff of this hospital are treating me with respect and dignity
			[AB6]	Overall, I have confidence in this hospital's administration system
Physical satisfaction	6	2	[PS1]	The medical treatment provided in this hospital
			[PS2]	The feeling of security in receiving treatment here
			[PS3]	The physicians who treated me
			[PS4]	The nurses who treated me
		[PS5]		The prayer facilities in this hospital
		[PS7]		The availability of halal food

Table 4.27: Item Removed and Retained in Single Factor Analysis Stage (continue)

Constructs	No. of items	Removed item(s)	Retained items	Description
Emotional satisfaction	7	3	[ES3]	Medical professionals in this hospital help me overcome my fears/concerns
			[ES4]	Medical professionals in this hospital give me hope or encouragement
			[ES5]	Medical professionals in this hospital respect my beliefs and opinions
			[ES6]	Medical professionals in this hospital listen to my fears, hopes, pain and dreams
		[ES1]		Medical professionals in this hospital advise me on the atonement (*Tauba*) by seeking divine grace through prayer.
		[ES2]		Medical professionals in this hospital advise me on seeking Allah's love and care
		[ES7]		Medical professionals of this hospital help me cope with my sense of loss
Spiritual satisfaction	6	Not removed	[SS1]	Medical professionals in this hospital take the time to pray for me
			[SS2]	Medical professionals in this hospital advise me to read the Holy Qura'n
			[SS3]	Medical professionals in this hospital utter bismillah before my medical procedure
			[SS4]	Medical professionals in this hospital help me to realize God cares for people whom I love
			[SS5]	Medical professionals of this hospital actively address my other spiritual needs (trust, faith, love to Allah)
Satisfaction and loyalty	8	2	[IR1]	I intend to revisit this hospital because of ease in accessibility to treatment
			[IR2]	I intend to revisit this hospital because of its Muslim friendly medical service quality
			[IR3]	I intend to revisit this hospital because healthcare professionals are consistently courteous and respectful to me
			[IR4]	I intend to continue to use this hospital for its Muslim friendly healthcare practices
			[IR5]	I intend to revisit this hospital because physicians are aware of the presence of potentially non-Halal ingredients in medicine
		[IR6]		I intend to revisit this hospital because physicians discuss with me any Haram ingredients of medicine
		[IR7]		I intend to revisit this hospital because of explanation on Halal alternatives
			[IR8]	I intend to revisit this hospital because of explanation of my treatment result
Total	66	8	58	

4.6   Full Measurement Model Assessment

The following analytical mapping clarifies the investigated flow of the full (combined) measurement model. After the measurement model test, a total of 47 items was retained, which run for structural model assessment. The structural model is able to estimate the relationships among latent variables. It is also able to test the overall model in addition to individual paths. To check the validity of the structural model, then again, the study based on the R-square value as well with other criteria such as the goodness-of-fit (GOF) statistics like RMSEA, CFI, GFI, IFI, PCFI, and PNFI.
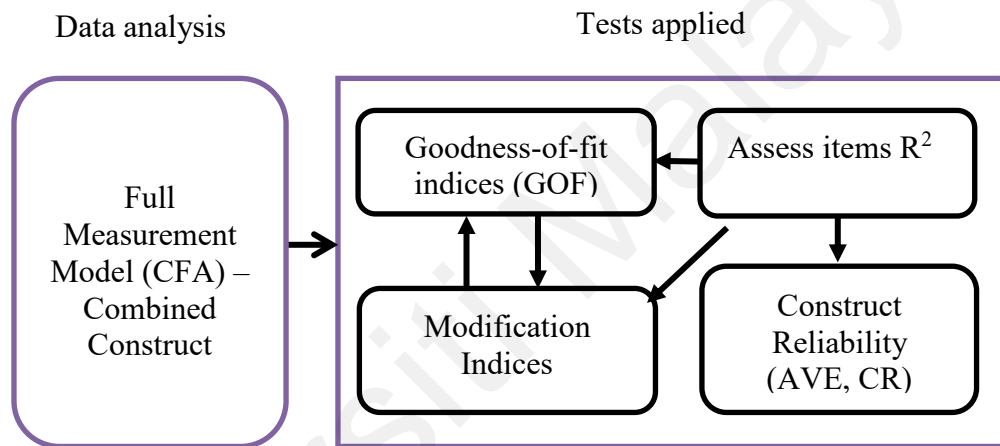
As mentioned earlier in the Structural Equation Modelling Technique, the full measurement model was the subsequent stage after all the indicators that represented their respective latent constructs had been fitted through the single measurement model component stage. Hair et al. (2016) and Yuan et al. (2017) postulated that despite the separation between the single and the full measurement model, the full measurement was imperative and inevitable by virtue of its role in determining the unidimensionality of constructs and the whole convergent validity of the measurement model.

A set of 66 measurement items demonstrating ten factors had been confirmed during the single first order measurement model and 8 items were found to be incompetence and non-conformity, thus, they were subjected to rejection from the

respective constructs. As such, the remaining 58 appropriate items measuring the ten factors were analysed in the combined full measurement model (both independent and dependent variables). In this section, the ten factors comprised the Shariah amenities with six items, physicians' services quality with six items, nurses' services quality with seven items, healthcare technicality with six items, hospital environment services quality with six items, administrative behaviour with six items, the Muslim patients' physical satisfaction with four items, emotional satisfaction with four items, spiritual satisfaction with five items and the loyalty intention for medical treatment with six items (refer to Figure 4.21). A total of 58 items were being subjected to the confirmatory factor analysis using the maximum likelihood estimation to verify the proposed factor structure.

In addition, the multiple iteration process of the CFA was needed to test the measurement model to purify the items. Hair et al. (2010a) suggested that items purification process should be continued until the parameter estimates yielded the acceptable goodness-of-fit (GOF) indices for the measurement model. To assess the full combined measurement model, this study used an SEM technique for all unobserved constructs, independent, dependent and mediating variables before conducting the structural model. Hence, a full (combined) measurement model was tested as the result from the single measurement model analysis (CFA). The hypothesized full measurement model of this study is shown in Figure 4.20. As such, several major tests were conducted and conformity should be found prior to performing the structural model or hypothesis testing.

Table 4.28: GOF Measures of full Measurement Model

Model fit	Iteration 1 Value (s)	Iteration 2 Value (s) Del SA2; PQ2; NQ1; NQ2, NQ7; EI6; AB4; ES5; SS2
P-value>0.05	0.000*	0.000*
CMIN/df <3.0	2.295	1.883
RMSEA<0.08	0.059	0.048
GFI >0.90	0.758	0.828
AGFI>0.80	0.731	0.803
NFI>0.90	0.811	0.865
IFI>0.90	0.884	0.932
TLI>0.90	0.875	0.925
CFI>0.90	0.883	0.931
PARATIO	0.934	0.911
PNFI>0.50	0.757	0.788
PCFI>0.50	0.824	0.849
HOELTER 0.05	175	216
HOELTER 0.01	180	223

Note: *Significant level at 0.01.

As illustrated in Figure 4.20, the two headed connections designate the covariance between the constructs. However, the findings of the measurement model did not fully achieve satisfactory results, particularly, the goodness-of-fit indices failed to attain the required criteria of GFI, CFI and TLI. The Absolute fit identified that the root mean square of error approximation (RMSEA) value was 0.059< 0.08 and the chi-square/degrees of freedom of 3300.704/1438 was 2.295 < 3, whereas the goodness of fit index (GFI) value was 0.758< 0.90. With regards to the Incremental fit, comparative fit index (CFI) and Tucker-Lewis index (TLI) value was 0.883 and 0.875 respectively with a cut-off point of 0.90 which indicates that an incremental fit did not achieve the satisfactory level. However, the Parsimonious fit indicated a good fit model, as the parsimonious comparative fit index (PCFI) value was found to be 0.824 with the threshold Value >0.50 and the parsimonious normed fit index (PNFI) was 0.757 with the threshold Value > 0.50.

Indeed, in the first iteration, the GOF indices (CMIN/df= 2.295<3, significant p at 0.05 level, RMSEA= 0.059<0.08, GFI= 0.758, AGFI=0.731, NFI=0.811, IFI=0.883, TLI= 0.875, CFI=0.883, PARATIO= 0.934, ONFI=0.757, PCFI=0.824) reflect that the model fit was not acceptable. Thus, the measurement model was run again which is shown in Figure 4.21. The items SA2, PQ2, NQ1, NQ2, NQ7, EI6, AB4, ES5 and SS2 were removed as the SRC>2.5. However, after re-specification the model, the second iteration demonstrated the excellent model fit: CMIN/df= 1.883, significant p at 0.05 level, RMSEA=0.048, GFI= 0.828, AGFI= 0.803, NFI=0.865, IFI=0.932, TLI=0.925, CFI=0.931, PARATIO= 0.911, PNFI=0.788, PCFI= 0.849. Moreover, the Hoelter's critical N' for 0.5 and 0.01 level was above 200 indicating that the sample was adequate (Tableb 4.28).
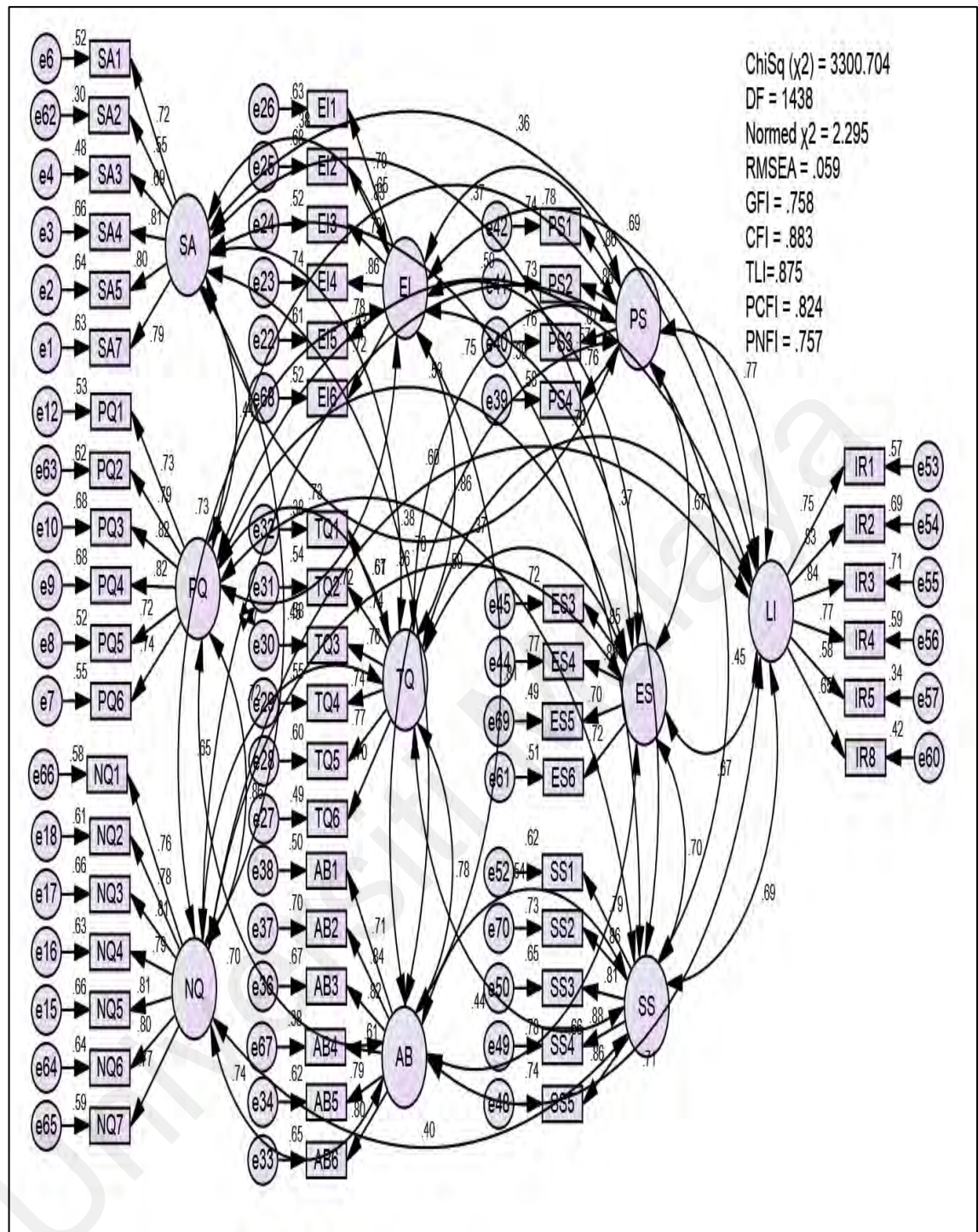
Figure 4.20: Full Measurement Model

Note: ChSq= Discrepancy chi-square, df= degree of freedom, RMSEA= Root means square of error approximation, GFI= Goodness of fit index, CFI= Compared fit index, TLI= Tucker-Lewis index, PCFI= Parsimony comparative fit index, PNFI= Parsimony normed fit index. SA= Shariah amenities, PQ= Physicians' services', NQ= Nurses' services, TQ= Healthcare Technicality, EI= Hospital environment, AB= Administrative behaviour, PS= Physical satisfaction, ES= Emotional satisfaction, SS= Spiritual satisfaction, LI= Loyalty intention.

All the items in the regression weight table 4.29 illustrate a positive direction and were statistically significant at 0.01 alpha. The goodness-of-fit index, path direction and the significant level confirmed the unidimensionality. The standard regression weights of the model were above 0.50 indicating convergent validity (Table 4.29). Parsimony goodness-of-fit index (PARATIO) = 0.911 also showed the complexity (number of estimated parameters) of the model in the assessment of overall model fit. Thus, the full combined measurement model was satisfied and the required goodness-of-fit index was confirmed. For further confirmation of the items validity and model fit, the structural model was performed in the next section.

Table 4.29: Full Measurement Model Regression Weights

Relationship			Estimate	S.E.	C.R.	P	SRW	SMC
SA7	<---	SA	1.000				0.791	0.625
SA5	<---	SA	0.978	0.059	16.576	***	0.813	0.660
SA4	<---	SA	1.061	0.063	16.884	***	0.826	0.683
SA3	<---	SA	0.791	0.059	13.515	***	0.682	0.465
SA1	<---	SA	0.997	0.072	13.897	***	0.698	0.488
PQ6	<---	PQ	1.000				0.739	0.546
PQ5	<---	PQ	1.087	0.076	14.294	***	0.743	0.553
PQ4	<---	PQ	1.203	0.074	16.289	***	0.841	0.708
PQ3	<---	PQ	1.079	0.068	15.790	***	0.817	0.667
PQ1	<---	PQ	1.010	0.077	13.180	***	0.689	0.474
NQ5	<---	NQ	0.962	0.058	16.542	***	0.765	0.585
NQ4	<---	NQ	1.023	0.056	18.206	***	0.821	0.674
NQ3	<---	NQ	1.025	0.054	18.965	***	0.846	0.716
NQ2	<---	NQ	1.000				0.816	0.665
EI5	<---	EI	0.891	0.052	17.212	***	0.759	0.576
EI4	<---	EI	1.008	0.049	20.778	***	0.858	0.735
EI3	<---	EI	0.936	0.057	16.323	***	0.731	0.535
EI2	<---	EI	1.000				0.840	0.706
EI1	<---	EI	0.876	0.047	18.753	***	0.804	0.646
TQ6	<---	TQ	1.000				0.702	0.493
TQ5	<---	TQ	1.191	0.086	13.882	***	0.771	0.594

Note: SRW (Standard regression weight), SMC (Squared multiple correlations)
*** (Regression weight of the prediction between the items is significantly different from zero at the 0.001 level (two-tailed).

Table 4.29: Full Measurement Model Regression Weights (Continue)

Relationship			Estimate	S.E.	C.R.	P	SRW	SMC
TQ4	<---	TQ	1.108	0.083	13.415	***	0.743	0.552
TQ3	<---	TQ	1.175	0.086	13.704	***	0.762	0.580
TQ2	<---	TQ	1.234	0.092	13.380	***	0.743	0.552
TQ1	<---	TQ	1.032	0.093	11.156	***	0.613	0.376
AB6	<---	AB	1.000				0.823	0.677
AB5	<---	AB	0.917	0.052	17.568	***	0.796	0.633
AB3	<---	AB	0.898	0.052	17.318	***	0.789	0.623
AB2	<---	AB	0.933	0.054	17.327	***	0.791	0.625
AB1	<---	AB	0.945	0.068	13.997	***	0.671	0.451
PS4	<---	PS	0.885	0.049	17.920	***	0.764	0.583
PS3	<---	PS	0.968	0.044	22.262	***	0.870	0.756
PS2	<---	PS	0.957	0.044	21.653	***	0.856	0.733
PS1	<---	PS	1.000				0.863	0.745
ES4	<---	ES	1.000				0.890	0.791
ES3	<---	ES	1.011	0.047	21.564	***	0.872	0.761
SS5	<---	SS	1.141	0.068	16.820	***	0.863	0.744
SS4	<---	SS	1.198	0.069	17.409	***	0.893	0.798
SS3	<---	SS	1.088	0.068	16.075	***	0.826	0.683
SS1	<---	SS	1.000				0.736	0.541
IR1	<---	LI	1.000				0.765	0.585
IR2	<---	LI	1.226	0.073	16.873	***	0.825	0.681
IR3	<---	LI	1.110	0.064	17.212	***	0.840	0.705
IR4	<---	LI	1.004	0.065	15.438	***	0.765	0.585
IR5	<---	LI	0.934	0.088	10.643	***	0.608	0.369
IR8	<---	LI	0.889	0.069	12.897	***	0.653	0.426
ES6	<---	ES	0.766	0.051	14.920	***	0.678	0.459

Note: SRW (Standard regression weight), SMC (Squared multiple correlations)
*** (Regression weight of the prediction between the items is significantly different from zero at the 0.001 level (two-tailed).

Table 4.27 shows the items removed and retained of full measurement model test. Hence, 9 items were dropped at this stage as the cut-off point less than 0.60. The remaining of 47 items (refer Table 4.30) which were forwarded for the structural model test assessment showed in the next section.

Table 4.30: Item removed and retained of full measurement model

Constructs	No. of items	Removed item(s)	Retained items
Shariah amenities	6	1 [SA2)	[SA1] [SA3] [SA4] [SA5] [SA7]
Physicians' services	6	1 [PQ2]	[PQ1] [PQ3] [PQ4] [PQ5] [PQ6]
Nurses' services	7	3 [NQ1] [NQ6] [NQ7]	[NQ2] [NQ3] [NQ4] [NQ5]
Healthcare technicality	6	Not removed	[TQ1] [TQ2] [TQ3] [TQ4] [TQ5] [TQ6]
Hospital environment	6	1 [EI6]	[EI1] [EI2] [EI3] [EI4] [EI5]
Administrative behavior	6	1 [AB4]	[AB1] [AB2] [AB3] [AB5] [AB6]
Physical satisfaction	4	Not removed	[PS1] [PS2] [PS3] [PS4]
Emotional satisfaction	4	1 [ES5]	[ES3] [ES4] [ES6]
Spiritual satisfaction	5	1 [SS2]	[SS1] [SS3] [SS4] [SS5]
Loyalty intention	6	Not removed	[IR1] [IR2] [IR3] [IR4] [IR5] [IR8]
Total	**56**	**9 items dropped**	**47 items retained**
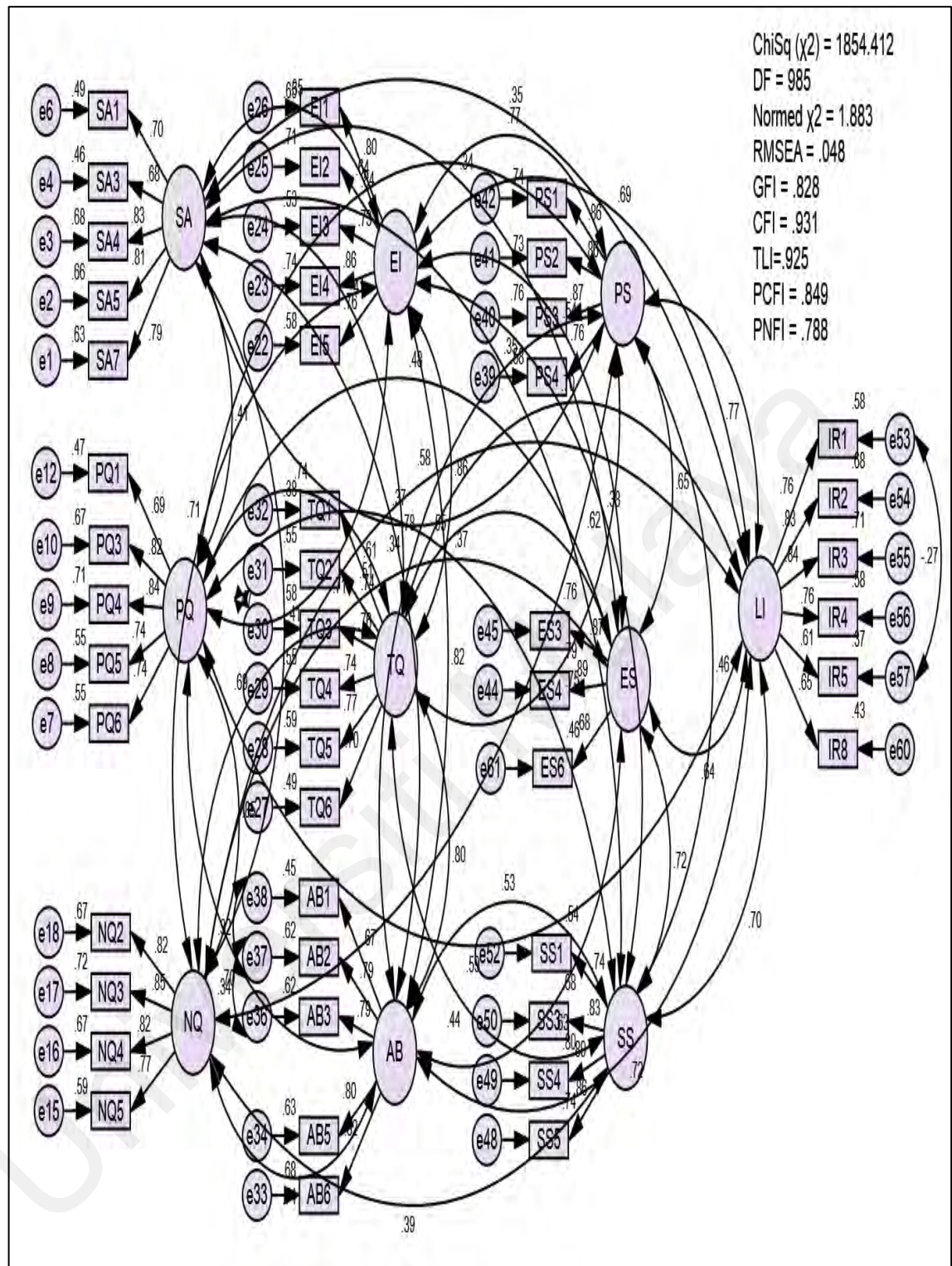
Figure 4.21: Full Measurement Model after 2nd iteration

Note: ChSq= Discrepancy chi-square, df= degree of freedom, RMSEA= Root means square of error approximation, GFI= Goodness of fit index, CFI= Compared fit index, TLI= Tucker-Lewis index, PCFI= Parsimony comparative fit index, PNFI= Parsimony normed fit index. SA= Shariah amenities, PQ= Physicians' services', NQ= Nurses' services, TQ= Healthcare Technicality, EI= Hospital environment, AB= Administrative behaviour, PS= Physical satisfaction, ES= Emotional satisfaction, SS= Spiritual satisfaction, LI= Loyalty intention.

Figure 4.21 shows the modified measurement model after the second iteration which indicated that the goodness-of-fit statistics were improved. For example, in terms of the Absolute fit, RMSEA= 0.048 with a cut-off point at 0.08 and the chi-square/degrees of freedom of 1854.412/985 was 1.883 with a cut-off point ≤ 3 and GFI=0.828. With regards to the Incremental fit, the comparative fit index (CFI) value was found to be 0.931 with a cut-off point ≥0.90, Tucker-Lewis index (TLI)= 0.925 with a cut-off point ≥0.90 which was good. The Parsimonious fit indicated a good-fit-model fit as the parsimonious comparative fit index (PCFI) value was found to be 0.849 with a threshold Value >0.50 and parsimonious normed fit index (PNFI) was 0.788 with a threshold Value > 0.50.

The absolute fitness statistics level was accepted and the model was fit appropriate. Hence, the goodness of fit index (GFI) value was 0.828>0.80, which was suggested by Hair et al. (2010a). As Hair et al. (2010a) and Byrne (2010) stated a lower value was accepted in the case of a complex model. In addition, this finding of absolute fit statistical values was similar to the study conducted by Makikangas et al. (2007) and Hsu et al. (2014). The findings also designated that the model had achieved the unidimensionality factor loading ≥ 0.50, construct reliability of CR ≥ 0.60, convergent validity of AVE ≥ 0.50, discriminant validity correlation of ≤ 0.85 and construct validity (fitness indices for the models met the required level).

4.6.1 Unidimensionality

The CFA method has the ability to assess the unidimensionality, reliability and validity of a measurement model. Zainuddin (2012) and Byrne (2013) stated that the unidimensionality assessment should be made first prior to assessing the reliability and the validity. Unidimensionality is achieved once the measuring items have acceptable factor loadings for the latent construct. In this study, the factor loading for each item was above 0.50. To develop scales, the factor loading for the items should be ≥ 0.50 (Hair et

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al., 2010a; Byrne et al., 2013). In addition, Zainuddin (2012) postulated that a convergent validity could also be achieved when all items in a measurement model were statistically significant (>0.50). Thus, the unidimensionality and the convergent validity had been achieved by the measurement model.

4.6.2 Discriminant Validity

To measure the discriminant validity, this study ran the measurement model by linking all the independent and the dependent variables together to examine whether the constructs were highly correlated. Byrne (2013) and Thungjaroenkul et al. (2016) indicated that if the correlation value between two the constructs exceeded 0.85, the discriminant validity could not be attained. Hayduk et al. (2007), Hayduk and Littvay (2012) also stated that the correlation between the two variables should be less than 0.85 for the discriminant validity. In addition, Byrne (2010) and Kline (2011) advocated that if the discriminant validity was not achieved, it needed to drop one of the two constructs for further analyses. As all values of the constructs were under the threshold value of < 0.85 (Table 4.31), it was ensured that the discriminant validity was achieved for the measurement model.

Table 4.31: Correlations (Group number 1 - Default model)

Correlations			Estimate
Shariah amenities	<-->	Physicians' services	0.414
Physical satisfaction	<-->	Emotional satisfaction	0.645
Emotional satisfaction	<-->	Spiritual satisfaction	0.719
Physical satisfaction	<-->	Loyalty intention	0.766
Spiritual satisfaction	<-->	Loyalty intention	0.705
Hospital environment	<-->	Physical satisfaction	0.774
Nurses' services	<-->	Emotional satisfaction	0.514
Hospital environment	<-->	Emotional satisfaction	0.542
Hospital environment	<-->	Spiritual satisfaction	0.382
Healthcare technicality	<-->	Spiritual satisfaction	0.444
Physical satisfaction	<-->	Spiritual satisfaction	0.456

Table 4.31: Correlations (Group number 1 - Default model) (continue)

Correlations			Estimate
Healthcare technicality	<-->	Physical satisfaction	0.750
Hospital environment	<-->	Loyalty intention	0.692
Healthcare technicality	<-->	Administrative behaviour	0.798
Administrative behaviour	<-->	Spiritual satisfaction	0.531
Administrative behaviour	<-->	Emotional satisfaction	0.629
Administrative behaviour	<-->	Physical satisfaction	0.782
Hospital environment	<-->	Administrative behaviour	0.824
Shariah amenities	<-->	Administrative behaviour	0.369
Physicians' services	<-->	Administrative behaviour	0.697
Nurses' services	<-->	Administrative behaviour	0.737
Administrative behaviour	<-->	Loyalty intention	0.725
Physicians' services	<-->	Nurses' services	0.845
Nurses' services	<-->	Hospital environment	0.706
Nurses' services	<-->	Physical satisfaction	0.624
Nurses' services	<-->	Loyalty intention	0.576
Physicians' services	<-->	Hospital environment	0.714
Shariah amenities	<-->	Physical satisfaction	0.339
Shariah amenities	<-->	Hospital environment	0.349
Shariah amenities	<-->	Loyalty intention	0.347
Shariah amenities	<-->	Emotional satisfaction	0.342
Shariah amenities	<-->	Spiritual satisfaction	0.345
Shariah amenities	<-->	Nurses' services	0.406
Physicians' services	<-->	Physical satisfaction	0.642
Physicians' services	<-->	Loyalty intention	0.593
Physicians' services	<-->	Emotional satisfaction	0.481
Physicians' services	<-->	Spiritual satisfaction	0.370
Hospital environment	<-->	Healthcare technicality	0.858
Healthcare technicality	<-->	Emotional satisfaction	0.554
Healthcare technicality	<-->	Loyalty intention	0.700
Shariah amenities	<-->	Healthcare technicality	0.407
Physicians' services	<-->	Healthcare technicality	0.735
Nurses' services	<-->	Healthcare technicality	0.693
Nurses' services	<-->	Spiritual satisfaction	0.385
Emotional satisfaction	<-->	Loyalty intention	0.638

4.6.2 *Nomological Validity*

Nomological validity is a form of construct validity that needs a comparison of at least

two constructs which should have a significant relationship. Hair et al. (2010a) stated that

a Nomological validity was tested to determine the extent of a relationship between one

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construct upon another in a measurement theory (refer to Table 4.32). A nomological validity can also be assessed from the goodness-of-fit indices (Hsu et al., 2009). The relationship estimates were checked to measure the nomological validity of the measurement model. The results found that all correlations were significant. Thus, a nomological validity was achieved for the measurement model.

Table 4.32: Covariance (Group number 1 - Default model)

Correlation			Estimate	S.E.	C.R.	P
SA	<-->	PQ	0.439	0.071	6.200	***
PS	<-->	ES	0.803	0.087	9.222	***
ES	<-->	SS	1.006	0.109	9.247	***
PS	<-->	LI	0.762	0.079	9.690	***
SS	<-->	LI	0.788	0.090	8.731	***
EI	<-->	PS	0.779	0.077	10.174	***
NQ	<-->	ES	0.561	0.073	7.667	***
EI	<-->	ES	0.628	0.078	8.085	***
EI	<-->	SS	0.432	0.072	5.999	***
TQ	<-->	SS	0.396	0.062	6.373	***
PS	<-->	SS	0.554	0.080	6.913	***
TQ	<-->	PS	0.594	0.065	9.125	***
EI	<-->	LI	0.641	0.071	9.085	***
TQ	<-->	AB	0.585	0.064	9.195	***
AB	<-->	SS	0.597	0.079	7.519	***
AB	<-->	ES	0.723	0.082	8.832	***
AB	<-->	PS	0.781	0.077	10.076	***
EI	<-->	AB	0.766	0.075	10.247	***
SA	<-->	AB	0.482	0.084	5.735	***
PQ	<-->	AB	0.524	0.059	8.833	***
NQ	<-->	AB	0.646	0.068	9.486	***

Note: SA= Shariah amenities, PQ= Physicians' services', NQ= Nurses' services, TQ= Healthcare Technicality, EI= Hospital environment, AB= Administrative behaviour, PS= Physical satisfaction, ES= Emotional satisfaction, SS= Spiritual satisfaction, LI= Loyalty intention.

Table 4.32: Covariance (Group number 1 - Default model) (Continue)

Correlation			Estimate	S.E.	C.R.	P
AB	<-->	LI	0.666	0.073	9.184	***
PQ	<-->	NQ	0.603	0.062	9.710	***
NQ	<-->	EI	0.623	0.066	9.395	***
NQ	<-->	PS	0.592	0.067	8.796	***
NQ	<-->	LI	0.503	0.063	8.028	***
PQ	<-->	EI	0.540	0.060	9.077	***
SA	<-->	PS	0.478	0.088	5.462	***
SA	<-->	EI	0.459	0.082	5.571	***
SA	<-->	LI	0.451	0.083	5.469	***
SA	<-->	ES	0.556	0.102	5.460	***
SA	<-->	SS	0.548	0.101	5.424	***
SA	<-->	NQ	0.503	0.081	6.228	***
PQ	<-->	PS	0.522	0.060	8.628	***
PQ	<-->	LI	0.444	0.056	7.922	***
PQ	<-->	ES	0.451	0.063	7.111	***
PQ	<-->	SS	0.338	0.059	5.690	***
EI	<-->	TQ	0.634	0.066	9.624	***
TQ	<-->	ES	0.506	0.066	7.654	***
TQ	<-->	LI	0.511	0.061	8.454	***
SA	<-->	TQ	0.422	0.070	5.998	***
PQ	<-->	TQ	0.439	0.051	8.516	***
NQ	<-->	TQ	0.482	0.056	8.563	***
NQ	<-->	SS	0.411	0.069	5.970	***
ES	<-->	LI	0.731	0.084	8.755	***

Note: SA= Shariah amenities, PQ= Physicians' services', NQ= Nurses' services, TQ= Healthcare Technicality, EI= Hospital environment, AB= Administrative behaviour, PS= Physical satisfaction, ES= Emotional satisfaction, SS= Spiritual satisfaction, LI= Loyalty intention.

4.6.4 Construct Validity

Zainuddin (2012) and Hair et al. (2013) postulated that construct validity was achieved when the fitness indices achieved the requirements. In this study, fitness indices were achieved in the measurement model. According to a modified measurement model (Figure 4.22), the goodness-of-fit had the following values, namely, chi-square = 1.883, RMSEA = 0.048, GFI= 0.828, TLI= 0.925, PCFI = 0.849, PNFI = 0.788 and CFI = 0.931 which achieved all of the criteria except GFI= 0.828>0.90. It is also acceptable as Byrne (2010) had discussed that a lower value (but greater than 0.80) was also accepted in the

case of a complex model. Thus, the construct validity was achieved for the measurement model.

4.6.5   Construct Reliability

Construct reliability consists of a composite reliability (CR) and an average variance extracted (AVE). In this study, the range of CR values were 0.86-0.91 with a cut-off point ≥ 0.60 and AVE values of 0.52-0.71 with a threshold value ≥ 0.50 (refer to Table 4.33). Kim and Li (2009) and Bourgeois et al. (2011) discussed that an AVE threshold value of 0.50 and CR> 0.60. Thus, the construct reliability was achieved for the measurement model. Byrne (2010) stated that values of the CR and the AVE were the key components to measure the construct reliability and convergent validity.

Table 4.33: CFA Resutls

Characteristics	Loading	AVE	CR
Shariah Amenities		0.58	0.87
[SA1] The hospital provides a copy of the Holy Quran in the prayer room	0.70		
[SA3] The hospital provides halal foods and drinks	0.68		
[SA4] The hospital provides a prayer room for each ward for Muslim patients	0.83		
[SA5] The hospital provides prayer amenities (times [Azan], mats, direction of Qiblat, wudhu) in the prayer room	0.81		
[SA7] The hospital provides an ablution pipe for *solat* purpose	0.79		
Physicians' Services		0.59	0.88
[PQ1] Physicians inform me regarding the use of vaccines that are porcine in origin	0.69		
[PQ3] Physicians respond promptly to my request	0.82		
[PQ4] Physicians understand my specific problem	0.84		
[PQ5] Physicians are very sympathetic towards me	0.74		
[PQ6] Physicians respect my privacy	0.74		
Nurses' Services		0.66	0.89
[NQ2] Nurses are ever willing to help me	0.82		
[NQ3] Nurses respond promptly to my request	0.85		
[NQ4] Nurses respect Muslim values and principles	0.82		
[NQ5] Nurses are very sympathetic towards me	0.77		

Table 4.33: CFA Resutls (Continue)

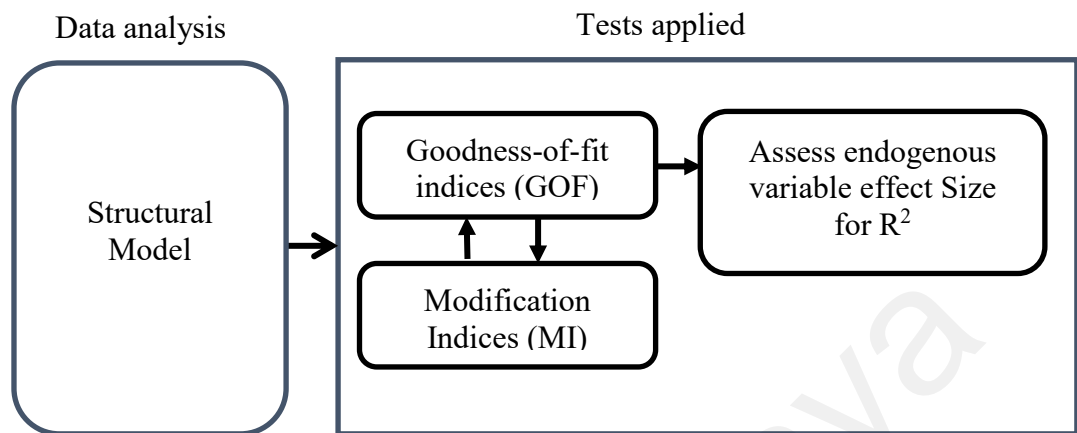| Characteristics	Loading	AVE	CR
Healthcare Technicality		0.52	0.86
[TQ1] This hospital uses up-to-date equipment	0.61		
[TQ2] This hospital provides service on time	0.74		
[TQ3] This hospital fulfils the promised service at the promised time	0.76		
[TQ4] This hospital keeps accurate records and documents	0.74		
[TQ5] This hospital has adequate of consulting rooms	0.77		
[TQ6] This hospital provides a stable amenities (e.g. water and electricity)	0.70		
Hospital Environmental		0.64	0.90
[EI1] This hospital has a clean and hygienic appearance	0.80		
[EI2] The waiting room of this hospital is pleasant	0.84		
[EI3] The surrounding area of this hospital is quiet	0.73		
[EI4] The rooms of this hospital are pleasant	0.86		
[EI5] This hospital is located in a safe and secure place	0.76		
Administrative Behaviour		0.60	0.88
[AB1] The administrative procedures of this hospital are (paper work and paying of bills) fast and easy	0.67		
[AB2] The administrative staff of this hospital respect my concerns	0.79		
[AB3] The administrative staff of this hospital are courteous	0.79		
[AB5] The administrative staff of this hospital are treating me with respect and dignity	0.80		
[AB6] Overall, I have confidence in this hospital's administrative system	0.82		
Physical Satisfaction		0.71	0.91
[PS1] I am satisfied with the medical treatment provided in this hospital	0.86		
[PS2] I am satisfied with the feeling of security in receiving treatment here	0.86		
[PS3] I am satisfied with the physicians who treated me	0.87		
[PS4] I am satisfied with the nurses who treated me	0.77		
Emotional Satisfaction		0.68	0.86
[ES3] Medical professionals in this hospital help me to overcome my fears/concerns on the outcome of medical treatment	0.88		
[ES4] Medical professionals in this hospital give me credible hope or encouragement	0.89		
[ES6] Medical professionals in this hospital listen to my fears, hopes, pain and dreams	0.68		

Table 4.33: CFA Resutls (Continue)

Characteristics	Loading	AVE	CR
Spiritual Satisfaction		0.70	0.90
[SS1] Medical professionals in this hospital pray for me for my health and rapid recuperation.	0.74		
[SS3] Medical professionals in this hospital recite "bismillah" before my medical procedure	0.84		
[SS4] Medical professionals in this hospital help me to appreciate Allah cares for people whom I love	0.90		
[SS5] Medical professionals of this hospital actively address my other spiritual needs (trust, faith, love to Allah)	0.86		
Loyalty Intention		0.56	0.88
[IR1] I intend to revisit this hospital because of ease in accessibility to treatment	0.77		
[IR2] I intend to revisit this hospital because of its Muslim-friendly medical quality service	0.82		
[IR3] I intend to revisit this hospital because healthcare professionals are consistently courteous and respectful to me	0.84		
[IR4] I intend to continue to use this hospital for its Muslim friendly healthcare practices	0.77		
[IR5] I intend to revisit this hospital because the physicians are aware of the presence of potentially non-Halal ingredients in medicines	0.61		
[IR8] I intend to revisit this hospital because of precise and clear explanations of my treatment results	0.65		

4.7 Structural Model Assessment

The following analytical mapping shows the analytical flow of the structural model. After the measurement model test, a total of 47 items was retained, which run for structural model assessment. The structural model is able to estimate the relationships among latent variables. It is also able to test the overall model in addition to individual paths. To check the validity of the structural model, the number of the indicator helps the researcher in using the modification indices. The R-square value should be greater than 0.25 (Henseler et al., 2009). The R-square value ranges from 0 to 1 with 1 defines perfect predictive accuracy but there is no standard guideline to determine the level of predictive acceptance. Henseler et al. (2009) proposed a rule of thumb for acceptable R-square value with 0.75, 0.50, and 0.25 are described as substantial, moderate and weak respectively. The

goodness-of-fit (GOF) statistics like RMSEA, CFI, GFI, IFI, PCFI, PNFI, etc. are some key indicators that help in measuring the structural model validity.

Data analysis   Tests applied

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┌──────────────┐        ┌──────────────────────────────────────────────┐
│              │        │  ┌─────────────────┐    ┌──────────────────┐  │
│              │        │  │ Goodness-of-fit │───▶│ Assess endogenous│  │
│  Structural  │───────▶│  │  indices (GOF)  │    │ variable effect  │  │
│    Model     │        │  └─────────────────┘    │   Size for R²    │  │
│              │        │       ▲   │             └──────────────────┘  │
│              │        │       │   ▼                                    │
│              │        │  ┌─────────────────┐                          │
│              │        │  │  Modification   │                          │
│              │        │  │  Indices (MI)   │                          │
│              │        │  └─────────────────┘                          │
└──────────────┘        └──────────────────────────────────────────────┘
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In the present study, the structural model defines the relationship between the latent constructs. The structural model was examined by using all the constructs and items which were derived from the full measurement model. Hair et al. (2006) postulated that after all constructs had been confirmed satisfactorily in the measurement model with the cut-off point of model fit, the next step was needed to present the structural model. Generally, a structural model (path analysis) examines the relationship among the latent constructs, and explains how these are related to one another (Blunch, 2013). Cheng (2001) stated that a structural model was examined to determine the causal relationship between the independent and the dependent variables. Ahmad et al. (2004) indicated that the main purpose of the path analysis was to develop the model fit and to determine the direct and the indirect influences of the cause and effect of the variables in the study.

Accordingly, a structural model was designed to investigate the interrelationships of the criterions (Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour), the Muslim patients' satisfaction and the Muslim patients' loyalty intention for medical treatment at hospitals all of which came to a total of thirteen paths. Several structural model-fit tests and

multiple squared correlations (R^2) were assessed to confirm the eligibility prior to conducting the hypothesis testing.

However, hypothesis testing were based on the relationship between the factors in the structural model. Marcoulides and Schumacker (2013), Stawski (2013) stated that the results of the hypothesis acceptance and rejection were based on the standardized factor loading, critical value as well as the assessment on the endogenous-variables multiple squared correlations (R^2). The structural model is presented in Figure 5.22. Table 4.34 presents the items removed and retained of full structural model analysis. In this stage, 6 items were dropped for the goodness-of-fit (GOF) model test. A total of 41 items remained which shows that the GOF model test is achieved the required level of criteria (refer to Figure 4.22).

The goodness-of-fit indices are important as they reflect the fitness of the structural model (Holmes-Smith et al., 2006; Hair et al., 2010a). Accordingly, three types of goodness-of-fit indices were applied to assess the structural path relationships among the variables. The first category was the 'Absolute Fit' including the RMSEA, the Discrepancy Chi Square/degree of freedom index and GFI. The second types were the 'Incremental Fit' consisting of the CFI and the TLI indices. The third category was the 'Parsimonious Fit' including the PCFI and PNFI indices. The proposed model was validated by EFA and CFA which was forwarded to the structural model for the purpose of hypotheses testing. Cheng (2001) stated that the causal relationship can be determined based on the structural model as it depicts the relationship between exogenous and endogenous constructs.

Table 4.34: Item Removed and Retained Of Full Structural Model Assessment

| Constructs	No. of items	Removed item(s)	Retained items
Shariah amenities	5	Not removed	[SA1] [SA3] [SA4] [SA5] [SA7]
Physicians' services	5	Not removed	[PQ1] [PQ3] [PQ4] [PQ5] [PQ6]
Nurses' services	4	Not removed	[NQ2] [NQ3] [NQ4] [NQ5]
Healthcare technicality	6	2 [TQ1] [TQ6]	[TQ2] [TQ3] [TQ4] [TQ5]
Hospital environment	5	1 [EI1]	[EI2] [EI3] [EI4] [EI5]
Administrative behaviour	5	Not removed	[AB1] [AB2] [AB3] [AB5] [AB6]
Physical satisfaction	4	Not removed	[PS1] [PS2] [PS3] [PS4]
Emotional satisfaction	3	1 [ES6]	[ES3] [ES4]
Spiritual satisfaction	4	Not removed	[SS1] [SS3] [SS4] [SS5]
Loyalty intention	6	2 [IR5] [IR8]	[IR1] [IR2] [IR3] [IR4]
Total	47	6 items dropped	41 items retained
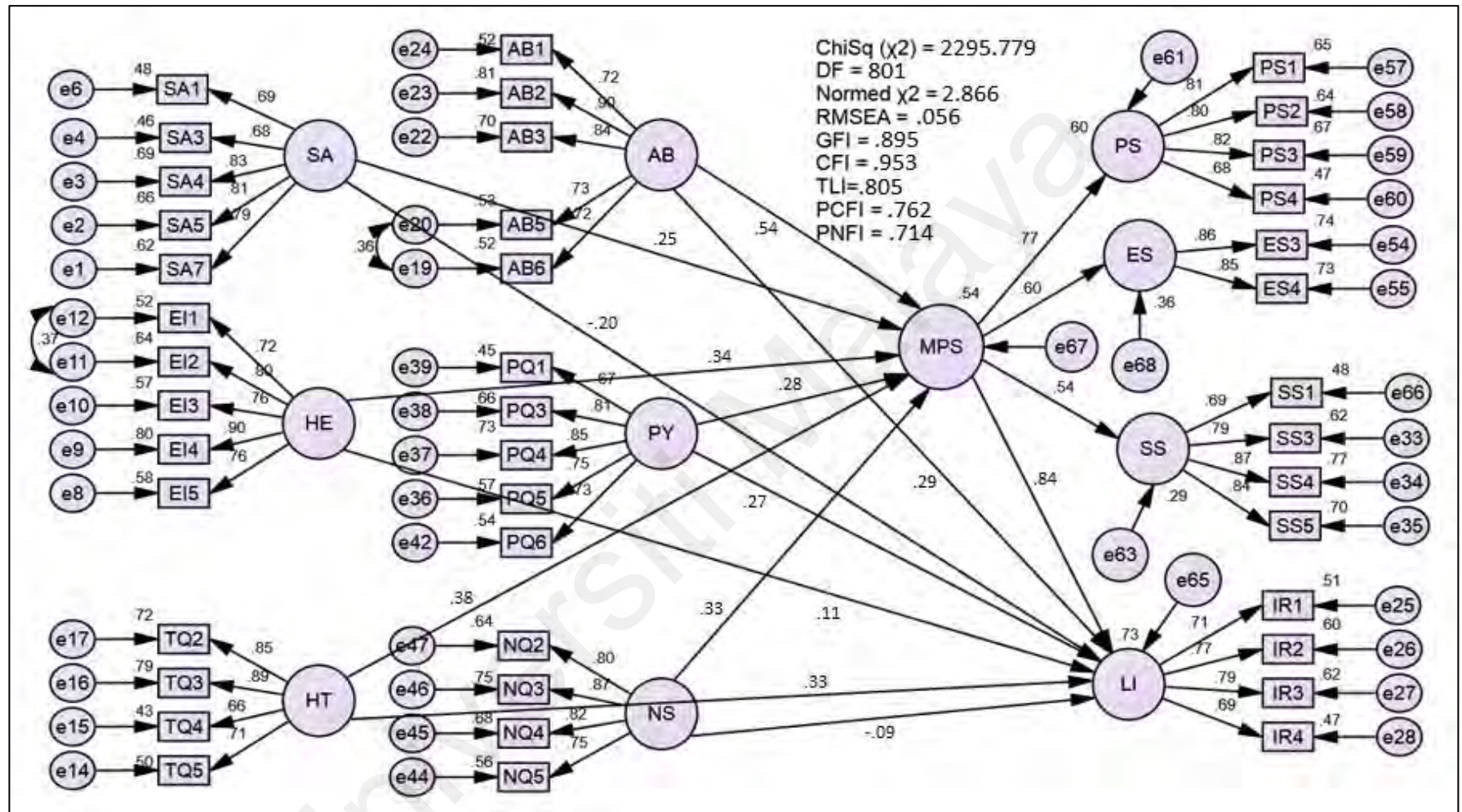
Figure 4.22: Structural Model after 2nd iteration

Note: ChSq= Discrepancy chi-square, df= degree of freedom, RMSEA= Root means square of error approximation, GFI= Goodness of fit index, CFI= Compared fit index, TLI= Tucker Lewis index, PCFI= Parsimony comparative fit index, PNFI= Parsimony normed fit index. MPS= Muslim patients' satisfaction, SA= Shariah amenities, PY= Physicians' services, NS= Nurses' services, HT= Healthcare technicality, HE= Hospital environment, AB=Administrative behaviour, LI= Loyalty intention.

Figure 4.22 on the structural model shows a reasonable model fit as the absolute fit index: CIMN/df= 2.866< 3 (Schumacker & Lomax, 2004), significant p at 0.01 level, RMSEA= 0.056< 0.08 and GFI= 0.895 (very close to 0.90). In addition, the 'Incremental fit index is CFI==0.953> 0.90 and TLI= 0.805. Moreover, the Parsimonious Fit index is PCFI = 0.762 with a cut-off point ≥ 0.50 and PNFI = 0.714 with a cut-off point ≥ 0.50. Hence, although the TLI value was 0.805 with threshold value ≥ 0.80 (Keith, 2005), the model was accepted as most of the criteria achieved the required level. Besides, Byrne (2010) suggested the lower value is also accepted in the case of a complex model. Moreover, Keith (2005) suggested that 0.80 is accepted in case of a complex model. Furthermore, Hu and Bentler (1999) and Keith (2005) postulated that TLI> 0.90 was a good fit, while 0.80 or ≤ 0.90 was a marginal fit. Hair et al. (2010a) stated that the acceptable values for the GFI, CFI and the TLI were between 0 and 1. Thus, the structural model was appropriate and attained all the fitness levels.

These findings were also related to Makikangas et al. (2007); Hsu et al. (2014) and Sarwar (2014) also advocated similar principles in terms of a complex model. Thus, the structural model was considered as a meaningful statistical technique for its capability to disclose the existence of a direct and an indirect relationship between the constructs. With regards to the above explanation, it was assumed that the Muslim-friendly medical services quality had a great deal of influence on the Muslim patients' satisfaction towards the loyalty intention for medical treatment which was conclusively revealed by the best model fit.

4.7.1 *Structural Model Fit Indices*

In a structural model, the goodness-of-fit indices (GOF) are used to determine the overall model fit. In the first iteration, the GOF indices are CMIN/df= 3.615, significant p at 0.05 level, RMSEA= 0.083, GFI= 0.869, CFI= 0.923, AGFI=0.889, PNFI=0.742, while

PCFI=0.707 reflects that the model fit was not completely acceptable. Therefore, the items TQ1, TQ6, ES6, IR5, IR6 were removed as the SRC>2.5. In addition, a large modification index (MI) of 68.45 and 66.89 suggested that the model should be re-specified to allow for the error terms e11 (EI2) and e12 (EI1), and e19 (AB6) and e20 (AB5) to correlate. After the second iteration, the structural model showed a reasonable model fit as CIMN/df=2.866, RMSEA=0.056, GFI=0.895, CFI= 0.953, TLI= 0.805, PCFI= 0.762 and PNFI=0.714 reflects the required level. Moreover, the fit indices were lower than the threshold with the exception of CMIN/df< 3.0, RMSEA < 0.08, HOELTER <0.05 and HOELTER < 0.01 (refer to Table 4.35). Hooper et al. (2008) suggested the RMSEA value should be ≤0.08.

Table 4.35: GOF of Structural Model

Model fit indices	Iteration 1 Values	Iteration 2 Values Del. TQ1; TQ6; ES6; IR5; IR6; Cov. e11 & e12; e19 & e20
P-value>0.05	0.000*	0.000*
CMIN/df <3.0	3.615	2.866
RMSEA<0.08	0.083	0.056
GFI >0.90	0.869	0.895
AGFI>0.90	0.889	0.901
NFI>0.90	0.907	0.911
IFI>0.90	0.801	0.818
TLI>0.90	0.800	0.805
CFI>0.90	0.923	0.953
PARATIO	0.826	0.844
PNFI>0.50	0.742	0.762
PCFI>0.50	0.707	0.714
HOELTER 0.05	210	265
HOELTER 0.01	237	270

Note: *Significant level at 0.01

4.7.2 *Assessment of Endogenous Variables Squared Multiple Correlation (R^2)*

The reliability between the item and its respective constructs can be assessed through the multiple-correlation square coefficients (R^2). Hair et al. (2010a) stated that R^2 could be referred to as item reliability, communality or variance extracted. The value R^2 represents

the extent an item can measure a latent construct. Hooper et al. (2008) postulated that any measuring item having $R^2 < 0.20$ should be dropped due to the high probability of the occurrence of an error. In this study, the R^2 values for the endogenous variables were 0.54 and 0.73 respectively, prevailing the conclusion that the items were free from a high level of error.

The result also found that the R^2 value for the endogenous variable of the Muslim patients' satisfaction was 0.54, indicating the contribution of constructs to the Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour in estimating the Muslim patients' satisfaction, which was 54%. Similarly, the R^2 value was 0.73 indicating the contribution of the construct to the overall Muslim patients' satisfaction in estimating the loyalty intention for medical treatment which was 73% (Figure 4.22). Falk and Miller (1992) suggested that the minimum threshold of the R^2 value should be 0.10 or higher in order to confirm that sufficient variances explained a specific dependent variable. Cohen (1988) stated that R^2 values should be higher than 0.26. Thus, the reliability of the respective constructs and its items were achieved in this study as R^2 values were higher than the recommended level.

4.8   Model Path and Research Hypothesis

The following analytical mapping designates the analytical flow of the model path and hypothesis testing. To check the model path analysis, beta coefficient value and critical ratio help the researcher to identify the significance/insignificance p-value.
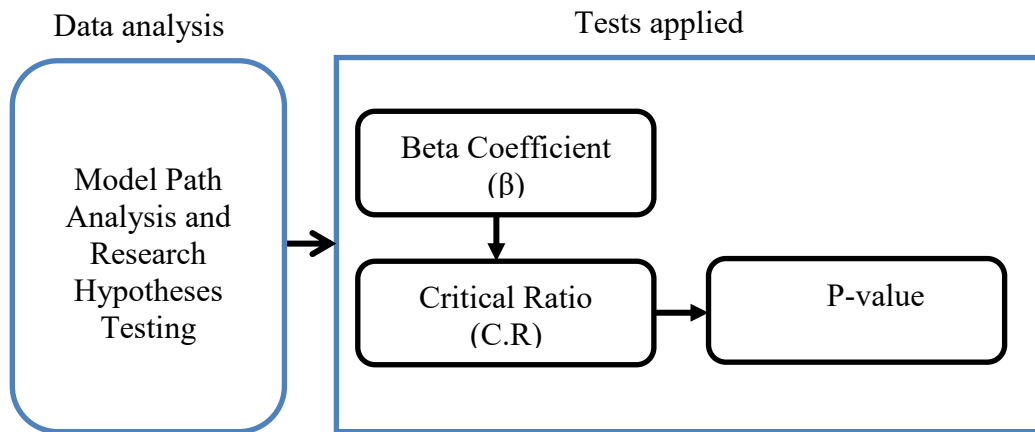
The estimated beta value, β, presents the standard regression weights of variables that indicated how the Muslim-friendly medical-care quality services (independent variables) cast its influence on the Muslim patients' satisfaction (Mediating variable) and its impact on the intention to revisit for medical treatment (dependent variable) in the Malaysian hospitals. Privitera (2012) stated that the hypothesis testing was the assessment to ascertain whether the hypotheses for the population are possibly true or rationally supported. Thus, a method of assessment was identified to test the hypotheses which included the p-value and beta coefficient. Table 4.36 depicts the threshold value of the p-value test.

Table 4.36: Cut-off Point for p-value Test

Level of confidence	p-value	c.r/z-value	Level of significance
90%	0.10	1.65	Weak/not significant
95%	0.05	1.96	Moderate
99%	0.01	2.58	Strong

Source: Hair, Ringle and Sarstedt (2011); Weathington, Cunningham and Pittenger (2012)

In this stage, the path analyses were conducted to measure the structural model, involving the directionality of the fit statistics of the hypothesized relationships. The structural model used to test the hypotheses comprising eight constructs was validated during a full measurement model as well as in the structural model stage. The tests for

mediating variables were carried out simultaneously by using a method that would produce the maximum likelihood of success in the structural equation modelling (SEM) technique which might require further tests to validate the conditions of the mediation effects if the situation dictated. Table 4.36 shows the results of the present study in the structural model including the standardized estimates, standardized errors, critical ratio/z-values and p-values at significance levels of the structural paths. In addition, Figure 4.23 illustrates a path diagram of the present study in the structural model with the beta-coefficient based on standardized estimates, standardised errors and critical ratios.

Table 4.37: Results of Structural Model Analysis

Hypo		Relation		Estimate	S.E.	C.R.	P	Comment
H1a	MPS	<---	SA	0.246	0.055	4.472	0.000	Significant
H1b	MPS	<---	PY	0.279	0.074	3.770	0.000	Significant
H1c	MPS	<---	NS	0.338	0.068	4.970	0.000	Significant
H1d	MPS	<---	HT	0.393	0.089	4.415	0.000	Significant
H1e	MPS	<---	HE	0.331	0.086	3.848	0.004	Significant
H1f	MPS	<---	AB	0.544	0.077	7.064	0.000	Significant
H2	LI	<---	MPS	0.755	0.092	8.206	0.000	Significant
H3a	LI	<---	SA	-0.202	0.071	-2.845	0.031	Significant
H3b	LI	<---	PY	0.270	0.069	3.913	0.002	Significant
H3c	LI	<---	NS	-0.083	0.044	-1.886	0.106	Not Significant
H3d	LI	<---	HT	0.320	0.082	3.902	0.003	Significant
H3e	LI	<---	HE	0.094	0.088	1.068	0.235	Not Significant
H3f	LI	<---	AB	0.289	0.096	3.010	0.012	Significant

Note: Significant level p≤ 0.01, 0.05. Hypo= Hypotheses, SE= Standard estimation, CR= Critical ratio, MPS= Muslim patients' satisfaction, SA= Shariah amenities, PY= Physicians' services, NS= Nurses' services, HT= Healthcare technicality, HE= Hospital environment, AB=Administrative behaviour, LI= Loyalty intention.

In relation to this, the results of the structural model revealed that eleven path coefficients were found statistically significant, as among them, ten had positively significant relationships while one had a negatively significant relationship. Nonetheless, the remaining two path coefficients were statistically insignificant. The nurses' services

(H3c) and hospital environment (H3e) with loyalty intention were insignificant as well. Thus, based on the findings as shown in Table 4.37, specific path analyses with the relationship of the hypotheses testing were conducted, and are discussed in the subsequent section.

4.8.1 The Main Effect of the Hypotheses Testing

This section considers the main effect of the direct relationships between the constructs through specific path analyses. The significance of path coefficients were assessed to obtain the critical values, where the critical ratio of 1.65 implied the presence of a significant level of 10 per cent (weak/not significant), while 1.96 indicated a significant level of 5 per cent, and 2.58 suggested a significant level of 1 per cent (Hair et al., 2011; Weathington et al., 2012). However, since the direct-effect hypothesis of the study indicated the occurrence of both positive and negative directions, the test statistics conclusively determined the use of the critical ratio (C.R) greater than 1.96 and 2.58 for the significant levels at 5 per cent and 1 per cent respectively (Weathington et al., 2012).

4.8.1.1 Muslim-Friendly Medical Services Quality and Patients' Satisfaction

The structural equation modelling of the Muslim-friendly medical services quality and patients' satisfaction postulated six hypotheses:

1) The direct effect of Shariah amenities on Muslim patients' satisfaction. Hypothesis, H1a, predicted that Shariah amenities have a significant positive effect on patients' satisfaction. Hence, based on the findings from statistical analyses, the study found a positive relationship between Shariah amenities and patients' satisfaction and was significant at $p < 0.01$ ($\beta = 0.\,0.246$, C.R. $= 4.472$), indicating that Shariah amenities have an influence on patients' satisfaction. Therefore, H1a was accepted. The regression weight for Shariah amenities was significantly different at zero to level 0.01.

2) The direct relationship of physicians' services on patients' satisfaction.

Hypothesis H1b predicted that physicians' services quality has a significant positive effect on Muslim patients' satisfaction. The premise was supported as the statistical analysis found a significant relationship of beta coefficient ($\beta = 0.279$ and C.R $= 3.770$). This finding signifies that physicians' services quality has a direct effect on Muslim patients' satisfaction, thereby, H1b is accepted.

3) The direct effect of nurses' services on patients' satisfaction.

Hypothesis H1c predicted that nurses' services quality has a significant positive effect on Muslim patients' satisfaction. The empirical analysis results of this study also found a positive relationship between nurses' services quality and Muslim patients' satisfaction, and was statistically significant ($p < 0.05$, $\beta = 0.338$, and C.R. $= 4.970$). This finding indicates that nurses' services quality has an influence on Muslim patients' satisfaction, thereby, H1c is accepted.

4) The direct effect of healthcare technicality on patients' satisfaction.

Hypothesis, H1d, predicted that healthcare technicality has a significant effect on Muslim patients' satisfaction. The study found a positive relationship between healthcare technicality and patients' satisfaction, and was statistically significant at $p < 0.01$ with $\beta = 0.393$, C.R. $= 4.415$, and p-value $= 0.000$. This finding indicates that healthcare technicality has an influence on Muslim patients' satisfaction, thereby, H1d is accepted.

5) The direct effect of hospital environment on patients' satisfaction.

Hypothesis H1e predicted that hospital environment quality has a significant positive effect on Muslim patients' satisfaction. The study found a positive relationship between environmental infrastructure services quality and Muslim patients' satisfaction, and was statistically significant at $p = 0.004$ level with $\beta = 0.331$, and

C.R. = 3.848. This finding indicates that hospital environment positively influenced Muslim patients' satisfaction, thereby, H1e was accepted.

6) The direct effect of administrative behaviour on patients' satisfaction. Hypothesis H1f predicted that administrative behaviour has a significant positive effect on Muslim patients' satisfaction. The findings also showed a positive strong relationship between the two constructs and was significant at $p < 0.01$ with $\beta = 0.544$, and C.R. = 7.064. Therefore, H1f was accepted. As such, Muslim patients' satisfaction was related to administrative behaviour and the regression weight was significantly different at zero to level 0.01.

4.8.1.2 Direct Effect of Patients' Satisfaction on their Loyalty Intention

Hypothesis H2 predicted that Muslim patients' satisfaction has a significant positive relationship with Muslim patients' loyalty intention for medical treatment. The findings of H2 illustrated the path from Muslim patients' satisfaction to Muslim patients' loyalty intention for medical treatment was positively significant at $p < 0.01$ with $\beta = 0.755$, and C.R. = 8.206. Therefore, H2 was accepted.

4.8.1.3 Direct Effects the criterions of Muslim-friendly Medical Service Quality on Loyalty Intention

The structural equation modelling of Muslim-friendly medical services quality and their loyalty intention postulated six hypotheses:

1) The direct relationship of Shariah amenities with Muslim patients' loyalty intention for medical treatment.

    Hypothesis H3a predicted that Shariah amenities have a significant effect on loyalty intention for medical treatment. The hypothesis was accepted with a negative relationship of β coefficient = - 0.202 and C.R. = -2.845 with p-value = 0.031. Therefore, H3a was accepted.

2) The direct relationship between physicians' services and patients' loyalty intention.

   Hypothesis H3b predicted that physicians' services have a significant effect on Muslim patients' loyalty intention for medical treatment. The hypothesis was supported with statistical findings (β coefficient = 0.270 and C.R. = 3.913 and p value= 0.002). This result indicates that physicians' services has relationship with Muslim patients' loyalty intention for medical treatment in hospitals in Malaysia. Therefore, H3b was accepted.

3) The direct effect of nurses' services on patients' loyalty intention.

   Hypothesis H3c predicted that nurses' services have positive a significant effect on Muslim patients' loyalty intention for medical treatment. The statistical analysis found a negative and insignificant relationship of β coefficient = -0.083 and C.R. = -1.886 and p-value= 0.106. Therefore, H3c was not significant.

4) The direct effect of healthcare technicality on patients' loyalty intention

   Hypothesis H3d predicted that healthcare technicality has a positive significant effect on Muslim patients' loyalty intention for future medical treatment. Statistical analysis also discovered a significant positive relationship, β coefficient = 0.320, C.R. = 3.903. Therefore, H3d was accepted.

5) The direct effect of hospital environment on patients' loyalty intention.

   Hypothesis H1e predicted that hospital environment has a positive significant effect on Muslim patients' loyalty intention for medical treatment. The statistical analysis found a positive but insignificant relationship, with β coefficient = -0.094, and C.R. = 1.068. Therefore, H1e was not significant.

6) The direct effect of administrative behaviour on patients' loyalty intention

   Hypothesis H3f predicted that administrative behaviour has a positive significant effect on Muslim patients' loyalty intention for medical treatment. The study found a significant relationship between the two constructs, administrative behaviour and the

Muslim patients' loyalty intention for medical treatment, and was statistically and positively significant at p < 0.01 with β coefficient = 0.289, and C.R. = 3.010. This result indicated that administrative behaviour has positive a significant influence on Muslim patients' loyalty intention for medical treatment in hospitals, thereby, H3f was accepted.

4.8.1.4 The Effects of Mediating Hypotheses

The structural equation modelling (SEM), which assesses the mediating effect of the hypothesis, was used to predict and test the intricate model to deal with the current research. In the SEM, all independent variables are assumed correlated, thus, the analysis could be completed simultaneously to estimate the dependent variables without testing separately for each of the independent variables. Iacobucci et al. (2007) postulated that with the test of multiple indicators together, the measurement errors could be decreased and causality between the testing variables could also be established as required in the mediating analysis.

The mediating analysis using a regression method was proposed by Baron and Kenny (1986) by making use of a single indicator measure for every variable which contained a positive skew in the sampling distribution of the indirect path in the mediation analysis (Preacher & Hayes, 2008a). Preacher and Hayes (2008b) subsequently introduced an outstanding bootstrapping approach to address the problem by using the Baron's method. Nonetheless, the single variable issue in the regression analysis used by Baron and Kenny (1986) and Preacher and Hayes (2008a) assumed that both approaches were unsuitable for use in this study. As such, an approach using the SEM was considered to be more appropriate to deal with the mediation analyses of the complex model with multiple variables. This was supported by Iacobucci et al. (2007), Zhao et al. (2010) who

claimed that an assessment using a regression analysis could not outperform the performance of the SEM.

In connection to this, the present study took the mediating analysis using the SEM technique by Iacobucci et al. (2007) as the source of reference. The Sobel-z test by Sobel (1982) was built up in the study to test the comparative size of the indirect paths with the direct paths, as recommended by Iacobucci et al. (2007) and Hair et al. (2013). The results of the mediation effects are clarified in the following section.

4.8.1.5 Mediating Effect of Patients' Satisfaction on the Relationships between Shariah Amenities and Loyalty Intention

The mediation role of Muslim patients' satisfaction was examined for the relationship between Shariah amenities and Muslim patients' loyalty intention for medical treatment at the Malaysian hospitals. The results of the mediating effects from hypothesis H4a concluded the need for a full mediation. The statistical analysis found the significant path coefficient β for X-M (a) = 0.515, M -Y (b) = 0.764, and an insignificant direct path X-Y (c) = - 0.031 at the significant level of 1% with $p < 0.01$. The results of Sobel's statistical test were 5.740 with the proportion of mediation being 0.927. Thus, it could be concluded that the relationship between Shariah amenities and patients' loyalty intention for medical treatment was fully mediated by Muslim patients' satisfaction.

4.8.1.6 The Mediating Effect of Patients' Satisfaction on the Relationships between Physicians' Services and Loyalty Intention

The mediating role of Muslim patients' satisfaction was tested for the relationship between physicians' services and Muslim patients' loyalty intention for medical treatment. The statistical analysis found a significant path coefficient for X-M (a) = 0.543, M-Y (b) = 0.714, and a direct path X-Y (c) = 0.125 with the proportion of mediation = 0.756. The findings indicated a significant direct relationship between physicians'

services and Muslim patients' loyalty intention for medical treatment, which was confirmed by the significant Sobel Z test results. Thus, Muslim patients' satisfaction mediates the relationship between physicians' services quality and loyalty intention for future medical treatment.

4.8.1.7 Mediating Effect of Patients' Satisfaction on the Relationships between Nurses' Services and Patients' Loyalty Intention

The hypothesis H4c tested the mediating role of Muslim patients' satisfaction on relationship between nurses' services and Muslim patients' loyalty intention. From the statistical analysis it was found that a significant path coefficient for X-M (a) = 0.577, M-Y (b) = 0.727, and a direct path X-Y (c) = 0.096 at the significant level of 1% (p < 0.01), with the result of Sobel's test statistics = 4.739 and the proportion of mediation = 0.814. The findings specified a significant direct relationship between nurses' services and patients' loyalty intention for medical treatment, with a significant Sobel Z test result of 4.739, with Z ≥ 2.58. Thus, it is concluded that Muslim patients' satisfaction mediates the relationship between nurses' services and patients' loyalty intention for future medical treatment.

4.8.1.8 Mediating Effect of Patients' Satisfaction on the Relationships between Healthcare Technicality and Patients' Loyalty Intention

Hypothesis H4d tested the mediating effect of Muslim patients' satisfaction on the relationship between healthcare technicality and Muslim patients' loyalty intention. The findings revealed the presence of a significant path coefficient for X-M (a) = 0.610, M-Y (b) = 0.691, and a direct path X-Y (c) = 0.149 at the significant level of 1% with p < 0.01, and significant Sobel's test statistics = 4.360 with the proportion of mediation = 0.738. Therefore, Muslim patients' satisfaction mediates the relationship between healthcare technicality and Muslim patients' loyalty intention for future medical treatment.

4.8.1.9 Mediating Effect of Patients' Satisfaction on the Relationships between Hospital Environment and Patients' Loyalty Intention

The mediation role of Muslim patients' satisfaction was examined for the relationship between hospital environment and loyalty intention for medical treatment. From the statistical analysis, there was a significant path coefficient for X-M (a) = 0.634, M-Y (b) = 0.699, and a direct path X-Y (c) = 0.131 with the proportion of mediation = 0.772. The findings indicated there is a significant direct relationship between environmental infrastructure quality and Muslim patients' loyalty intention for medical treatment, which are also supported by the significant Sobel Z test results. Thus, Muslim patients' satisfaction mediates the relationship between the hospital environment and Muslim patients' loyalty intention for future medical treatment.

4.8.1.10 Mediating Effect of Patients' Satisfaction on the Relationships between Administrative Behaviour and Loyalty Intention

Hypothesis H4f tested the mediating effect of the Muslim patients' satisfaction on the relationship between administrative behaviour and Muslim patients' loyalty intention for future medical treatment. The findings revealed the presence of a significant path coefficient for X-M (a) = 0.696, M-Y (b) = 0.679 and a direct path X-Y (c) = 0.147 at the significant level of 1 per cent with $p < 0.01$, as well as the significant Sobel's test statistics = 5.671 with the proportion of mediation = 0.763 (refer Table 4.38).

Table 4.38: Summary of the Hypothesis Tests on the Mediating Relationships

Hypothesis	Path Relationship	Direct Relationship	Sobel Z	Result
H4a	MPS<---SA	Insignificant	Significant	Full mediation
H4b	MPS<---PY	Significant	Significant	Partial mediation
H4c	MPS<---NS	Significant	Significant	Partial mediation
H4d	MPS<---HT	Significant	Significant	Partial mediation
H4e	MPS<---HE	Significant	Significant	Partial mediation
H4f	MPS<---AB	Significant	Significant	Partial mediation

Note: MPS = Muslim patients' satisfaction, SA = Shariah amenities, PY = Physicians' services, NS = Nurses' services, HT = Healthcare technicality, HE = Hospital environment, AB = Administrative behaviour.

Based on Table 4.37, the mediating effects of Muslim patients' satisfaction occurred fully in the relationships between Shariah amenities and Muslim patients' loyalty intention for medical treatment. In addition, the mediating effects of Muslim patients' satisfaction partially occurred in the relationships between physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour with Muslim patients' loyalty intention for future medical treatment. The hypothetical effects on the mediating relationships are summarized in Table 4.39 (for more detailed analysis refers to Annexure M).

Hyp	Independent (X)	Mediator (M)	Dependent (Y)	X-M (a)	M-Y (b)	X-Y (c)	SEa	SEb	Sobel Z	Proportion of Mediation	Comments
H4a	SA	MPS	LI	0.515	0.764	**0.031**	0.089	0.017	5.740	0.927	X→Y insignificant, Z significant (1%, 2.58), result: Full mediation
H4b	PY	MPS	LI	0.543	0.714	0.125	0.131	0.017	4.125	0.756	X→Y significant, Z significant (1% - 2.58), result: partial mediation
H4c	NS	MPS	LI	0.577	0.727	0.096	0.121	0.017	4.739	0.814	X→Y significant, Z significant (1% - 2.58), result: partial mediation.
H4d	HT	MPS	LI	0.610	0.691	0.149	0.139	0.018	4.360	0.738	X→Y significant, Z significant (1% - 2.58), result: partial mediation.
H4e	HE	MPS	LI	0.634	0.699	0.131	0.117	0.018	5.367	0.772	X→Y significant, Z significant (1% - 2.58), result: partial mediation.
H4f	AB	MPS	LI	0.696	0.679	0.147	0.121	0.020	5.671	0.763	X→Y significant, Z significant (1% - 2.58), result: partial mediation.

Note: Hyp= Hypothesis, SA= Shariah amenities, PY= Physicians' services, NS= Nurses' services, HT= Healthcare technicality, HE= Hospital environment, AB= Administrative behaviour, MPS= Muslim patients' satisfaction, LI= Loyalty intention.
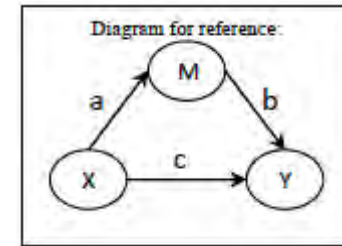
Formula:

- Sobel = (axb) / SQRT (b*b * SEa * SEa + a*a*SEb*SEb)
- Proportion of Mediation = (a*b) / (a*b + ABS(c))

Interpretation of mediation results:

- Direct path X→Y is insignificant, but Z is significant → Full mediation
- Direct path X→Y is significant, and Z is significant → Partial mediation

Proportion of Mediation = [a*b] / [a*b + ABS(c)].


Diagram for reference:

4.8.2   *Assessment of a Control Variable*

In the analysis of the research model, several control variables were used. These were gender, age, marital status, monthly income, education, occupation, and countries of origin. It is important to either deny the impact of these variables or evaluate their distinct roles in having control on the predictions of the outcomes, with regards to Muslim patients' satisfaction and loyalty intention for future medical treatment. The results found that gender, age, marital status and countries of origin did not rebuff the relationship in the research model. However, education and occupation had an effect on the Muslim patients' loyalty intention for medical treatment. Thus, education and occupation were evaluated on their distinct roles as controlling elements to the relationship in the research model. For details of the analytical results, please refer to Annexure M.

4.9   Structural Model Modification

The following analytical mapping describes the analytical flow of the structural model modification. To check the structural model modification, goodness-of-fit index, beta value, critical ratio and p-value help the researcher.
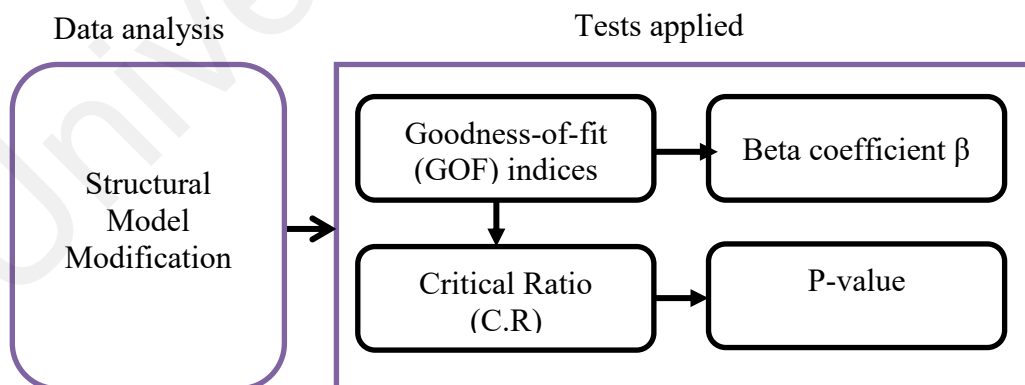
The structural model modification had been carried out earlier to determine the potential misfit in the current structural model which was developed and based on the theory, and was verified from multiple analytical results. The modified structural model was compared with the original structural research model. Both the models were tested to identify the causal relationship between Shariah amenities, physicians' services, nurses' services, healthcare technicality, healthcare environment, administrative behaviour, Muslim patients' satisfaction and Muslim patients' loyalty intention for medical treatment. In relation to this, Table 4.40 presents the goodness-of-fit (GOF) indices test between the first run structural model and the modified structural model.

Table 4.40: GOF Test for First Run and After 2nd Iteration Structural Model

Fit indices	χ2/df	RMSEA	GFI	CFI	TLI	PNFI	PCFI
		Absolute fit		Incremental fit		Parsimonious fit	
Threshold value	≤3.0	≤0.08	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.50	≥ 0.50
Structural model 1st iteration	3.615	0.083	0.869	0.923	0.800	0.742	0.707
Structural model after 2nd iteration	2.866	0.056	0.895	0.953	0.805	0.762	0.714

Note: ChSq = Discrepancy chi-square, df = degree of freedom, RMSEA = Root means square of error approximation, GFI= Goodness of fit index, CFI = Compared fit index, TLI = Tucker-Lewis index, PCFI = Parsimonious comparative fit index, PNFI = Parsimonious normed fit index.

As clearly shown in table above, there is an improvement in the overall model fit with the reduction in the relative values of chi-square/degree of freedom (χ2/df) and RMSEA in comparison with the first iteration structural model, after the second iteration structural model has been signified. The incremental fit index was also increased in the second iteration or final model test. The parsimonious fit index was increased and achieved at a greater fit than the recommended level such as PNFI= 0.762> 0.50 and PCFI= 0.714> 0.50. The result of incremental fit CFI=0.953> 0.90 while TLI=0.805>

0.80. Hence, TLI=0.805 also achieved the recommended threshold point, the value was acceptable as suggested by Keith (2005) and Bentler (1988). As Hu and Bentler (1999) and Keith (2005) postulated that TLI> 0.90 was a good fit, while 0.80 or $\leq$ 0.90 was a marginal fit. For a complex model, it is impossible to judge from a single measurement point of view (Hair et al., 2010a). Indeed, the assessment of the model adequacy should be based on the multiple criteria that took into account practical, theoretical and statistical considerations (Byrne, 2010). Thus, it could be assumed that the modified structural model was significant as the GOF indices have improved to the required level as suggested by Davey and Savla (2010), Hair et al. (2010a), Byrne (2010). The summary of the path analysis results are presented in Table 4.41.

Table 4.41: Summary of the Modified Structural Model

Hypo	Characteristic	Comment
H1a	Shariah amenities have a significant relationship with Muslim patients' satisfaction.	Significant
H1b	Physicians' services have a significant relationship with Muslim patients' satisfaction.	Significant
H1c	Nurses' services have a significant relationship with Muslim patients' satisfaction.	Significant
H1d	Healthcare technicality a significant relationship with Muslim patients' satisfaction.	Significant
H1e	Hospital environment have a significant relationship with Muslim patients' satisfaction.	Significant
H1f	Administrative behaviour has a significant relationship with Muslim patients' satisfaction.	Significant
H2	The Muslim patients' satisfaction has a significant relationship with patients' loyalty intention for future medical treatment.	Significant
H3a	Shariah amenities have negative relationship with Muslim patients' loyalty intention.	Significant
H3b	Physicians' services have positive significant relationship with patients' loyalty intention.	Significant

Table 4.41: Summary of the Modified Structural Model (continue)

Hypo	Characteristic	Comment
H3c	Nurses' services have negative insignificant relationship with patients' loyalty intention.	Not Significant
H3d	Healthcare technicality has significant relationship with patients' loyalty intention.	Significant
H3e	Hospital environment has insignificant relationship with patients' loyalty intention.	Not Significant
H3f	Administrative behaviour has a significant relationship with patients' loyalty intention.	Significant
H4a	Patients' satisfaction fully mediates the relationship between Shariah amenities and Muslim patients' loyalty intention.	Significant
H4b	Patients' satisfaction partially mediates the relationship between physicians' services and patients' loyalty intention.	Significant
H4c	Patients' satisfaction partially mediates the relationship between nurses' services and patients' loyalty intention.	Significant
H4d	Patients' satisfaction partially mediates the relationship between healthcare technicality and patients' loyalty intention.	Significant
H4e	Patients' satisfaction partially mediates the relationship between hospital environment and patients' loyalty intention.	Significant
H4f	Patients' satisfaction partially mediates the relationship between administrative behaviour and patients' loyalty intention.	Significant

Based on the results of the structural model modification, it is conclusively suggested that the modified structural model is more suitable in explaining and deriving the results of the study. Hence, the modified model is considered appropriate to produce a meaningful understanding of the relationships of Muslim-friendly medical services, patients' satisfaction and their loyalty intention for future medical treatment in the Malaysian hospitals.

4.10   Summary of the Chapter

The survey data collection and its analytical results are described in this chapter. A total of 379 responses with a 50.53% response rate was obtained and analysed using the statistical techniques in the SPSS and the AMOS through a structural equation modelling

approach. The two major categories of the participants' countries of origin were identified in the descriptive statistics. Prior to conducting the SEM analysis, data screening was carried out with the results of normality, outliers and multicollinearity tests which identified the satisfactory results, hence, they provided clear evidence of the dataset competency which proceeded with the SEM analyses. The findings of the measurement model indicated that the data was appropriate and that most of the items were well loaded to the conceptualized model. Again, in the full measurement model analysis, there was strong evidence that the proposed latent constructs had met the goodness-of-fit indices. Besides, the squared multiple correlations and the construct validity had also indicated that the data collected appropriately fitted to the model. The subsequent structural model test signified the mix of the various fit indices which supported the conclusion that the model was acceptable and appropriate to conduct the hypothetical testing of the study and subsequently, the modified structural model tested the results which signified that the modified structural model was more suitable in explaining and deriving the results of the study rather than the structural model.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 INTRODUCTION

The first section of this chapter discusses the demographics of the respondents, who are Muslim patients in private hospitals in Malaysia. It is followed by a discussion based on the objectives examined in this study. There are four key parts highlighted in this section. Research questions of this study are reassessed and the findings are discussed accordingly. Discussion includes theoretical, marketing and managerial implications based on the study findings. Finally, the study highlights several limitations and suggestions for future research.

5.2 Research Overview

The main objective of this exploratory study is to develop a theoretical framework of Muslim-friendly medical services quality, Muslim patients' satisfaction and their loyalty intention for future medical treatment at the hospitals in Malaysia. To do so, the researcher proposes four research objectives in this exploratory study, which are essential in guiding the research process.

RO1: To investigate the extent of Muslim-friendly medical service quality offered by the private hospitals in Malaysia.

RO2: To examine the relationships of Muslim-friendly medical services quality with Muslim patients' satisfaction.

RO3: To study the relationships of Muslim patients' satisfaction with their loyalty intention for future medical treatment at the private hospitals.

RO4: To determine the relationships of Muslims-friendly medical services quality with patients' intention of loyalty for future medical treatment at the private hospitals.

RO5: To examine the mediation effect of Muslim patients' satisfaction on the relationships between Muslim-friendly medical services quality and Muslim patients' loyalty intention for future medical treatment at the private hospitals.

To address these research objectives, a quantitative study was adopted. The approach to measuring the mentioned variables was guided by the four steps of scale development as suggested by Malhotra and Birks (2007), Ashill and Jobber (2010), and DeVellis (2016). The steps are: specify the domain of the constructs, item generation, scale development and scale evaluation. Although it is not the main aspect of the study, the author also interviewed patients and key people informally to elucidate pertinent issues of the Muslim-friendly medical services phenomenon. Despite studying the Malaysian context, this research adopted some common medical services quality factors which are found in the existing Euro-American literature. However, with the diversity of Muslim patients' satisfaction and their loyalty intention for medical treatment at the hospitals in Malaysia, several Muslim-friendly medical services quality constructs were identified, and these are Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment, and administrative behaviour.

The stringent method (e.g. Pilot study for content validity, data triangulation, maximum likelihood factor extraction and Structural Equation Modelling) was applied while ensuring a robust and reliable procedure in the scale development process. The

results of the modified structural model provide significant evidence of the relationships between six criterions with patients' satisfaction and their loyalty intention. An alternative structural model reveals that Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment, and administrative behaviour have significant relationships with patients' satisfaction.

In addition, the result also identified that Muslim patients' satisfaction is highly significant with their loyalty intention at the hospital for future medical treatment. Moreover, physicians' services, healthcare technicality, and administrative behaviour have a direct and positive significant relationship with patients' loyalty intention. Shariah amenities have a significant but negative relationship with loyalty intention. Nurses' services, and hospital environment have insignificant relationships with loyalty intention. Patients' satisfaction is a full and partial mediator in the relationships between independent and dependent variables. Guided by the service quality theory, the following criterions are identified as criterions of Muslim-friendly medical services quality: Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour.

5.3   Discussions of Key Research Findings

This section discussed in detail the key findings from the qualitative and quantitative study. The discussion will be made in comparison with the existing literature and in accordance with the research objectives, hypotheses, and findings of the research.

5.3.1   Respondents' Characteristics Analysis

The investigation of respondents' profiles revealed that most respondents (the greater part) were Sunni Muslim. More than half of them visited the hospitals to seek treatment for illnesses one to two times. Half of the respondents stayed in the hospitals from one to

two nights while the rest stayed for three to four nights. The majority of respondents indicated that the hospitals were hygienic and very hygienic. Although the majority of respondents were interested in receiving Muslim-friendly medical services quality, most of them were not familiar with Malaysia as a Muslim-friendly medical services provider.

The respondents who participated in the informal conversation (interview) were mainly female with the average age of 30 years. As Kahana et al. (2012) and Hutchings et al. (2012) argued, female respondents are more willing to accept the interview request. The informal conversation with patients pointed out that the hospital staff were generally not friendly. Hospitals did not provide spiritual support before a medical test and patients needed to wait a long time to see the experts. Additionally, medical professionals did not utter the Qur'anic opening verse "*Bismillah"* before a medical test – similar to Zailani et al. (2016) – and the medical doctors were either inexperienced or medical students. Parents and family members were not allowed to be in the x-ray rooms with their sick relatives, and there was lack of systematic procedures resulting in delayed services at the hospital.

The respondents that participated in this survey were both male and female. There were slightly more females among them, and the average age was 35 years old. Tawil (2011) stated that female respondents are more willing to comply with a survey request. More than 20 per cent of the respondents were above 36 years old with the oldest respondents being above 46 years, higher than 9 per cent recorded by Turner (2010), Musa et al. (2011) and Hall (2013). Glasziou et al. (2017) and Brownlee et al. (2017) also reported the increasing need of medical services among older adults. The majority of respondents were from the private service sector with a monthly income below USD 1000, and academic qualifications of a bachelor degree. Respondents were mainly (more than half) Malaysians which is similar to the study by Amin and Nasharuddin (2013).

There was a high number of foreign Muslim patients (41.2 per cent) which coincide with findings by Seow et al. (2017), Shesser (2017), Whittaker, Chee and Hong (2017).

The respondents were selected based on the criteria that they had been or were being admitted as inpatients for at least one day at the hospitals. This was determined by the question in the demographic profile in which a respondent had to choose the length of stay in the ward. Currently, there are 209 private hospitals in Malaysia. In this study, the total sample of 15 Muslim-friendly hospitals is located in the Klang Valley, Malaysia. Klang Valley is the biggest urban area in the country which combines three prominent major cities: Kuala Lumpur, Putrajaya, and Shah Alam. The total population of the Klang Valley is about 7 million, which is 25 per cent of Malaysia's total population (Amin & Nasharuddin, 2013).

The responses from 379 usable questionnaires were considered sufficient to represent the study population, exceeding Kline's (2015) rule of thumb of more than 200 responses. Hair et al. (2013) postulated that it met the standard number of the suggested sample size between 200-400 responses, to qualify for proper maximum likelihood estimation in the SEM technique. In this study, there were two major criterions for Muslim patients' loyalty intention, namely, Muslim-friendly medical services quality and their satisfaction. There were also two controlling variables of education and occupation in the study, suggesting that Muslim patients' loyalty intention for medical treatment was somewhat controlled by their education standard and occupation. If patients were satisfied with medical care services, they might have loyalty intention for medical treatment as suggested by Sharma (2017) and Seow et al. (2017). Thus, the respondents selected in this study are considered as a suitable sample unit for the research.

5.4   Discussions Based on Research Questions

This section discusses the results in detail based on the research questions. Figure 5.1 shows the final model which illustrates the relationships examined in this study.
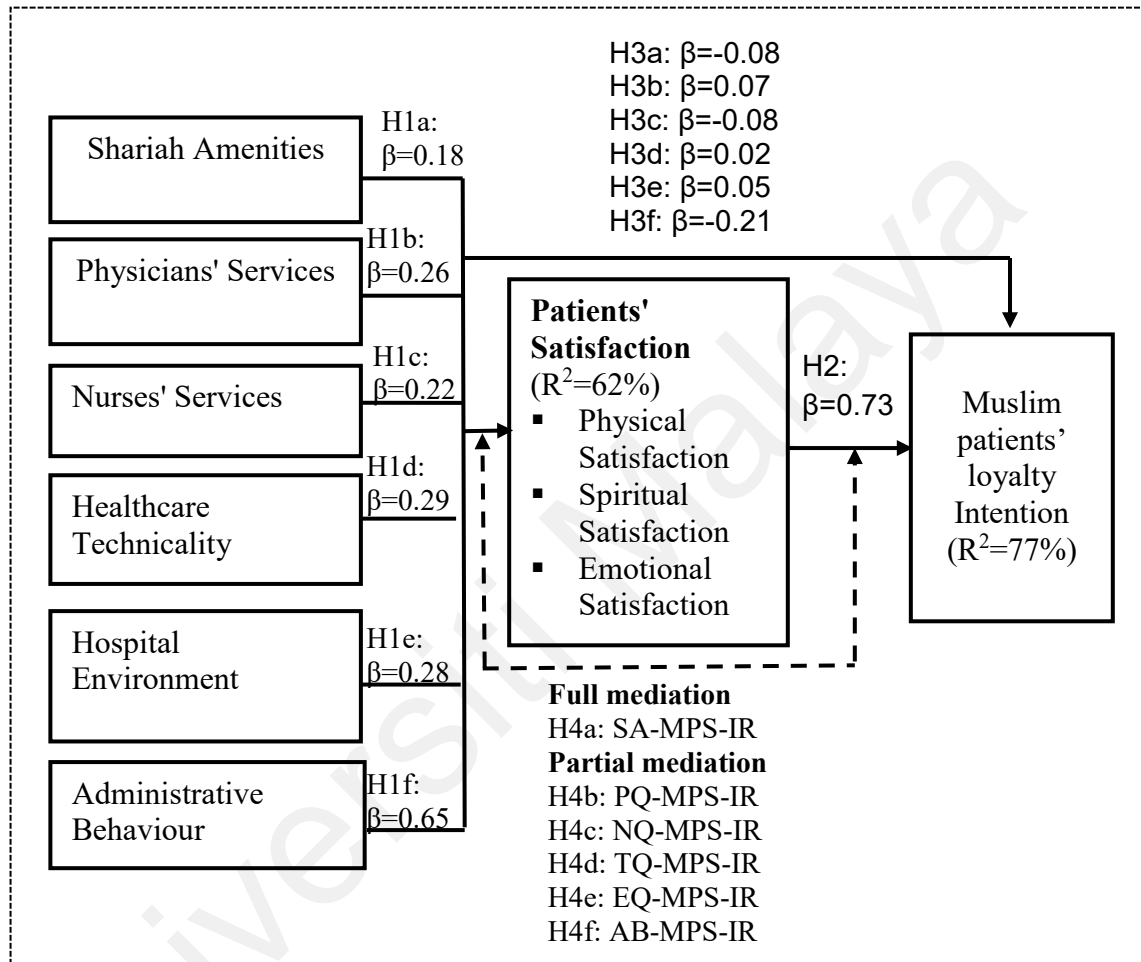

Figure 5.1: Summary of Research Model

Figure 5.2 shows the popular discourse of generic medical service quality model and the niche market of Muslim-friendly medical services quality model, both of them significantly influence to Muslim patients' satisfaction and their loyalty intention for future Muslim-friendly medical care services at the hospitals in Malaysia. Muslim-friendly medical services quality as new values that have been added into the medical care system, considered as the extension to the general medical services quality, especially to the hospital context.
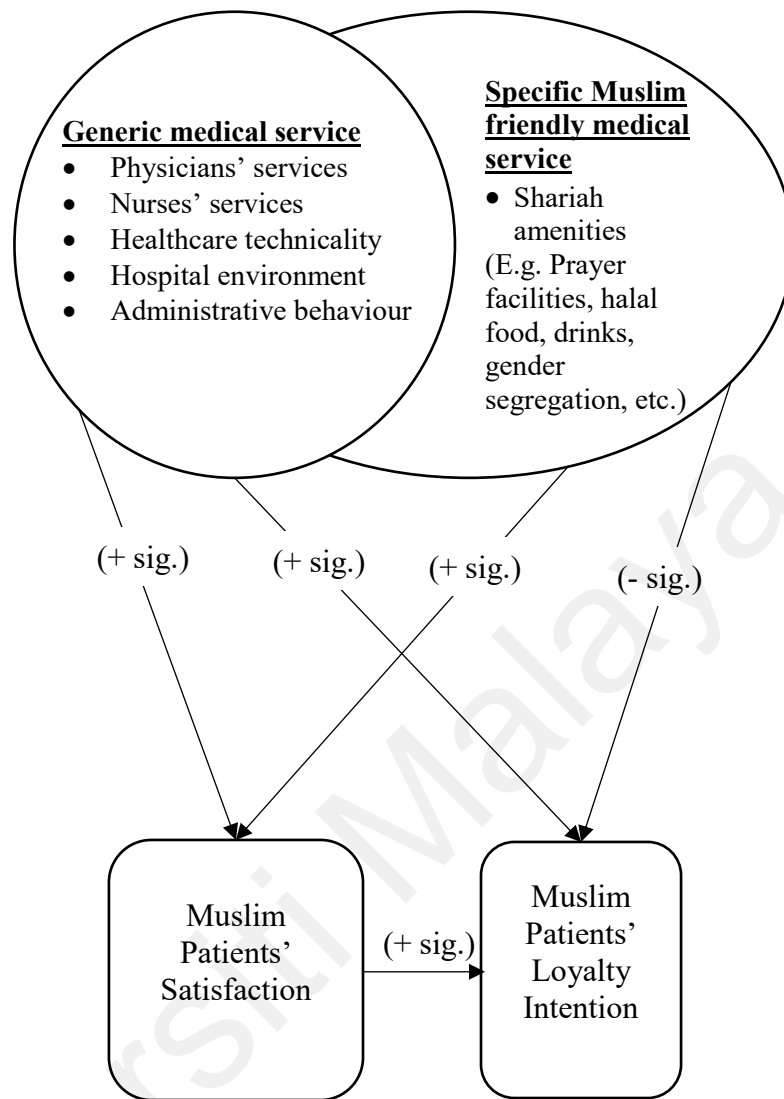
Figure 5.2 : Significance Findings of Muslim-Friendly Medical Services Quality

5.4.1 Research Question 1

To what extent the Muslim-friendly medical services quality offered by the private hospitals in Malaysia?

The first research question investigated to what extent the Muslim-friendly medical services quality offered by the private hospitals in Malaysia. The present study discovered that hospitals do offer significantly the six criterions of Muslim-friendly medical services quality as expected by the patients. They are Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment, and administrative

behavior. This can be evidenced from the descriptive analysis done to all the criterions with the average means score are above 4.0. It can be clearly stated that the hospital management is strongly committed to create awareness and actions to facilitate their patients to continuously maintain their obedience to Allah. As a hospital that upholds Islamic values, management provides religious officials to assist and provide guidance to patients.

5.4.2 Research Question 2

What are the relationships of Muslims-friendly medical services quality with Muslim patients' satisfaction?

More detailed discussions on the relationships between the Muslim-friendly medical services quality and Muslim patients' satisfaction are as follows:

5.4.2.1 The Relationships between Shariah Amenities and Muslim Patients' Satisfaction (H1a)

The tested structural model provided evidence that Shariah amenities are a major variable in Muslim patients' satisfaction. The indication echoes the findings of previous studies (i.e., Zailani, Omar and Kopong (2011), Razalli, Ismail and Yaacob (2015), Samori, Rahman and Zahari (2017). The statistical results showed a significant relationship between the two constructs. Moreover, Kadir et al. (2014) and Azmin et al. (2015) stated that Shariah amenities influence satisfaction. In the current study, the hypothesis is supported in which the relationship is positive in direction. Samori and Rahman (2013) suggested that Shariah amenities are an important dimension that is sought by Muslim patients when having medical treatment at hospitals. This factor received a good mean score (μ value of 4.249) within the eight items measuring Muslim-friendly medical services quality when tested quantitatively. Iqbal et al. (2016) indicated that good

healthcare facilities and Islamic medical practices attract more Muslim patients at hospitals.

The majority of Muslim patients have substantial prior experience in halal amenities at the hospitals. In fact, the univariate analysis revealed that items related to halal amenities in hospitals such as 'The hospital provides halal medicines for the Muslims' (μ=4.849), 'The hospital provides halal foods and drinks' (μ=4.649) and "The hospital provides prayer amenities (times [Azan], mats, direction of Qiblat, wudhu) in the prayer room' (μ=4.221) received the highest mean scores. Several reference points were gathered from the previous studies (e.g. Samori & Rahman, 2013; Razalli et al., 2015; Abdelkader, 2015) which displayed a significant relationship between Shariah amenities and satisfaction. Indeed, Muslim patients are more likely to choose Islamic medical treatment when the hospitals provide Shariah amenities which are also reported by Ridzuan and Zahari (2012). The provision of halal food/beverages and hygienic accommodation would give an added competitive advantage to the hospitals to attract both local people and international Muslim patients from different countries.

Stricter rules could be applied in the formation of the hospitals where gender segregation medical services should be put into effect (Moghavvemi et al., 2015). In order for the hospitals to completely adhere to the Muslim-friendly medical services standards, it is extremely important that most of the medical care and relevant facilities, e.g., medical test, spa, prayer room, etc., should be distinctly segregated between male and female patients. Besides, the beds and toilets should be positioned in a way that it does not violate the Islamic rules to face the direction of Makkah (Qiblah). As Saad, Badran and Abdel-Aleem (2016) stated that K'aba is the most sacred direction, one must venerate it by avoiding anything that could minimise its glory and honour or could be considered as a kind of disrespect. This is why the Prophet (SWS) ordered Muslims not to face it or turn

one's back to it while urinating or passing stool (Reported by Imam al-Bukhari and Muslim).

Shariah compliance involves Islamic operational aspects, such as alcohol-free beverages, halal food, halal pharmaceuticals and Muslim staff. The male staff are attending to male patients, female staff attending to female patients, availability of Quran and prayer mats in the prayer room (surau), Islamic interior design, Islamic entertainment, direction of Qiblah in prayer rooms, separate private facilities for male and female and financial facilities (e.g. hospital financing through the arrangement of Islamic finance) in the hospital organizations also accounted as the Muslim-friendly medical services (Rosenberg & Choufany, 2009). The hospital's development and operations should be financed through an Islamic financial arrangement to fully promote the principles of the Shariah finance. Ibrahim, Ong, and Akinsomi (2012) contemplated that the Muslim-friendly medical services concept required significant modification and amendments to the hospital management. The study also reports that the concept of Muslim-friendly hospital practices in Malaysia is at an infant stage. Hence, this development still raises a few questions related to understanding, awareness, acceptance, and willingness of healthcare providers in Malaysia.

5.4.2.2 The Relationships between Physicians' Services and Patients' Satisfaction (H1b)

Previous literature indicated the importance of the physicians' role in enhancing Muslim patients' satisfaction with medical care services (i.e., Murshid et al., 2016; Zailani et al., 2016; Alizadeh, Chavan & Hamin, 2016). Muslim patients looked for medical care, friendliness, and religious-oriented affinity, and supportive empathy, helpful and attentive physicians. This study found that physicians' medical services quality had a significant relationship with Muslim patients' satisfaction.

This finding is similar to an earlier study by Zailani et al. (2016) which found that patients' satisfaction was dependent on medical doctors. Additionally, James et al. (2017) found that the physicians' role was an important prime-mover of patients' satisfaction. As Bertakis, Roter and Putnam (1991) stated, patients are the most satisfied when physicians encourage them to talk about psychosocial issues in a friendly atmosphere. A patient explained positive integration with physicians was recorded as "the doctor spends enough time for me and explains to me about my disease and then prescribes the medicine. However, sometimes some doctors and nurses do not explain properly, they explain very fast, so… I cannot understand (B1)". Therefore, it is expected that the improvement of medical services quality requires a good relationship between doctors and Muslim patients.

Additionally, it is a well-known fact that the knowledge and skills of a physician are important in curing patients' illnesses, creating an imperative need for hospitals to assure that they have highly qualified staff (Suki et al., 2011). According to the International Journal of Healthcare Quality Assurance (IJHCQA) (2006), many hospitals in Thailand successfully positioned themselves as having outstanding medical services quality based on the evaluation of over 700 board certified physicians. Yet, as Muslim patients, their demand may extend beyond this. The skill of physicians to provide halal medical services quality into their daily tasks leads to Muslim patients' satisfaction and their loyalty intention at the hospitals for future medical treatment.

Zailani et al. (2016) postulated that Muslim patients' satisfaction is championed by physicians' skill in understanding and attuning to Islamic medical ethics. For example, a physician's respect for Muslim patients' modesty by examining female Muslim patients in the presence of other Muslim female medical staff or family members is much valued, as this act will create a comfortable environment for Muslim patients. The quality of the medical treatment is also influenced by the competency of physicians in discussing with

Muslim patients if any non-halal pharmaceuticals are prescribed and providing adequate explanations and information.

It may be concluded that Muslim patients' positive attitude or satisfaction is not only related to physicians' medical services, but factors of physicians' good communication style and friendliness with Muslim patients are also considered as a part of service quality. The physicians are described as a significant contributor to the spiritual, physical, emotional and mental well-being of Muslim patients (Schouten and Meeuwesen, 2006). The univariate analysis of this study found that items related to doctors' behaviour such as 'Physicians respect my modesty and religious beliefs' (μ=4.728) and 'Physicians respect my privacy' (μ=4.541) received the highest mean scores in the physicians' Islamic medical services quality factor. The findings support that the doctors' role in providing quality medical services is important to Muslim patients for receiving medical treatment at the hospital.

Furthermore, Muslim patients' immediate need is to be cured of their illnesses, or at the very least, a relief from suffering when they go to a hospital. They want medical service providers, especially physicians, who are good, competent, know their situational conditions and are able to provide appropriate treatment. Besides, Dawson and Wrigley (2010) postulated that physicians should have the policy to solve any conflict between physicians and patients as well as patients' family members. Such a policy might take into account the prevailing religious, spiritual, emotional and cultural beliefs and attitudes of the patients (Al-Jahdali et al., 2013). As a matter of fact, the quality of medical treatment received at the hospitals is also influenced by the physicians in attendance discussing the medicines with non-halal ingredients in the prescription with Muslim patients.

5.4.2.3 The Relationships between Nurses' Services and Patients' Satisfaction (H1c)

The statistical analysis indicated a significant positive relationship between nurses' services and patients' satisfaction. This finding contradicts the previous study by Zailani et al. (2016) who found that nurses' medical care practices have no significant relationship with Muslim patients' satisfaction. Zailani et al. (2016) indicated that Muslim patients prefer to get nursing service from their family members and relatives along with the nurses' efforts. They believe that their family members or relatives could take a better care of them than nurses could do. By contrast, the empirical results of this study showed that nurses' services have a significant relationship with Muslim patients' satisfaction. It is well-known that most of the people in Malaysia are very busy with their job activities.

The patients' family members or relatives do not have enough time to take care of patients at the hospitals. Thus, they prefer nurses to their relatives or family members in the hospital. The univariate results in this study also showed that the items related to nursing care, such as 'Nurses respect my privacy' ($\mu=4.483$), 'Nurses are ever willing to help me' ($\mu=4.387$), and 'Nurses respond promptly to my request' ($\mu=4.298$) received the highest mean scores in the factor of nurses' services. This indicates that nurses' services are important and influencing Muslim patients' satisfaction at hospitals.

In addition, Chakravarty (2011) indicated that Muslim patients' satisfaction is influenced by quality service of medical care practices, particularly, nurses' empathy, sympathy, modesty, respect and religious-oriented attitude toward Muslim patients. Accordingly, the univariate analysis indicates that items related to the religious-oriented attitude, such as 'Nurses respect my modesty and religious beliefs' ($\mu=4.575$), and 'Nurses clean body parts that are contaminated by blood, or urine so that the patient may conduct prayers' ($\mu=4.145$) received the highest mean scores. The observation supports several other studies (i.e., Naidu, 2009; Chakravarty, 2011; Zailani et al., 2016) which reported a significant relationship between nurses and patients. The findings from

informal conversations with Muslim patients were also consistent with the quantitative findings. For instance, "I have an experience in this hospital about the medical treatment, I get to know some nurses are very good, while some are friendly and give sincere attention to me and they politely explain to me about some details and give me suggestions" (refer to B2: Annexure B).

It is a well-known fact that Muslim nurses' skills and sympathy are crucial in curing illnesses, therefore hospitals need to employ a professional nursing staff of the right caliber (Gaur et al, 2011). The registered nurse workforce throughout Thailand has increased from 1.5 percent in 2008 to 1.76 percent in 2014 (Sawaengdee et al., 2017). However, for Muslim patients with their religious ethics and decorum, their demand may extend further than this. The capability of Muslim nurses to provide Islamic medical services during hospital duty may galvanize and invoke the lustre of gratitude in the form of satisfaction among Muslim patients. For example, a nurse's respect or sympathy to a female Muslim patient can be expressed through proper care and sharing of previous experiences. It could ease and relax the patients during medical treatment period. This service aspect creates comfort and is Islamic in nature, which will be appreciated by Muslim patients.

Furthermore, Aiken et al. (2008) found that the more experienced the nurses were, the more was their influence on patients' satisfaction and the inducement of better care environments. If nurses give reduced nursing care, there will be a higher chance in service failure. The structural model test provided considerable evidence that patients' satisfaction was dependent on the nurses' role. To improve the overall Muslim-friendly medical service quality, it requires a reciprocate rapport of good relations between Muslim nurses and their patients. Sawaengdee et al. (2017) stated that the lack of integrated relationships in the professional nursing care affected the quality standard of medical services, thus patients were found less satisfied. Previous literature identified the

significance of nurses' role in upgrading Muslim patients' satisfaction towards medical care services (Suki et al., 2011). Muslim patients were known to seek spiritual-oriented caring, supportive empathy, and attentive listening from friendly nurses.

The nurses' role in providing a suitable environment for Muslim patients to perform their habitual spiritual-oriented acts of religious nature along with medical care are highly esteemed and roundly appreciated. However, nowadays, Muslim patients' family members also contribute a significant role to Muslim patients' satisfaction. For instance, their interactive encouragement and participation in social, emotional and psychological aspects facilitate the well-being of Muslim patients. Al-Omari et al. (2013) postulated that patients' family members are the principal decision-makers to the extent of accommodating patients to the medical care with an Islamic mode of practice. Besides, a friendly relationship between nurses and patients' family members generates a long-term favourable association with the hospital.

DeVore et al. (2017) found that nurses' knowledge regarding pain management (incentive care) has a significant impact on patients' satisfaction. The patients' level of education also formed an integral part of nursing professional care where interactive communication could be easily and clearly established for mutual benefits. Professional nurses undergo exhaustive training which help them to provide better medical care service which ensures patients' satisfaction (Gordon et al., 2010). Edvardsson, Watt, and Pearce (2017) stated that patients' experiences of great healthcare seemed to have an influential role in the quality nursing care. Professional nursing and timely assistance were significantly related to patient-perceived nursing care quality.

5.4.2.4 The Relationship between Healthcare Technicality and Patients' Satisfaction (H1d)

Although most patients cannot evaluate the healthcare technicality of a hospital's service quality in terms of technical accuracies and procedures (Rashid & Jussof, 2009; Budiwan, 2016), the statistical findings showed that Muslim patients' satisfaction was also highly dependent on healthcare technicality of the hospital. It is expected as the development of medical care services requires healthcare technicality services for a satisfactory treatment at the hospital. This finding supports the study by Rose et al. (2004) who indicated that healthcare technicality is the most important aspect of hospital services. Moreover, the univariate analysis of this study revealed that items related to technical services quality such as 'This hospital provides stable amenities (e.g. water and electricity)' (μ=4.654), and 'This hospital keeps accurate records and documents' (μ=4.427) received the highest mean scores in the healthcare technicality factor. Other researchers (e.g. Nurunnabi & Islam, 2012; Kazemi et al., 2013; Alhassan et al., 2015) also found that healthcare technicality influences patients' satisfaction.

Indeed, healthcare technicality is a vital aspect that affects Muslim patients' satisfaction whether the treatment is received in their home countries or from a hospital abroad. It explicates patients' expectations that healthcare service providers can produce a precise diagnostic service to patients and perform suitable procedures to treat their illnesses. Some inquisitive patients treat the interpersonal aspect of medical care as the most important one, as they cannot fully evaluate the technical quality of healthcare services (Padma, Rajendran & Lokachari, 2010).

The hospital service providers should understand patients' needs by gathering their holistic expectation with regards to medical care services to be received. In evaluating medical care quality services, Choi et al. (2005), Zineldin (2006) and Ponsignon et al. (2015) examined the technical quality dimension of the services which

influenced patients' satisfaction and found that diagnostic service is an inseparable part of technical healthcare quality. Besides, patients can infer technical healthcare quality through diagnostic procedures with medical doctors' ability to explain (Eleuch, 2011). As Marley et al. (2004) depicted, patients could judge their treatment if the illness has improved.

Moreover, the structural model results showed that there is a significant relationship between healthcare technicality and patients' satisfaction. This study echoed the finding of Eleuch (2011) who discovered that patients' satisfaction depends on healthcare technicality. Despite the technical importance, patients seem to trade off healthcare technicality with trustworthy medical staff. Generally, patients seem to trade-off certain service attributes, for instance, the medical staff's favourable behaviour may compensate for the inappropriate healthcare technicality, and good healthcare technicality may compensate for unacceptable medical staff's behaviour. Therefore, it provides an impression about the technicality of Malaysian medical care services and patient-service provider relationships in the Muslim-friendly medical service perspective. As Jones (2009) postulated, poor communication with physicians, a shortage of medical doctors, inappropriate medical staff's behaviour and medical care setting's appearance might lead patients to mistrust the physicians and medical technology especially, and to report medical errors and inconsistencies.

5.4.2.5 *The Relationship between Hospital Environment and Patients' Satisfaction (H1e)*

The hospital environment is known to play a vital role in attracting patients to seek medical treatment (Zineldin, 2006). The structural model test analysis of this study showed a significant relationship between hospital environment and patients' satisfaction. This finding is supported by Aiken et al. (2012) who recorded a significant positive effect

of the two constructs. The univariate analysis result revealed that the items related to good environment and hygienic service quality such as 'This hospital has a clean and hygienic appearance' ($\mu=4.654$), 'This hospital is located in a safe and secure place' ($\mu=4.591$) and 'The consultation rooms of this hospital are clearly signposted' (($\mu=4.506$) received the highest mean scores. Several literatures gathered from the previous studies (e.g. Webster et al., 2011; Chakravarty, 2011; Markovic et al., 2014) also indicated that the hospital environment influences patients' satisfaction for medical treatment at the hospital.

The improvement of hospital operations' structure, healthcare systems, process, strategy and cultural environment are important criteria (Miller et al., 2006) for patients' satisfaction while having medical treatment. Hammad, Jusoh, and Ghozali (2013) stated that improvements in hospital environments may also have a great impact on patients' satisfaction with their treatment. The hospital may improve their environment by encouraging all staff members to be friendly with their patients. This effort can increase patients' satisfaction levels.

Good hospital policies (e.g. control of room temperature, lighting, implementing quiet hours or installing sound-absorbing materials in busy hospital areas such as nursing places) may also have an effect on hospital environments. When patients feel more comfortable, they may be more likely to have better rest and recover more quickly. Staff's effort to maintain cleanliness and follow safety protocol can also increase patients' satisfaction. Likewise, ensuring a clean and safe hospital environment may help patients heal faster, potentially resulting in higher satisfaction. The healthcare providers need to monitor and assess the hospital environment to improve the quality medical care systems and operations. In developing countries, such as Malaysia, medical care operations face major challenges, for instance, with limited existence of productive resources and inadequate quality of environmental infrastructure.

5.4.2.6 The Relationships between Administrative Behaviour and Patients' Satisfaction (H1f)

Various researchers have developed a relationship between medical personnel behaviour and patients' satisfaction (Rosenstein, 2009; Mollaoğlu & Çelik, 2016; Kamra et al., 2016). The statistical results identified a significant relationship between administrative behaviour and Muslim patients' satisfaction. It had the greatest significant effect of all other factors examined in this study. The univariate analysis revealed that the items related to administrative behaviour such as 'The administrative staff of this hospital are treating me with respect and dignity' (μ=4.332), 'The administrative staffs of this hospital are courteous' (μ=4.282) and 'I have confidence in this hospital's administrative system' (μ=4.256) received the highest mean scores. Authors such as Sower et al. (2001), Gasquet et al. (2004) and Dagger et al. (2007) also supported the significant relationship between administrative behaviour and patients' satisfaction.

Indeed, the administrative behaviour is related to how medical staffs (specialist physicians, nurses and administrative staff) behave with the patients. Mudarri and Fisk (2007) stated that medical care quality services are considered high-credence services and patients place a great faith in medical doctors' skill to give treatments. Ponsignon et al. (2015) suggested that within medical procedures and processes, administrative service encompasses the efficiency, ability, and availability of hospital staffs to provide medical care services. Hence, Muslim patients' assessments of medical care services related to the hospital's administrative behaviour indicate the interaction between patients and/or doctors, nurses, and support staff (Suki et al., 2011).

As Gaur et al. (2011) stated that the administrative staff should emphasize being caring, helpful, supportive, attentive and friendly among physicians and nurses to attend the patients. These interactions facilitate in building a sense of security and confidence amongst patients, leading to a level of higher satisfaction. Thus, it is suggested that

healthcare providers or managers of hospitals should provide training courses for all medical officers and administrative staff emphasising building relationships with Muslim patients. Pool, Khodadadi, and Asadi (2016) also believed that administrative behaviour plays a key role in ensuring patients' satisfaction.

5.4.3   Research Question 3

What are the relationships of Muslims patients' satisfactions with patients' intention of loyalty for future medical treatment at the private hospitals?

The third research question aims to investigate the impact of the relationship between Muslim patients' satisfaction and their loyalty intention for future medical treatment. This research has found that Muslim patients' satisfaction has a positive impact on loyalty intention. A detailed discussion of the findings is as follows:

5.4.3.1 The Relationship between Patients' Satisfaction and Their Loyalty Intention for Medical Treatment (H2)

Amin and Nasharuddin (2013) stated that patients' behavioural intention is influenced by their satisfaction in receiving medical services at hospitals. This study examines Muslim patients' satisfaction and their loyalty intention for future medical treatment at hospitals in Malaysia. The structural model demonstrates that there is a highly significant relationship between Muslim patients' satisfaction and their loyalty intention. As noted by Caruana and Fenech (2005), Lee and Yom (2007), Han and Hyun (2015), Muslim patients are more likely to revisit the hospitals for future medical treatment once they are satisfied with their medical services.

The study revealed that the following items score favourably among Muslim patients in terms of their satisfaction. These are - 'I am satisfied with the availability of halal foods and drinks' (μ=4.327), 'I am satisfied with the feeling of security in receiving treatment here' (μ=4.272), 'Medical professionals in this hospital respect my beliefs and

opinions' (μ=4.245), 'I am satisfied with the physicians who treated me' (μ=4.203), and 'Medical professionals of this hospital actively address my other spiritual needs (trust, faith, love to Allah) (μ=4.091).

Within the context of Islamic medical service, Padela and Curlin (2013) stated that hospitals are providing gender segregation and Islam-oriented medical care treatment which may increase Muslim patients' satisfaction and their loyalty intention. Hodge and Horvath (2011) and Hilbers (2011) also postulated that religious observance and spiritual-oriented act of worship are important in influencing the quality relationship between Muslim patients and professional medical staff. This relationship can be improved if healthcare professionals are familiar with patients' religious beliefs (Lucchetti et al., 2012). Hence it is suggested that hospitals need to respect Muslim patients' religious beliefs in their delivery of medical services (Zainuddin, 2015).

In this survey, Muslim patients were asked to rate their satisfaction level with medical care services based on physical, emotional and spiritual dimension of satisfaction. The findings revealed that the item related to physical satisfaction (μ=4.155) received the highest mean score among Muslim patients' satisfaction. As Al-Refaie (2011) stated that hospitals' health-related quality of life, patients' decreased anxiety, and decreased depression increase patients' physical satisfaction. Furthermore, the findings of the structural model revealed three factors representing Muslim patients' satisfaction, namely spiritual satisfaction (β=0.583), emotional satisfaction (β=0.547) and physical satisfaction (β=0.508). The spiritual satisfaction is crucial for Muslim patients. Hilbers (2011) mentioned that spiritual-oriented acts by healthcare professionals influence Muslim patients' satisfaction with the medical treatment.

Moreover, in the context of patients at the University of Chicago Medical Center, Williams, Meltzer, Arora, Chung and Curlin (2011) found that 41 percent of patients desire a discussion about spiritual issues while hospitalized. This finding indicates that

healthcare providers, who discuss the spiritual phenomenon, are more likely to influence patients' satisfaction. Pearce, Coan, Herndon, Koenig and Abernethy (2012) postulated that patients, who received less spiritual care than the desired level, report more depression symptoms. Therefore, among Muslim patients who experienced more severe pain, they are in greater need to discuss spiritual and emotional concerns (Williams et al., 2011). Pearce et al. (2012) and Moreira-Almeida et al. (2014) stated that when spiritual and emotional needs are not met, patients are at risk of depression following the reduction in life's spiritual and emotional meaning.

5.4.4   Research Question 4

What are the relationships of Muslims-friendly medical services quality with patients' intention of loyalty for future medical treatment at the private hospitals?

The study believed that the investigations on the relationships of Muslim-friendly medical services quality are different than the previous studies. As mentioned earlier, there is no research (before 2014) that focused/tested on Muslim-friendly medical services, particularly at the context of hospitals in Malaysia. Accordingly, the study has confirmed with SIRIM and experts that this study is considered new as no one has tested the Malaysia Standard (MS 1900:2014 and MS 2610:2014/2015) on Muslim friendly services requirement and the Shariah-based quality management systems requirements in the context of hospitals. Therefore in terms of significant and contributions, it is believed that this study can justify its significant why it needs to be conducted. The significant and insignificant findings are beyond the control of the study as long as the study has justified the reasons behind those findings; it is believed to be significant.

The fourth research question is to explore the relational effect between the Muslim-friendly medical services quality and Muslim patients' loyalty intention for future medical treatment. This is to examine whether Shariah amenities, physicians' services,

nurses' services, healthcare technicality, hospital environment, and administrative behaviour have effects on Muslim patients' loyalty intention. The structural model results provided support for four Muslim-friendly medical services quality criterions - Shariah amenities, physicians' services, healthcare technicality and administrative behaviour – which were significantly associated with Muslim patients' loyalty intention for future medical treatment. However, the relationships of the other two criterions - nurses' services and hospital environment - are not significant with loyalty intention. A further detailed explanation of the direct relationship between Muslim-friendly medical services quality and Muslim patients' loyalty intention is discussed in the following sections.

5.4.4.1 *The Relationships between Shariah Amenities and Loyalty Intention (H3a)*

Muhamad-Yunus, Abd-Razak and Ghani (2014) defined Shariah amenities as an act or activity that follows the requirements of Islamic laws. The current study findings revealed a negative significant relationship between Shariah amenities and Muslim patients' loyalty intention for future medical treatment. Ahmad et al. (2015) stated that a negative confirmation result occurs when customers' satisfaction is poorer than their expectations. Accordingly, having too many Shariah amenities practising in hospitals may signal different information to Muslim patients. Because Muslims have a multifaceted demand and all Muslims around the world are not religious rather they are diverse. Hence, Muslim patients' loyalty for Muslim-friendly medical services quality is not only contained shariah amenities but also other general medical services quality factors such as physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour. Indeed, shariah amenities are important for Muslim patients but in terms of their loyalty intention for future medical services at the hospital, they may not contribute alone to attract more Muslims. Thus, both generic and specific Muslim-

friendly medical services quality is crucial for Muslim patients' loyalty intention for future medical treatment at hospitals in Malaysia.

In addition, as Muslims are representing approximately 1.6 billion people throughout the world and they are not equal in practising religiosity or religious beliefs. Rather, they are diverse and have a multifaceted demand in practising Muslim or Islam. Thus, excessive provision of Shariah amenities may be interpreted for those Muslims who are not religious as too much emphasis has been put on this aspect at the expense of the core medical services. The hospital and healthcare providers should understand the patients' beliefs and practice. The proper presence of Shariah amenities could be a selling point for hospitals in Malaysia.

The patients' dissatisfaction on the presence of Shariah amenities in healthcare setting may negatively impact Muslim patients' loyalty intention for future medical treatment at the hospitals. On the other hand, the unnecessary provision and strict application of Shariah amenities may also influence patients not to continue treatment at the hospitals. As indicated by Amin et al. (2011), Muslims prefer to see the basic Islamic amenities available at the location but do not expect so many unnecessary Shariah provisions. Thus, it is important for any hospitals to provide at least the basic of Shariah amenities to indicate the presence of Muslim friendly practices in their hospitals. Shariah amenities for Muslim patients' satisfaction with their religious faith and value system must be well attended (Rahman & Daud, 2010) by the healthcare providers, if not it might influence consumers' negative attitude and discontinue any future plan for medical treatment at hospitals.

5.4.4.2 The Relationships between Physicians' Services and Patients' Loyalty Intention (H3b)

This study discovered that there is a significant positive relationship between physicians' services and patients' loyalty intention for medical treatment. It is indicating that physicians' services are an important indicator of Muslim patients' loyalty intention for medical treatment in the Malaysian private hospitals. This result is associated with the findings of De Ruyter et al. (1998), Choi et al. (2004), Amin and Nasharuddin (2013), and Sutharjana et al. (2013) who found a positive association between physicians' services and patients' loyalty intention for future medical treatment. The empirical analysis revealed that items related to doctors' medical care services such as 'Physicians respect my modesty and religious beliefs' ($\mu=4.728$), 'Physicians respect my privacy' ($\mu=4.541$), and 'Physicians respond promptly to my request' ($\mu=4.388$) received the highest mean scores.

In the context of U. S. hospitals, Scott et al. (2017) stated that as hospitals responded to external pressure to develop quality medical care, the physicians' workforce was strongly integrated with this process. It implies that the presence of the physicians' workforce will make it easier to motivate clinicians to focus on quality healthcare, information systems and comply with clinical guidelines. Martinez and Lo (2008) postulated that physicians in the hospitals have the responsibility to inform patients about medical treatment details. Careless doctors are dangerous for their patients (Michiels et al., 1999). Zafar et al. (2008) and Shabbir et al. (2016) mentioned that physicians' careless attitudes, delays in response and insincerity towards patients may influence patients not to have further medical treatment at a hospital in the future.

In general, physicians' friendly attitude, helpfulness, as well as supportive and attentive care significantly influence patients' loyalty intention to the hospitals for further medical treatments. The physicians' capability in terms of experience, efficiency, and skill

is largely needed for customers' satisfaction and their retention for subsequent medical treatments. A hospital provides services for a limited period of time until patients are able to take care of themselves at home. The healthcare professionals, physical medical care, nutritional support, pharmacists, and others are involved in the healthcare process while providing medical services. Kucukarslan and Nadkarni (2008) suggested that professionals include physicians, nurses and medical staff or any other medical care professionals who are involved in the healthcare delivery services. As hospital service quality and its effects on the patients' satisfaction are the key elements of patients' behavioural intention for repeat medical treatments (Amin & Nasharuddin, 2013), healthcare providers must understand the nature of medical care services required in influencing Muslim patients' loyalty intention.

5.4.4.3 The Relationships between Nurses' Services and Patients' Loyalty Intention (H3c)

This structural model test results revealed that nurses' services have an insignificant relationship with Muslim patients' loyalty intention for medical treatment. Based on the insignificant findings of the nurses' services, although they are important for Muslim patients but they are not necessary to be practiced for future medical treatment at hospitals. This is due to the reason that Muslim patients prefer to be accompanied by their relatives, parents, husband/wife, and friends while they are in hospitals. Patients are calmer if they are been companied by their parents, close relatives, or friends and not so much because of the nursing care.

Amin and Nasharuddin (2013) found that the perceptions of quality care are affected by nurses' services along with the services of physicians and other medical staff. Patients' favourable service quality judgment induces a positive attitude towards loyalty intention for medical treatment, whereas patients' unfavourable experience with medical

care services might lead to negative word-of-mouth advertising and negated the loyalty intention for future medical treatment at the hospitals (Newman, 2001; Caruana, 2002).

Besides, patients' relatives or family members also provide services to the patients along with nurses, and this is considered a pertinent Islamic value at the hospital (Al-Omari et al., 2013; Halligan, 2006). In an earlier study, Zailani et al. (2016) indicated that Muslim patients may not need caring behaviour from their healthcare providers (nurses' services) as relatives and family members provide support by visiting them regularly. In addition, the descriptive analysis revealed that the items related to nurses' prompt service and respect such as 'Nurses respond promptly to my request' (μ=4.298), 'Nurses respect Muslim values and principles (μ=4.195), and 'Nurses are very sympathetic towards me' (μ=4.176) received comparatively lower mean scores under the factor of nurses' services . Results showed that there is an insignificant relationship between nurses' services and Muslim patients' loyalty intention for future medical treatment at the private hospitals.

From an informal conversation at a private hospital, a Muslim patient stated that "I have medical insurance here but whenever I came to this hospital for my blood test, nurses asked me whether I had paid for my medical fee and also made a call to the doctor whether the doctor had cut the medical fee from my insurance. You know…this is a disgusting matter because I had bought insurance but they always asked me about the same thing. They should first refer to my medical file, well …. this is an inefficient internal matter (C3)" (Refer to Annexure C). This comment highlights a negative experience received from nurses that might affect loyalty intention for future medical treatment at the hospital.

There is a lack of reference to similar studies in the relationships between nurses' services and Muslim patients' loyalty intention for medical treatment at the hospitals. Patients' intention was a clear indication of whether they would maintain the relationship with healthcare providers or not. For instance, Kessler and Mylod (2011) pointed out that

patients' judgment on medical care services and patients' satisfaction significantly influenced their loyalty intention for medical treatment. If Muslim patients are highly satisfied with medical care services, particularly, on Muslim nursing care, it will influence patients to return to the hospitals for repeat medical treatment. Hwang and Chang (2008) studied patients' satisfaction with nursing care and loyalty intention for future medical treatment and found a negative relationship between nurses' medical services and patients' loyalty intention. This is perhaps due to a lack of respect for Muslim patients' religious beliefs, privacy, values, sympathy, and modesty among nurses at hospitals.

5.4.4.4 The Relationships between Healthcare Technicality and Patients' Loyalty Intention (H3d)

The study revealed that there is a positive relationship between healthcare technicality and patients' loyalty intention for medical treatment at the hospital. This result is partially supported by Budiwan (2016) who stated that healthcare technicality of the hospital is a vital component of medical care service quality and it has a positive significant impact on the loyalty intention for future medical treatment at the hospital. Several researchers have established that medical care quality services including technical quality not only positively influence patients' satisfaction but also their loyalty intention for future medical treatment in the hospitals (Kucukarslan & Nadkarni, 2008; Padma et al., 2010; Amin & Nasharuddin, 2013). Padma et al. (2010) suggested that hospital service providers should satisfy patients' needs with respect to the holistic approach to their services.

The empirical findings showed that items related to healthcare technicality services such as 'This hospital provides stable amenities (e.g. water and electricity)' (μ=4.654), 'This hospital keeps accurate records and documents' (μ=4.427) and 'This hospital has adequate of consulting rooms' (μ=4.240) received among the highest mean scores. Moreover, innovation, short waiting time, and easy and systematic medical

services may influence patients to continue medical treatment at hospitals. Some researchers developed a scale to measure medical care services quality of healthcare providers from patients' point of view (Padma et al. 2010; Zainuddin, 2015). They found tangibility; reliability, assurance, and responsibility are the criterions of service quality under the technical sector of the hospitals. They also concluded that nursing care, physician care, and their outcomes constituted the technical healthcare unit. Therefore, this study also concludes the similar effect in explaining the relationship between healthcare technicality and patients' loyalty intention.

5.4.4.5 *The Relationships between Hospital Environmental and Patients' Loyalty Intention (H3e)*

The results showed that hospital environment has an insignificant relationship with Muslim patients' loyalty intention to further receive medical treatment at the hospitals. The univariate results revealed that items related to hospital environment such as 'Surrounding area of this hospital are quiet' ($\mu=4.288$) and 'The rooms of this hospital are pleasant' ($\mu=4.427$) received lower mean scores at the 'somewhat agree' stance. It indicates that a hospital's surrounding area is not very important for patients' loyalty intention for future medical treatment. Through a conversation with a patient, it was recorded that "There are many medical care processes here (in the hospital), consultation rooms are not clearly sign-posted. We do not get the proper direction to find the consultation room (B2)" (refer to Annexure C).

The sounds from outside and inside the room (e.g. sounds from outside the hospital room, patients' sounds, staffs' talking) is often the single most important factor that interrupts the patients while resting/sleeping in both the critical medical care unit and the intensive care unit at the hospital (Ulrich, 2001). Concerning the air quality in hospitals, ventilation and filter systems are also a crucial issue as they produce ultraclean

air in intensive care unit and the acute care unit. It is an important aspect of the hospital physical environment as it reduces the reoccurrence of infectious diseases. Hospital renovation and nearby construction sites can worsen the air quality in the patient healthcare unit and the medical treatment areas if innovative remedial steps are not taken. Several studies found that the hospital noise levels are often high and produce widespread annoyance and feelings of discomfort among patients (Ulrich, 2001; Goines & Hagler, 2007; Wells, Evans & Cheek, 2016).

Most findings suggest that hospital noise harmfully affects the natural flow of sleeping and elevates the heart rate. Researchers recommended that the environmental infrastructural quality of a hospital should be linked to the strategic focus of the organization (Wongrassamee et al., 2003; Blass et al., 2016). Furthermore, Blass et al. (2016) argued that the environmental infrastructure quality of hospital is evaluated by the patients' prior experiences. Ulrich (2001) found that hospital noise levels were often high and produced a common irritating annoyance to the patients and intangible stress on the medical staff. Generally, noise harmfully causes patients' dissatisfaction with hospital. However, even though environmental quality affects satisfaction, it does not influence the intention to return.

5.4.4.6 *The Relationships between Administrative Behaviour and Muslim Patients' Loyalty Intention (H3f)*

The structural model test results revealed that administrative behaviour has a positive significant relationship with Muslim patients' loyalty intention for medical treatment. Administrative behaviour with managerial support can tremendously help patients to feel safe and protected (Azar, Badr, Samaha & Dee, 2016). Thus, when hospital environment and practices are proven safe, the healthcare professionals', including physicians, nurses and medical staff, work performance is enhanced and the quality of patients' healthcare

is readily sustained. Hospital staff's friendly behaviour has a unique ability to persuade Muslim patients not only to revisit the hospitals for medical treatment and but also motivates them to recommend the hospital services to others.

This finding supports Kamra, Singh, and Kumar (2016), who found the administrative procedures and professional behaviour, including physicians' general behaviour, nursing, staff care and facilities, affected patients' satisfaction at the reception counter and department area along with patients' loyalty intention for medical treatment at the hospital. The univariate analysis findings also indicated that the items related to administrative procedure and staff such as 'The administrative staff of this hospital are treating me with respect and dignity' (μ=4.332), 'The administrative staff of this hospital are courteous' (μ=4.282) and 'Overall, I have confidence in this hospital's administrative system' (μ=4.256) received the highest mean scores under the administrative behaviour factor. This may lead to patients' positive attitude toward loyalty intention for future medical treatment at the hospital.

The informal discussion with patients also revealed a similar notation. With regards to administrative behaviour, a patient commented, "I have an experience in this hospital about the medical treatment, I get to know some doctors and nurses are very good, while some are friendly and give sincere attention to me and they politely explain to me on some details and give me suggestions (B2)" (refer to Annexure C). This may indicate the positive significant relationship between administrative behavior and Muslim patients' loyalty intention for future medical treatment.

The patients' satisfaction/dissatisfaction was related to the various medical care service components, for instance, the physicians' and nurses' skills and attitudes, administrative procedures, quality of necessary amenities, service performance, cost of service and time duration of service delivery when attending to the patients. Kamra et al. (2016) identified five features which were significantly loaded on the administrative

behaviour including the process of addressing the patients' complaints, courteousness, short waiting time at the registration counter, the cooperative behaviour of registration staff, meeting time with patients and queries handling at the reception counter. Ebrahimipour et al. (2013) found that administrative characteristics were the major components to retain the customers.

5.4.5 Research Question 5

Do Muslim patients' satisfactions mediate the relationship between the Muslim-friendly medical services quality and patients' loyalty intention at the hospitals for future medical treatment?

The study found one full mediation and five partial mediation relationships of Muslim patients' satisfaction in the relationship between the Muslim-friendly medical services quality and Muslim patients' loyalty intention for future medical treatment. Muslim patients' satisfaction fully mediates the relationship between Shariah amenities and Muslim patients' loyalty intention. Besides, the study found a partial mediation relationship of Muslim patients' satisfaction among physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour with loyalty intention.

Based on the findings, it is clearly indicated that Muslim patients' satisfaction plays a critical mediating role in influencing the relationships between the criterions of Muslim-friendly medical services quality and Muslim patients' loyalty intention for medical treatment. The particulars of each mediation relationship are discussed in the following sub-sections.

5.4.5.1 Patients' Satisfaction Fully Mediates the Relationship between Shariah Amenities and Muslim Patients' Loyalty Intention (H4a)

Muslim patients' satisfaction fully mediated the relationship between Shariah amenities and loyalty intention. In the context of the mediating test, when the direct path X-Y (Shariah amenities and loyalty intention) is insignificant, but the Sobel test is significant, it signifies a full mediation effect. Accordingly, it implied that Muslim patients' satisfaction played a significant role in increasing the relationship between Shariah amenities and patients' loyalty intention for medical treatment. Shariah amenities are also an important consideration in various service organizations like hotels, banks, airline etc. in the context of halal services. It is essential to explain the characteristics and features of the Islamic friendly hospital services which should be based on the Shariah standards of practice (Samori & Rahman, 2013).

As demonstrated earlier in chapter 2, the main reasons for adapting Shariah amenities are to grab the potential opportunity as a strategic priority along with satisfying Muslim patients' and retaining them for future medical treatment. It is quite apparent that patients' satisfaction is a potential mediator in the relationship between Shariah amenities and patients' loyalty intention in the hospitals for medical treatment. Thus, Shariah amenities are an important component to attract more Muslims patients at the hospitals for future medical treatment.

5.4.5.2 Patients' Satisfaction Partially Mediates the Relationship between Physicians' Services and Patients' Loyalty Intention (H4b)

The mediating role of Muslim patients' satisfaction was explored through the relationship between physicians' services and patients' loyalty intention for medical treatment. The result revealed that satisfaction partially mediates the relationship between physicians' services and loyalty intention. Accordingly, through receiving good quality care from

physicians and other medical staffs, Muslim patients were more satisfied and more likely to revisit the hospital for future medical treatment.

Based on the findings, both direct and indirect relationships between the variables are significant. Hence, the resulting partial mediator means that the influence of physicians' services on the Muslim patients' loyalty intention for medical treatment can be better achieved through Muslim patients' satisfaction as the mediator. The physicians-patients' friendly relationship stresses the patients' experience towards quality medical care services, which, in turn, may influence Muslim patients' loyalty intention for medical treatment.

The above result is consistent with Wu (2011), who found the mediating role of satisfaction in the relationship between a hospital brand image and loyalty intention. In addition, Shabbir, Malik and Malik (2016) examined the mediating effect of patients' satisfaction between individual health care service quality criterions and loyalty. They suggested that patients' satisfaction fully mediated the relationship between the physicians' healthcare and loyalty intention. The current study also suggests that physicians' quality has an effect on satisfaction and in turn satisfaction has an impact on loyalty intention. The result showed a direct effect of physicians' services on loyalty intention for future medical treatment. This finding implies that the path from physicians' services to Muslim patients' satisfaction is a critical route to influence patients' loyalty intention for future medical treatment at the Malaysian hospitals. It concurred with Kim et al. (2009) who stated patients' satisfaction plays a key mediating role between medical care quality services and loyalty intention for medical treatment.

5.4.5.3 Patients' Satisfaction Partially Mediates the Relationship between Nurses' Services and Patients' Loyalty Intention (H4c)

There is a partial mediating impact of Muslim patients' satisfaction in the relationship between nurses' services and loyalty intention for future medical treatment. According to the rule of thumb, if the direct path (X-Y) is significant and Sobel test value is also significant, then it leads to a partial mediating effect on the model (Iacobucci et al., 2007; Preacher & Hayes, 2008b). Hence, based on the mediating results in Chapter 4 on section 1.8.2, the direct and indirect relationships between the variables are both significant and the Sobel test value is also significant. Thus, it indicates that Muslim patients' satisfaction plays a significant role in enhancing the relationship between nurses' services and patients' loyalty intention for future medical treatment at the private hospitals in Malaysia.

The findings suggest that Muslim patients' satisfaction depended on the hospital's ability to provide quality medical care services while adopting the Islamic principles in delivering services. Shabbir, Malik, and Malik (2016) also found the mediating effect of patients' satisfaction in the relationship between nurses' services and patients' loyalty intention in the private hospitals. The mediating effect of patients' satisfaction was also found significant between healthcare service quality and patients' loyalty intention at both public and private hospitals (Chahal & Mehta, 2013; Nasim et al., 2014). Aliman and Mohamad (2013) and Shabbir et al. (2016) also reported a similar finding in the context of private hospitals services.

5.4.5.4 Patients' Satisfaction Partially Mediates the Relationship between Healthcare Technicality and Patients' Loyalty Intention (H4d)

This study revealed that the relationship between healthcare technicality and Muslim patients' loyalty intention is partially mediated by patients' satisfaction. The statistical

analysis revealed that the direct relationship between healthcare technicality and loyalty intention is supported. In addition, healthcare technicality has significant relationships with satisfaction, and satisfaction has also a significant relationship with loyalty intention. The Sobel test result was also significant. Hence, the direct and indirect relationships between the variables are both significant. Thus, patients' satisfaction partially mediates the relationship between healthcare technicality and patients' loyalty intention. Accordingly, it signifies that Muslim patients' satisfaction plays a significant role in enhancing healthcare technicality towards Muslim patients' loyalty intention for medical treatment at the hospitals. The recent study revealed that physicians' technical and interpersonal skills were mostly associated with patients' satisfaction and loyalty intention (Tung & Chang, 2009).

5.4.5.5 *Patients' Satisfaction Partially Mediates the Relationship between Hospital Environment and Patients' Loyalty Intention (H4e)*

The mediating effects of Muslim patients' satisfaction in the relationship between hospital environment and Muslim patients' loyalty intention for medical treatment was partial. The results indicated that hospital environment has a significant relationship with satisfaction, and satisfaction has a significant relationship with loyalty intention. The Sobel test value indicated a significant mediation effect. Besides, the direct relationship between hospital environment and loyalty intention was found significant (X-Y). It explicated that Muslim patients' satisfaction plays a vital role in increasing the relationship between these two variables (hospital environment and loyalty intention).

In short, hospital environment played a significant role in Muslim patients' satisfaction towards their loyalty intention for medical treatment at the Malaysian private hospitals. As such, healthcare providers need to develop a good environmental infrastructure, particularly in the private medical sector in Malaysia. Rose et al. (2004),

Dagger et al. (2008) and Budiwan (2016) identified that environmental infrastructure quality is the most important aspect of a hospital service quality which influenced patients' satisfaction and their loyalty intention in hospitals for further medical treatment.

5.4.5.6 Patients' Satisfaction Partially Mediates the Relationship between Administrative Behaviour and Patients' Loyalty Intention (H4f)

This study discovered that the relationship between administrative behaviour and Muslim patients' loyalty intention for medical treatment was partially mediated by Muslim patients' satisfaction. As the direct relationship between administrative behaviour and Muslim patients' loyalty intention for medical treatment is statistically significant, it suggests Muslim patients' satisfaction plays a significant role in enhancing the relationship between administrative behaviour and patients' loyalty intention for future medical treatment.

In relation to this, Budiwan (2016) postulated that administrative behaviour mainly included timely service, core medical service, and co-operation which could affect patients' satisfaction and loyalty intention. The administrative procedures and the professional behaviour of physicians along with facilities could also influence patients' satisfaction and loyalty intention for medical treatment (Kamra, Singh & Kumar, 2016). Generally, patients' dissatisfaction arises from the nature of basic amenities and the service delivery they experienced. Failure to provide quality medical care services may dissatisfy Muslim patients. Also, failure to articulate the medical procedures, accessibility, service performance, and administrative procedures may create dissatisfaction among the customers.

5.5   Concluding Remarks of the Study Outcomes

Apparently, although the Muslim-friendly medical services concept has been a while in the industry, the service quality for Muslim-friendly medical services in private hospitals is still in favour of its implementation. In fact, the advocacy of its implementation has increased during the recent decade. Moreover, the results of previous studies and those of the present one conclude that not only patients are in favour of the Muslim-friendly medical services quality, but also a great majority of health care providers advocate it. Therefore, the outcomes of this study indicate that Malaysia health care policy makers need to consider accelerating the implication of the services quality from the Muslim-friendly medical. This section highlights the summarized results and findings discussed earlier (Table 5.1).

Table 5.1: Summary of the Study Results

No.	Research Objectives	Research questions	Hypothesis	Findings
[1]	To investigate the extent of Muslim-friendly medical service quality offered by the private hospitals in Malaysia.	To what extent the Muslim-friendly medical services quality offered by the private hospitals in Malaysia?	None	The present study discovered that hospitals do offer significantly all the six criterions of Muslim-friendly medical services quality.
[2]	To examine the relationships of Muslim-friendly medical services quality on Muslim patients' satisfaction.	What are the relationships of Muslims-friendly medical services quality on Muslim patients' satisfaction?	The Muslim-friendly medical service quality has a significant relationship with Muslim patients' satisfaction.	Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment, and administrative behavior have significant relationships with Muslim patients' satisfaction.

Table 5.1: Summary of the Study Results (continue)

No.	Research Objectives	Research questions	Hypothesis	Findings
[3]	To study the relationships of Muslim patients' satisfaction on their loyalty intention for future medical treatment at the private hospitals.	What are the relationships of Muslims patients' satisfactions on patients' intention of loyalty for future medical treatment at the private hospitals?	Muslim patients' satisfaction has a significant relationship with their loyalty intention.	The Muslim patients' satisfaction has a positive and statistically significant relationship with their loyalty intention for future medical treatment at the hospitals.
[4]	To determine the relationships of Muslims-friendly medical services quality on patients' intention of loyalty for future medical treatment at the private hospitals.	What are the relationships of Muslims-friendly medical services quality on patients' intention of loyalty for future medical treatment at the private hospitals?	The Muslim-friendly medical service quality has direct relationships with Muslim patients' loyalty intention.	1) Shariah amenities, physicians' services, healthcare technicality, and administrative behaviour have significant direct relationships with Muslim patients' loyalty intention. 2) Nurses' services and hospital environment have insignificant relationships with Muslim patients' loyalty intention.
[5]	To examine the mediation effect of Muslim patients' satisfaction on the relationships between Muslim-friendly medical services quality and Muslim patients' loyalty intention for future medical treatment at the private hospitals.	Do the Muslims patients' satisfactions mediate the relationship between the Muslim-friendly medical services quality and patients' intention of loyalty for future medical treatment at the private hospitals?	Muslim patients' satisfaction mediates the relationship between the Muslim-friendly medical service quality and Muslim patients' loyalty intention for future medical treatment.	1) Muslim patients' satisfaction fully mediates the relationship between Shariah amenities and Muslim patients' loyalty intention. Muslim patients' satisfaction partially mediates the relationship between physicians' services, nurses' services, healthcare technicality, hospital environment, administrative behaviour and Muslim patients' loyalty intention for medical treatment.

As the findings of the study clearly discovered that hospitals do offer significantly all the six criterions of Muslim-friendly medical services quality, it is therefore, to verify this finding, the interviews with industry players are appropriate to be undertaken to strengthen the findings in the context of Muslim-friendly medical service quality.

5.6   Verifications of the Findings

As mentioned earlier in the previous sections, the study has developed a theoretical framework with a number of proposed variables for the constructs of the extent of Muslim-friendly medical service quality offered by the private hospitals in Malaysia. On the basic reason to validate the findings, it is imperative to verify the extent to which the findings can reflect on the real situation in Malaysia. Hence, this section aims to determine and qualify the findings in such a way that can be represented and suited in the Malaysia context. In relation to this, the section uses the data gathered from in-depth interviews conducted with three representatives in the first private hospital that has been awarded as Shariah Compliant Hospital in Malaysia. Any conclusion is to be made based on the executives experience in dealing with the Muslim-friendly medical activities and interviews are identified to be the best method to collect the data. The details of the interview's methodology are described in the next sub-section.

5.6.1   Interview Methodology

The data are gathered from three interviews with representatives from An-Nur Specialist Hospital (ANSH) in Bandar Baru Bangi, Malaysia. Since the study is related to the initiative in Muslim-friendly medical activities in the private hospitals, the study attempted to obtain the appropriate information from the respective executives (Table 5.2) from the private hospital that has been awarded as Shariah Compliant Hospital in Malaysia.

Table 5.2: Description of Participants

No. of participants	Position	Responsibilities	Experience
A	Chief Executive Officer (CEO)	Consultants, Communication, Corporate decisions, managing the overall operations	Management
B	Chief Operating Officer (CFO)	Compliance issues, strategic planning, development	Administrative functions
C	Customer Care Officer	Help customers, give information to customers	Serve customers

Interviews were conducted with the Chief Executive Officer (CEO), the Chief Operating Officer (CFO) and the Customer Care Officer of An Nur Specialist Hospital on 19th June 2019. The main areas of interview include the background of the hospital such as Hospital operation before and after being Shariah Compliant Hospital, the continuous staff development program to ensure the transformation of core values are being assimilated into work culture, the facilities and program for patients after Shariah Compliant Hospital, the supporting facilities required to implement Shariah Compliant Hospital. Among other questions include the views on the important qualities of a Muslim-friendly hospital and how those qualities supported by Quran and Hadith. The interview took about one hour per session and tape-recorded with the consent of the interviewees. The data descriptions based on the interviews is provided in the next sub-sections.

5.6.2 *The Background of An-Nur Specialist Hospital*

An-Nur Specialist Hospital (ANSH) is wholly owned by Medic IG Holdings Sdn Bhd. It started its outpatient department in September 2005 and operated fully in February, 2006. This hospital provides quality healthcare service with the aim is to construct a facility to consolidate the primary, secondary and tertiary health services within a hospital facility with a strong emphasis on speciality and sub speciality integration. Inspired from the

initiative of 'ibadah friendly hospital' introduced by Ministry of Health in 2010, the management and staffs of ANSH have stirred themselves to take the challenge in meeting Shariah-based requirements for excellent Islamic healthcare services. The effort in implementing Shariah compliance started in 2012 and be awarded for the Shariah based quality management system (MS 1900:2014) on 28th May 2015. There are changes before and after the implementation of Shariah compliant hospital. The Chief Executive Officer briefed their journey in implementing Shariah Compliant Hospital:

"To comply with Shariah compliant is not an easy task for us, especially me as Im not a medical doctor. It is not so much on the medical procedures that need to be complied, but the whole operations in hospital need to be changed. First thing that we have done we appointed people to be as our Shariah Advisory Council to advise us in all aspects in creating the rules and regulation of the hospital that has to be in line with Shariah principles. The initial preparation started with staff training. We need to increase the awareness of Shariah needs and importance to our people. We used the present SOP and updating it with inclusions on Shariah Critical Control Points elements. The documentation then was used for staff training to understand the SCCP. With all the preparation completed, the team was ready for the documentation audit. SIRIM members came for 2 days 26th- 27th October 2014. The ground audit was later carried out from 27th – 28th November 2014. An Nur received the SIRIM MS 1900:2014 on 28th May 2015 after clearing 9 NCs and 27 minors areas of improvement".

Likewise, the Chief Financial Officer indicated:
"The hospital successfully transformed ourselves because of our core values which we have been used it since this hospital started to operate. Our core values encompasses of teamwork, trustworthy, caring, moral and professionalism. So not so much efforts needed in transforming the people culture in line with the new of Shariah requirements. Less culture transformation is being carried out. We already implemented the biah solehah during Morning Prayer, ibadah guidance to patients and staff and also providing many Islamic reading materials. For human development, attending usrah and tazkirah are considered mandatory as part of yearly appraisal performance".

The Chief Executive Office added that:

"Back to the basic, what is actually a Shariah compliant hospital and why do we need it? We in An Nur always refer to Quran as our guidelines especially the 4 surah; Surah Az Zhariyat: ayat 56, Surah Al Mulk: ayat 2, Surah An Nahl: ayat 97, and Surah Ghafir: ayat 40. Clearly said that Shariah governs all aspect of human lives; ibadah (worship), muamalah (dealings with fellow human), munakahah (marriage) and jinayah (criminality). That is mean Shariah covers not only for the physical needs of patients, it also caters and provides for the religious and spiritual needs of patients. The main purpose of the standard would be to provide medical services to promote and protect the aspect of life which means, the hospitals have to ensure the actions or procedures are taken to ensure the health of the patients. Meaning that the management of the hospital must give due consideration to the needs of the patients which must come over and above any monetary interests or gains".

وَمَا خَلَقْتُ الْجِنَّ وَالْإِنْسَ إِلَّا لِيَعْبُدُونِ

Translation: ("We have not created jin and man except to worship Allah") (Al-Quran, 51:56).

الَّذِي خَلَقَ الْمَوْتَ وَالْحَيَاةَ لِيَبْلُوَكُمْ أَيُّكُمْ أَحْسَنُ عَمَلًا وَهُوَ الْعَزِيزُ الْغَفُورُ

Translation: ("He who created death and life to test you which of you is best indeed…") (AL-Quran, 67:2).

مَنْ عَمِلَ صَالِحًا مِنْ ذَكَرٍ أَوْ أُنْثَى وَهُوَ مُؤْمِنٌ فَلَنُحْيِيَنَّهُ حَيَاةً طَيِّبَةً وَلَنَجْزِيَنَّهُمْ أَجْرَهُمْ بِأَحْسَنِ مَا كَانُوا يَعْمَلُونَ

Translation: ("Whoever does righteous deeds whether male or female while he is a believer, We will surely cause him to live a good life") (Al-Quran, 16:97).

مَنْ عَمِلَ سَيِّئَةً فَلَا يُجْزَى إِلَّا مِثْلَهَا وَمَنْ عَمِلَ صَالِحًا مِنْ ذَكَرٍ أَوْ أُنْثَى وَهُوَ مُؤْمِنٌ فَأُولَئِكَ يَدْخُلُونَ الْجَنَّةَ يُرْزَقُونَ فِيهَا بِغَيْرِ حِسَابٍ

Translation: ("And whoever does righteous deeds whether male or female while being a believer, those will enter Paradise") (Al-Quran, 40:40).

Similarly, the Customer Care Officer stated that:

"If there are complaints from patients, normally, the hospital will first investigate and decide whether the complaints related to specific work procedures or not. If there are serious complaints related to specific work procedures, the hospital will form a team to solve the complaints. Even to follow the requirements of Shariah compliant, An Nur is now using a system called Patient Care System (PACSYS) as our one stop Shariah system. We embedded the Al-Quran recites, Hadith and Fiqh information in our PACSYS. Improving patient care has become a priority for An Nur with the objective of achieving a high degree of patient satisfaction for both the medical and non-medical aspects. As we know that the quality of patient care is on the quality of infrastructure, quality of training, competence of personnel and efficiency of operational systems etc. And these are the requirements of Syariah standard. I believed that the fundamental requirement of An Nur key value proposition on patient oriented is consisted of management, products, facilities and services".

From the interviews, it was discovered that the hospital is already implementing activities related to Shariah compliant before been certified with the standard. For instance, the Chief Financial Officer has indicated that the process in the hospital is highly depending on the hospital core values which centred on Quran. Hence, in general, we can say that the implementation of Muslim-friendly hospital service quality varies in nature depending on the circumstances that can drive them to effectively implement the activities, for instance, the hospital's purpose and their core values. In summary, the interviews revealed that hospital implementing Muslim-friendly hospital service quality activities consist of the following:

a) management,

b) products,

c) facilities, and

d) services

5.6.3 The Views on the Important Qualities of a Muslim-Friendly Hospital and Relation to the Al-Quran and Hadith

5.6.3.1 Management

The core services are offered by the An-Nur hospital would include the management responsibility to provide sincere and proper treatment to the patients with the aim of saving their lives. The management responsibility should be implemented with due carefulness, trust and justice. Allah (SWT) mentioned in the Holy Qur'an in Surah At-Tawbah:

$$وَقُلِ اعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ وَسَتُرَدُّونَ إِلَى عَالِمِ الْغَيْبِ$$
$$وَالشَّهَادَةِ فَيُنَبِّئُكُمْ بِمَا كُنْتُمْ تَعْمَلُونَ$$

Translation: ("And say, "Do [as you will], for Allah will see your deeds, and [so, will] His Messenger and the believers. And you will be returned to the Knower of the unseen and the witnessed, and He will inform you of what you used to do"). (Al-Qur'an, 9:105).

In addition, Allah (SWT) mentioned in the Holy Qur'an in Surah al-Nisā:

$$إِنَّ اللَّهَ يَأْمُرُكُمْ أَنْ تُؤَدُّوا الْأَمَانَاتِ إِلَى أَهْلِهَا$$

Translation: ("Verily! Allah commands that you should render back the trusts to those to whom they are due". (Al-Qur'an, 4:58)[3]

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[3] *The Noble Qur'an (English Translation of the Meaning and Commentary)* Translated by Muḥammad Taqī-ud-Dīn Al-Hilālī & Muḥammad Muḥsin Khān. Madinah: King Fahd Complex 1996.

The verse indicates that the management should carry their duty as it is considered as a trust and responsibility (*amānah*) on them where they have to maintain things as promised. Allah says in another verse:

يَا أَيُّهَا الَّذِينَ آمَنُوا أَوْفُوا بِالْعُقُودِ

Translation: ("You who believe! Fulfil (your) obligations") (Al-Qur'an, 5:1).

Based on the above verse, the management should be able to provide all the facilities and services they promote and promise to the patients. The Prophet (PBUH) also warns us about our responsibility and duties, he says: "All of you are guardians and are responsible for your wards"[4]. And, in the day of judgement the human beings will be asked about their deeds. Allah says:

وَلَتُسْأَلُنَّ عَمَّا كُنْتُمْ تَعْمَلُونَ

Translation: ("But you shall certainly be called to account for what you used to do" (Al-Qur'an, 16:93).

Considering these verses and ḥadīth (Prophetic text), it may explain that the management authority should act as a trustee of Allah (SWT) in carrying out the duties in organizations. The management authority of the hospital needs to make sure all the information, formulations, evaluation plans, execution, resources, goals, controlling resources, leading workforce and organization tasks are consisted with principles of Islam. The Chief Executive Officer of the hospital explained that:

"If there are complaints from patients, normally, the hospital will first investigate and decide whether the complaints related to specific work procedures or not. If there are serious complaints related to specific work procedures, the hospital will form a team to solve the complaints. Even we follow the requirements of Shariah compliant. We

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[4] Al-Bukhārī, M. I. (2015) *Ṣaḥīḥ al-Bukhārī*, ed. Rāʾid Ibn Ṣabrī. Riyāḍ: Dār al-Ḥaḍārah; al-Nisābūrī, M. Ḥ. (2015) *Ṣaḥīḥ Muslim*, ed. Rāʾid Ibn Ṣabrī (Riyāḍ: Dār al-Ḥaḍārah.

embedded the Al-Quran recites, Hadith and Fiqh information in our Patient Care System. As we know that the quality of patient care is on the quality of infrastructure, quality of training, competence of personnel and efficiency of operational systems etc."

Also, the hospital includes the tasks which should be implemented, identifying those staffs who must implement the tasks and appointing those who must provide report. In this regard, the Customer Care Officer claimed that:

"From my point of view, the quality of service in the hospital is adequate. So far, We believed we had given the best treatment that patients confident regarding with our treatment quality. In fact, we asked patients to evaluate the performance of the staffs and cleanliness of the hospital, quality of treatments, adequate machineries, etc. based on their personal experiences. Patients can fill the complaint forms through the system. The hospital should acknowledge the work hard of our Syariah Advisory Council in ensuring that we comply with the standard requirements".

5.6.3.2 Products

Hospital is currently offering medical treatment to their patients in compliance with Shariah principles (Ibadah friendly or spiritual treatment), and providing halal and good (Tayyiban) for their patients' consumption. For instance, the Chief Executive Officer of the hospital explained that:

"I can say that medical treatment makes a direct contribution to ibadat by protecting and promoting good health so that the patients so that they will have the energy to undertake all the responsibilities of ibadat. On our side as medical service provided, it is also our ibadah. Our doctor says Bismillah before injecting the patients. They also perform doa recitation for patients who will under-go operation asking for successful of the operation and patients healing process."

Similarly, the Chief Operations Officer reported that:

"We have so many researches been done about medical treatment from perspective Quran and Hadith in Malaysia particularly that related to the medical practices. Islamic medicine must have procedures that conform to or to do not contradict the Qur'an and Sunnah."

Islamic medicine or spiritual care may refer to a litany of therapeutic techniques, the Muslim physician and patient should always acknowledge that the ultimate cure is from Allah (SWT). The Qur'an and hadith discussed the importance of personal hygiene and public health. The Prophet Muhammad (peace be upon him) prescribed correct dietary habits, such as prayers and exercise in order to promote physical and spiritual well-being. The Qur'an also indicates how it can benefit humankind. Allah (SWT) mentioned in Surah Yunus:

$$\text{يَا أَيُّهَا النَّاسُ قَدْ جَاءَتْكُمْ مَوْعِظَةٌ مِنْ رَبِّكُمْ وَشِفَاءٌ لِمَا فِي الصُّدُورِ وَهُدًى وَرَحْمَةٌ}$$
$$\text{لِلْمُؤْمِنِينَ}$$

Translation: ("O mankind! There has come to you good advice from your Lord (i.e. the Qur'an), and a healing for that which is in your hearts- and for those who believe, a guidance and a Mercy") (Al-Qur'an, 10:57).

In the Hadith of Sahih al-Bukhari, it is mentioned that the Prophet Muhammad (peace be upon him) said:

$$\text{ما أنزل الله داء إلا أنزل له شفاء}$$

("Allah has not sent any disease without sending a cure for it") (Ṣaḥīḥ al-Bukhārī).

In terms of halal and good (tayyiban), it refers to the patients' dietary needs while being treated in the hospital. The food and drinks offered by the hospital should be suitable according to the dietary requirement of the patients and it must also be halal. The personal and sanitary care of the patients should be halal. This requirement is extended to the food and beverages offered to the staff and visitors at the hospital. For instance, the Chief Executive Officer explained:

"Our most of the patients are Muslim, the hospital still provides halal food and drinks, and there is no serve of pork with food and alcoholic beverage".

In the Holy Quran, Allah (SWT) said in the Surah Al-Baqarah:

يَا أَيُّهَا الَّذِينَ آمَنُوا كُلُوا مِنْ طَيِّبَاتِ مَا رَزَقْنَاكُمْ وَاشْكُرُوا لِلَّهِ إِنْ كُنْتُمْ إِيَّاهُ تَعْبُدُونَ

Translation: ("O you who have believe, eat from the food things which
We have provided for you and be grateful to Allah if it is (indeed) Him
that you worship") (Al-Qur'an, 2:172).

In the Hadith of Sahih al-Muslim, Prophet Muhammad (peace be upon him) said that:

"Abu Huraira (may Allah be pleased with him), who said: The Messenger of Allah said:
"Allah the Almighty is good and accepts only that which is good. Allah has commanded
the Faithful to do that which He commanded the Messengers, and the Almighty has said:
"O ye Messengers! Eat of the good things, and do right" (Quran 23:51). And Allah the
Almighty has said: "O ye who believe! Eat of the good things wherewith We have
provided you.." (2:172). Then he mentioned [the case of] a man who, having journeyed
far, is disheveled and dusty and who spreads out his hands to the sky [saying]: O Lord! O
Lord!-while his food is unlawful, his drink is unlawful, his clothing unlawful, and he is
nourished unlawfully, so how can he be answered!" (Muslim).

5.6.3.3 Services

The hospital services would include Islamic medical care practice and patient care. The
hospital should design to address the concerns public health in terms of provision for
infection control, places and spaces for hygiene or personal wash, clean water supply and
clean environment. In conjunction with this, the Chief Executive Officer explained that:

"*Can we take example on hadiths about pee standing up. Our toilet is designed to the
Shariah-compliant which we don't have the bowl that men can urinate by standing up.
Actually, it is not haram for a man to urinate standing up, but it is Sunnah to urinate
sitting down. It is clearly been mentioned by Aishah "Whoever tells you that the Prophet
used to urinate standing up, do not believe him. He only ever used to urinate sitting
down." Medical benefits are many to men's health for urination by squatting. Urination
by squatting can give pressure to the bladder and cause the whole urine from the body
and an empty bladder can help reduce the risk of prostate cancer among men. That is
why our toilet we don't have bowl that men can urinate by standing up*".

Moreover, the Chief Executive Officer added that:

"Cleanliness can be defined from two aspects, purification, or we called as ritual washing to perform prayer. The other is for keeping the body fresh from clothing and environment clean and especially if you are dirty in various parts of the body, such as teeth, nails, armpits or also your pubic area. Prophet Muhammad taught us about the importance of cleanliness when he said, "cleanliness is half of faith".

In the Quran, it is more specific that Allah (SWT) said in Surah Al-Baqarah:

$$\text{إِنَّ اللَّهَ يُحِبُّ التَّوَّابِينَ وَيُحِبُّ الْمُتَطَهِّرِينَ}$$

Translation: ("Truly, God loves those who turn unto Him in repentance and loves those who purify themselves") (Al- Qur'an, 2:222).

Cleanliness is an essential part of Islamic life. In Holy Quran Surah Al-Maidah Allah Almighty says that:

$$\text{مَا يُرِيدُ اللَّهُ لِيَجْعَلَ عَلَيْكُمْ مِنْ حَرَجٍ وَلَكِنْ يُرِيدُ لِيُطَهِّرَكُمْ وَلِيُتِمَّ نِعْمَتَهُ عَلَيْكُمْ لَعَلَّكُمْ تَشْكُرُونَ}$$

Translation: ("Allah does not intend to inconvenience you, but He intends to purify you and perfect His favour to you, so that you may give thanks") (Al-Qur'an, 5:6).

Islam has always encouraged the believer to be in a state of cleanliness both physically and spiritually. For example, Prophet Muhammad (peace be upon him) said that:

"The key to the prayer is cleanliness, its beginning is takbir (saying Allahu Akbar) and its ending is Salam (salutation)" (Abu Dawud).

In addition, the nurses have a responsibility to assist patients whenever they needed. Public health in terms of provision for places and spaces for hygiene or personal wash. For example, the Chief Executive Officer explains:

"Let say if in wards, the bed is facing the Kiblat for serious ill patients to perform solat on their bed. In the case of very old and illness patients, our nurses' role is to assist the patients how to take wudhu and perform solah".

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5.6.3.4 *Facilities*

The hospital needs to provide facilities which include accommodations and other facilities that help the staff and patients to perform their daily ʿ*ibādah*. As discussed in Chapter 2, analysis of the literature points out that there are other important qualities of a Muslim-friendly hospital, for instance, the availability of prayer facilities, (prayer room with prayer mats and copies of al-Qur' an), Islamic TV channels, direction of Makkah indicated in room, prayer times in local time zone, female room housekeeping and room staff. In this context, the Chief Operations Officer described their Shariah facilities are according to the merit for instance:

"We try to facilitate Islamic practice during their stay in the hospital. We provide water spray and debu tayammum for solat purpose. For some patients with special condition, they tried to find a suitable method of prayer such as prayer sitting, reclining and tayammum. Hospital also provides some service to of waking up patients for prayer (subuh), Meet patient and remind the patient on their first day in ward on guidelines for prayer during the stay in the hospital".

In the Holy Quran, Allah Almighty says in Surah Al-Ma'idah:

$$\text{وَتَعَاوَنُوا عَلَى الْبِرِّ وَالتَّقْوَى وَلا تَعَاوَنُوا عَلَى الْإِثْمِ وَالْعُدْوَانِ}$$

> Translation: ("Help you one another in al-Birr and al-Taqwā (virtue, righteousness and piety); but do not help one another in sin and transgression." (Al-Qur'an, 5:2).

The verse encourages believers to cooperate with each other in virtue and piety and not to help in sin and violation. The hospitals in our study, are providing the above-mentioned facilities like a prayer room with all necessary stuff, for the patents and staff in order to ease their ʿ*ibādah* activities. It is also important to mention that those facilities will help the patents utilize their waiting time doing something good and will prevent them from wasting their time in something bad. More importantly, those facilities will assist the guests and patents to perform their religious obligations properly.

The Chief Executive Officer described that their services cover many areas such as receptionist, physician, operation theatre, wards, nurses, pharmacy, canteen and others. For Shariah-compliant hospital, the work process should comply with Shariah. Following this, the Chief Operations Officer added:

"The latest issues regarding the laundry to perform Solah. Although most of our patients are Muslim, the hospital still offers laundry services for patients which comply with Shariah. As we know that Muslim needs clean clothes to perform solat. There was an issue before on how to handle laundry facilities to avoid mixture of unclean clothes or blood stain with other clean clothes. For solat, the clothes should not look clean, but it should also purify. As Tuan Haji mentioned about the cleanliness just now, the unclean part should be removed first, then the cleansing process can be done. If it is necessary to separate between the contaminated clothing and the no-stain, should to do that. It was mentioned by our preachers about this. Anyway, not many patients utilised our laundry as they prefer to take back the clothes or short stay".

5.6.4 The Concluding Remarks

The empirical evidence further illustrates that hospitals do offer significantly all the six criterions of Muslim-friendly medical services quality to attract Muslim patients. Muslim patients search for special facilities and service in the hospital. They expect that medical providers will follow Islamic rule and regulation. The results of the interview do show that all the criterions that described as service quality of a Muslim-friendly hospital do important and been actively been practiced by An-Nur hospital. In addition, the study discovers that those criterions or service qualities do also supported by the Al-Quran and Hadith.

Hence, the study found that service quality plays an important role in the health sector especially in the Muslim-friendly hospitals. It is to be noted that among the emphasized that Muslim-friendly hospital service quality must be regularly redesigned

and the fulfilment of the customer needs to be improved to maintain overall satisfaction of the patients. In this case, management already think of increasing the facilities such providing van jenazah, improving frontline services, increasing the number of specialist, inviting more Muslim food franchisors for the halal food, upgrading facilities such as reducing waiting time to see the doctor, increasing parking facilities, and providing lady doctors for lady patients as many patients in Malaysia consider these as needed services.

All of these improvements are based on necessity and needs of Muslim patients as well according to time and situation. The Shariah Advisory Council will the hospital advise based on Al-Quran and Sunnah; from JAKIM and Mufti advise to fulfil the Maqasid Shariah (Shariah purpose) which to protect religion and life. This will increase the overall Muslim-friendly hospital service quality, which will lead in turn to both customer satisfaction and customer loyalty. Moreover, building improvement policies through continuous customers' feedbacks will help in improving Muslim-friendly service facilities and hence overall quality. Thus, ensuring these will increase customer satisfaction in the future.

5.7   Contributions

The major significant contribution of this study would be to the development of Muslim-friendly medical service quality criterions in particular and to the healthcare industry in general. The demand for a particular treatment in Islamic manner is highly recommended especially to those who are very particular in their Islamic practices and belief. Muslim-friendly hospital is a concept used in hospital management to achieve the values of excellence and pride to employees for the well-being of its customers through the adoption and appreciation of worship during and after treatment. Muslim-frinedly

hospital aims to create awareness through education of patients and families to be closer to God.

It is believed that this is the first study to measure Muslim-friendly medical services quality from the Muslims patients' perspective at the private hospitals in Malaysia. Therefore, this study can be as a reference to the hospitals that looking for a particular treatment in Islamic manner especially to those who are very particular in their Islamic practices and belief. The study covers not only for the physical needs of patients; it also caters and provides for the religious and spiritual needs of patients from the physicians and nurses services as well the administrative behaviour. It is known fact that the role of spirituality and religiosity has now being more acceptances not only in Oriental but also in the Western world.

In terms of service quality, those patients who demand Islamic environment in term of procedures and practices will observe certain ruling when receiving the medical services. Some of the Islamic environments perceived by patients are from the aspect of staffs attitude, service delivery, physical facility and level of cleanliness in the hospital. In conjunction to this, hospital service system and the staffs obliged to put efforts in delivering the best service when patient comes to the hospital so that they will be satisfied with the services. As the recipient of service, when patients realized that their iman (faith) requirements on medical service they received are comprehensible by the Muslim-friendly hospitals, they would be comfortable when receiving treatment. This concept supposedly needy to be internalized in all hospital service elements because honouring patients also is part of Iman (faith).

This study is designed to shed some light on the patients' view of the implementation of Muslim medical services in private hospitals, specifically, the satisfaction level of patients in getting the medical services from the hospitals. This study is undertaken as a response to the increasing demand for Shariah compliant medical

services from Muslims' patients. Though this study focuses only on the Muslim patients, nevertheless the non-Muslims patients also would suppose appreciating the Shariah compliant medical services. This study has several unique features. Firstly, it had a focus on Muslim-friendly medical service according to the Shariah compliant hospital requirements which is based on medical management quality. Secondly, this study is one of the few studies conducted on the need for establishing criterions for Muslim-friendly medical service quality based on literature review and interviews. Thirdly, in this study, the criterions of the Muslim-friendly medical service quality be analysed towards patients satisfaction and their intentions to revisit the hospitals with regard to the implementation of the Muslim-friendly medical services.

It is universally acknowledged that patients and their families should have the right to choose their health care providers. Therefore, hospitals bear the responsibility of providing patients with their preferred health care services. These services need to respect patients' choice of the way physicians and nurses treated them according to the Shariah, as long as they do not interfere with diagnostic procedures or treatment option. Choices on the Shariah amenities, healthcare technicality, hospital environment services and administrative behaviour also have priority over medical procedure when choosing their health care providers. It is evidence from this study that all of these Muslim-friendly medical services are offered by the studied private hospitals to some extent as perceived by the patients. Interestingly, the results of the study clearly demonstrated that most of the respondents were in favour of the service quality of the Muslim-friendly medical services offered. Nevertheless, one should consider several different factors when Muslim-friendly medical services implementation is concerned. The following sections focus on theoretical or knowledge contribution, managerial and marketing implications of this study.

5.7.1 Theoretical and Knowledge Contributions

This study has a significant theoretical and knowledge contribution which shows the aspects of Muslim-friendly medical services quality which influence patients' satisfaction and loyalty intention. Shariah amenities have a significant relationship with loyalty intention through the satisfaction of Muslim patients. Although Shariah amenities have a positive relationship with satisfaction, surprisingly, it has a negative relationship with loyalty intention for future medical treatment at hospitals. Some researchers used Shariah amenities in different contexts (e.g. Mahjom et al., 2011; Abdelkader, 2015) and found that Shariah amenities are important for Muslim consumers when deciding to purchase different products and services.

In the aspect of medical services quality for Muslim perspective, this study revealed all aspects of Muslim-friendly medical services quality - administrative behaviour, nurses' services, healthcare technicality, hospital environment and physicians' services- have a relationship with satisfaction. Patients are able to judge hospital services quality, especially through the physicians, nurses, hospital environment services and administrative behaviour. As patients' judgment is a core aspect of quality care, physicians and nurses should be careful to provide the expected service to the patients. Although hospital environment is important for patients' satisfaction, it is not considered important when deciding to revisit the hospital in the future. Besides, healthcare technicality influences patients' satisfaction and loyalty intention among Muslim patients at the hospitals.

As noted by Sadeh (2017), medical-staff performance (doctors' services, nurses' services) and healthcare technicality are the most important factors which influence patients' satisfaction. However, in the context of Malaysia, the results of this study imply that the most effective reasons for patients to reuse the services of a particular hospital are their satisfaction with administrative behaviour, doctors' services, and healthcare

technicality services. Thus, patients' satisfaction is crucial as it is largely determined by administrative behaviour, physicians' services, and healthcare technicality and these also influence their loyalty intention for future medical care services at hospitals.

In this study, the findings revealed that patients' satisfaction has a highly significant relationship with loyalty intention. Usually, if patients are satisfied with a service delivered by a hospital, they are willing to use that service again in the future. Kessler and Mylod (2011) believed that there is a positive significant correlation between patients' satisfaction and their loyalty intention in such a way that the more satisfied they are with the services, the more loyal they are to them. The satisfaction of patients and their loyalty could increase as a result of high-quality medical treatment services at hospitals. Thus, patients' satisfaction is accounted as a key factor in the success of the hospitals. Satisfied customers are likely to exhibit favourable behavioural intentions (loyalty) which are beneficial to the hospitals in the long run. Satisfaction of patients can be defined as a judgment made by a recipient of medical care as to whether their expectations have been met or not. It enhances hospital images, which in turn translate into increased use of services and market share, as satisfied patients are more likely to reuse the services.

Additionally, this study found that patients' loyalty intention is significantly attributed to administrative behaviour, physicians' services, and healthcare technicality. These three aspects are the most important for the improvement of hospital services in Malaysia to ensure their operational sustainability in the long run. Zarei (2015) and Zarei et al. (2015) also mentioned that medical specialists (physicians), medical staffs and healthcare technicality were the most significant service quality factors of healthcare service.

The study results also indicated that loyalty intention is not significantly attributed to nurses' services and hospital environment, but are significant with patients'

satisfaction. As noted by Lei and Jolibert (2012), perceived services quality (nurses' services, and hospital environment) does not lead directly to patients' loyalty intention. Thus, nurses' services and hospital environment should continue to be managed to ensure patients' satisfaction and future loyalty. This implies that the effect of patients' loyalty intention is still predicted to an extent by patients' satisfaction with nurses' services and hospital environment. It emphasises the importance of deriving patients' satisfaction with the nurses' services and hospital environment to gain loyalty from the patients.

Furthermore, the findings support that satisfaction totally mediates the relationship between Shariah amenities and loyalty intention. Patients' satisfaction, on the contrary partially mediates the relationships of physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour with the loyalty intention of Muslim patients. The results identified that patients' satisfaction is a mediator between Muslim-friendly medical services quality constructs - Shariah amenities, physicians' services, nurses' services, healthcare technical, hospital environment and administrative behaviour - and loyalty intention. This finding is similar to Lei and Jolibert (2012) who discovered that the relationship between healthcare services quality and loyalty intention was significantly mediated by patients' satisfaction.

5.7.2 *Managerial and Marketing Implications*

The findings provide a basis for managerial and marketing recommendations in the development of quality medical services for Muslim patients. Hospital managers need to understand and provide Muslim friendly medical services that ensure patients' satisfaction and stimulate loyalty intention for future usage of medical treatment. Note that managers of the hospital need to be mindful while adopting Shariah amenities. This criterion is a necessary but not the only aspect of quality medical service in Muslim-friendly medical hospitals. Muslim patients prefer to see the Shariah amenities along with

other services' quality criterions such as nurses' services, physicians' services, healthcare technicality, hospital environment, and administrative behaviour while receiving medical treatment. Perhaps the most significant observation of this study is that despite the significant positive relationship between Shariah amenities and patients' satisfaction, its relationship with loyalty intention is negative. Thus, hospital marketing departments need to be mindful and understand when promoting the Shariah amenities, as its excessive promotion might be counter-productive in attracting future patients.

This study provides valuable empirical evidence in shaping up patients' loyalty intention for future medical treatment at the hospitals in Malaysia. The use of confirmatory factor analysis and structural equation modeling revealed that administrative behaviour, physicians' services, and healthcare technicality are the three most crucial criterions of medical service quality for Muslim patients. Confirming quality services and satisfaction of Muslim patients require not only a good hospital environment, but also the hospital's manager's ability to employ well-trained and skilled administrative staff and physicians. Healthcare managers should apply healthcare technicality and tools (modern technology, methods) to operationalize medical services. Healthcare policy-makers' support is also crucial in managing the necessary resources to ensure quality patient care.

In the context of Muslim-friendly hospitals, the structural model result indicates that physicians' services are the key factor as it significantly influences Muslim patients' satisfaction and their loyalty intention. Generally, the physicians' role in a hospital is the core of any medical care service and their responsibilities are not confined to only treating the patients. They are trained to provide leadership in supervising and developing the patient's overall medical treatment plan as well. The hospital management department should seek physicians' personnel with appropriate skills, character, and devotion to patients in medical service delivery. To improve healthcare quality service, hospital

managers may need to design various in-house training programs that incorporate the physicians' skills and ability as a part of their daily work practice. Such training is significant to enhance the physicians' personal skills in communication and could motivate them to provide excellent services to patients.

In this study, nurses' services are important for patients' satisfaction, but for the sustainability of hospital operations, it does not play a significant role in retaining the Muslim patients at hospitals. Personal attendances (i.e., family members, familiar people) perhaps play a role in meeting Muslim patients' emotional, social and psychological needs during the stay at hospitals. Hence, hospital managers may wish to consider and allow personal attendance among family memebers and friends to look after Muslim patients in the hospitals to ensure satisfaction. Healthcare technicality influences satisfaction of patients and also loyalty intention for further medical treatment at the hospitals. The application of healthcare technicality in medical care organizations will yield excellent results in confirming quality medical services. Among medical staffs it is necessary to demonstrate excellent technical skills and efficacy to satisfy patients in the hospital.

As patients' satisfaction is crucial to the business survival of healthcare organizations, it is important to assure them about the quality medical services when they are admitted to the hospital for treatment. Healthcare technicality has become more significant in the medical sector and highly dependent on information and communication technology. The hospital management department should install medical-related software, digital patient records, instructional materials, diagnosis, and therapy and cases information in their service system. The technical management department should ensure the use of the state-of-the art medical diagnostic and treatment technology to enhance both the illnesses' diagnostic capability and the treatment received by the patients.

Continuous improvement training among medical staff at the hospitals is required to ensure the needed technology and expertise are in place.

An excellent hospital environment resulted in higher satisfaction; however, it did not result in loyalty intention. As a hospital environment is important for the satisfaction of Muslim patients, the hospital manager should strive to provide and maintain the decoration of wards, neatness of hospitals, cleanliness of the environment and the appearance of medical staffs. The hospital management department also needs to manage cleanliness of surrounding areas, noise in the wards, bathrooms, and toilets during the visiting hours. It is noteworthy that the healthcare managers' professional management systems increase medical care services and promote organizational productivity.

The theoretical model results also confirmed that administrative behaviour acts as one of the main criterion of service quality for patients' satisfaction. Hence, administrative behaviour most significantly enhances satisfaction compared to other constructs. Additionally, administrative behaviour also influenced the loyalty intention. Patients inevitably interact with administrative staff before getting an appointment or consulting with the physicians. The hospital managers should pay more attention to constructing the positive image of their administrative behaviour. The support staff must be well dressed, well trained and polite at the service interaction counters when delivering the services to the patients and their family members. The information required for the delivery of medical services must be orderly and readily available if required by patients and medical staff. The tangible elements – e.g. uniform, furniture, interior decors - of the hospital should convey messages that the hospitals are geared in providing efficient and quality services.

In regard to Muslim-friendly medical services quality, patients' satisfaction plays an important mediating role between Shariah amenities and loyalty intention. Additionally, patients' satisfaction plays a significant partial mediating role between

physicians' services, nurses' services, healthcare technicality, hospital environment, administrative behaviour and loyalty intention. Therefore, hospital managers should plan and implement the delivery of customer-centred healthcare services strategies that will ensure higher satisfaction of patients. Higher satisfaction will result in a higher probability among patients to return to the hospitals to receive medical treatment in the future. This necessitates the hospital managers to provide the delivery of excellent services in all aspects of the Islamic-friendly medical services which are examined in this study: Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment and administrative behaviour.

The univariate mean score results revealed that the hospital environment very importance in influencing satisfaction of Muslim patients. Regardless of national and international patients, they prefer hospitals with a safe and secure environment, pleasant rooms, and clean and hygienic in their appearance. The management needs to ensure the provision of an attractive environment, and the marketing information should highlight the availability of such augmented products and services. The hospital marketing department needs to be attentive in marketing positive administrative behaviour such as respect, dignity, courteousness, and fast and easy administrative procedures to the prospective patients.

Moreover, physicians' services and healthcare technicality significantly influence loyalty intention of patients. The two elements should be stressed in the marketing information of the individual hospitals. Physicians' skills, prompt service, religiosity, and sympathy influence the intention to re-use the services, which in the long run could ensure the sustainability of the hospital services and operation. Up-to-date equipment, stable amenities, accurate records, and documents may also influence patients' loyalty intention for future medical treatment at the hospital. These aspects need to be carefully

developed, maintained and marketed to the prospective patients nationally and internationally.

Several integrated marketing strategies such as service training, public relations, internet marketing, event marketing, healthcare advertising, promotion and communication with patients should be implemented to maintain the medical services quality. Advertising and marketing healthcare promotion can create a positive perception of the hospitals should the hardware and software of health delivery requirements are already in place. Positive image creation often entices new customers to patronise the medical services at private hospitals. Besides, scientific knowledge about the presence of non-halal ingredients in medicine is necessary to the clinicians at hospitals. It is desirable for the marketing department to provide accurate information to display the mindfulness of medical services of what is the upmost concern among Muslim patients. Hospital marketers also need halal certifications to build patients' confidence in medical treatment at hospitals. Successful marketing strategies could enhance Muslim patients' awareness towards medical products and services in this regard.

5.8 Limitations of the Study

The following limitations are identified and they need to be taken into consideration by the future researchers focusing on this study area.

- The research participants were only Muslim patients who were recovering from health ailments. Many who were rather ill were not willing to answer the questionnaire. Usually, patients were in a hurry to meet their physicians and some had limited understanding of English language. Hence, many were unable to answer the questionnaires. The researcher did not insist on everyone selected at the location to answer the questionnaire. Most patients who

responded to the questionnaire had sufficient fitness physically and mentally to answer the questionnaire.

- The measurement of Muslim patients' satisfaction was based on the perceptual scales which may not be as precise as the objective scales. Perceptual scales are usually subjected to the respondents' biasness, whereas the objective scales acquired a more quantifiable data. Being a social scientist, the researcher is only familiar with the perceptual scale. The real scale could be more effectively measured by scientists such as medical doctors themselves.

- The research framework ensures that the most noteworthy factors were chosen from the information triangulation between the review of the literature and factors from the informal conversation (interviews) with patients at the hospital within the Malaysian context only. The research framework may not be comprehensive in itself since some essential factors may still be absent from the researcher's limited points of view, ass this has been mainly on the grounds that the factors had originated from literature and interviews which in themselves were in limited scope. The limited constructs on the relevant themes were used to assess Muslim patients' satisfaction and their loyalty intention for medical treatment. In order to have more accurate results, some other important factors, such as hospital halal practices, awareness, attitudes, medical costs, functional quality, physical maintenance and internal facilities may be included in future studies.

- Besides, the study focuses on Muslim-friendly medical services quality at hospitals in the Malaysian context only. Medical service quality from a Muslim perspective may influence the satisfaction of patients for future medical treatment at these hospitals. In these aspects, the inclusion of the general healthcare providers is expected to provide slightly different contextual results

and findings of the research which will most probably converge in a similar direction.

5.9   Directions for Future Research

As far as the researcher's knowledge is concerned, this study is considered to be one of the earliest attempts to empirically investigate the impact of Muslim-friendly medical care services, patients' satisfaction and their loyalty intention. Future researchers, particularly in Malaysia, can exploit the present study's concept to expand the research and broaden the relevant sphere of knowledge in the field of medical care services for Muslim patients' satisfaction and their loyalty intention for medical treatment. By conducting further study in the area, it is predicted that several vague issues referring to the relationships of the present study can be further explored and clarified for the opportunities of academia, healthcare providers and practitioners in the hospitals. For further specific recommendations for the future studies, the following points are suggested below:-

- Future research should take into consideration expanding the study on public hospitals, clinics and health centres with a view to extracting the common dominating factors of interest. With larger samples from the public hospitals, the findings are expected to provide a more accurate picture of the services and they could be generalised as representing Islamic medical services provision in Malaysia. A comparative research can also be undertaken to assess the differences in medical services quality from the Muslim perspective, Muslim patients' satisfaction and their loyalty intention for medical treatment in the Malaysian public hospitals and the private healthcare providers. Such an investigation is important to keep track of the country's development towards sustainability, which is presently the national agenda in Malaysia. Muslim patients' friends and family members' perceptions may also represent a

potential study area as these groups could become the key influencers of Muslim patients' medical care choices.

- Future researchers should also look into the impact of other medical care services, for instance, patients' halal accommodation, halal hospital/clinic practices, halal pharmaceutical, halal insurance, and transportation, all of which might be important to increase the Muslim patients' satisfaction towards their loyalty intention for medical treatment. Accordingly, the constructs of medical services quality from the Muslim perspective should be incorporated in all private and public hospitals in an effort to improve the quality and practice of the Islamic medical ethics throughout the sector.

- The intention of the study is to develop and test the model of Muslim-friendly medical service quality from the perspective of Muslims patients, which the constructs of the model was based on Malaysia Standard (MS 1900:2014 and MS 2610:2014/2015) on Muslim friendly services requirement and the Shariah-based quality management systems requirements in the context of hospitals. Apart from these, future researchers may carry out further study to look into at both Muslims and non-Muslims patients so that it will enrich the findings academically and practically. Importantly, the study in a way can attract the non-Muslims patients to get their medical services at these Muslim hospitals so that they can remove their misconception about Islam and Muslim.

- It is suggested that future research should carry out investigations on the reasons behind the insignificant relationships which have emerged in the outcomes of the present study. Besides, the instruments used in this study may not be precisely relevant to the local context. Perhaps this research could start with qualitative studies to develop measures which are relevant to the local context.

5.10   Conclusion

The medical service industry is observed globally as the potential contributor to a country's economy. A Muslim-friendly medical service is one of the niche areas of medical care service that attracts widespread attention among the entrepreneurs of different nations. Among others, the Malaysian medical industry is acknowledged as a popular medical care hub for Muslim patients. This country is striving to develop Muslim-friendly medical care services as it is an opportunity to attract more medical tourists along with the traditional tourists. The Malaysian government's steps to ensure the Shariah amenities at Muslim-friendly medical hospitals are also mentionable.

The literature review reveals that Muslim patients consider medical care service in Malaysia to be cheaper compared to other South-Asian, American, European nations which provide medical care services for Muslim patients. However, without the provision of quality medical services, cheaper cost alone may not be the reason to select the Muslim-friendly medical hospital. Besides, the Muslim-friendly medical services quality criterions are the extension of the general medical service quality criterions which are considered significant when deciding to use medical services at the hospital.

This study provides an insight into the Muslim-friendly medical services quality criterions and its impact on the Muslim patients' satisfaction and their loyalty intention for future medical treatment at the hospital. Among the service quality criterions Shariah amenities, physicians' services, nurses' services, healthcare technicality, hospital environment, and administrative behaviour are found to be significant factors to ensure Muslim patients' satisfaction which in turn affects their loyalty intention for future medical treatment. Besides, administrative behaviour, physicians' services, and healthcare technicality have a direct and a positive significant relationship with loyalty intention, while, Shariah amenities have a negative significant relationship with loyalty intention. Patients' satisfaction fully mediates the relationship between Shariah amenities

and loyalty intention. Patients' satisfaction partially mediates the relationship between physicians' services, nurses' services, healthcare technicality, hospital environment, administrative behaviour and loyalty intention.

These insights will help the scholars and policymakers in the healthcare industry in Malaysia, especially those of Muslim-friendly private hospitals. With the theoretical contribution of including Shariah amenities as a Muslim-friendly medical services quality criterions, it also defines what the Muslim-friendly medical service) is to the Muslim patients. The proper presence of Shariah amenities could be a selling point for any hospitals in Malaysia despite the opposite directional effect which is found with loyalty intention. Besides, other service quality criterions must be managed properly to gain the competitive advantages among the other Muslim-friendly hospitals around the world. Although the entire Muslim-friendly medical services quality criterions do not directly attribute to patients' loyalty, it is found to be significant with the indirect effect through patients' satisfaction.

Thus, it is worthy to mention that without satisfying the patients, any hospitals would not be sustainable in the long run. Muslim-friendly/Islamic medical hospitals require considering Muslim patients' satisfaction seriously when providing medical services. Otherwise, patients' will not return to the same medical hospitals further nor refer them to any familiar individual, which would disrupt the sustainability of its business operation. Furthermore, these findings provide a strategic guideline to the Malaysian medical service industry as they are trying to position themselves as medical service providers of Muslim patients. With an attempt at improving medical service quality, accreditation organisations can also certify the hospital in Malaysia based on the performance in regard to the six Muslim-friendly medical services quality criterions. In the end, all the aspects of medical service quality should be addressed in an integrated way to ensure Muslim patients' satisfaction. If it is improved, healthcare providers will

benefit while the economic sustainability of Muslim-friendly medical hospitals will be long-established.

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LIST OF PUBLICATIONS AND PAPERS PRESENTED

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1. Rahman, M. K., Zailani, S., & Musa, G. (2018). Tourists' satisfaction and loyalty intention at Shariah compliant private hospitals in Malaysia. *International Journal of Tourism Sciences*, *18*(4), 295-311.
2. Rahman, M. K., Zailani, S., & Musa, G. (2018). The Perceived Role of Islamic Medical Care Practice in Hospital: The Medical Doctor's Perspective. *Journal of Islamic Marketing,* 9(1), 2-18.
3. Rahman, M. K., Zailani, S., & Musa, G. (2017). What travel motivational factors influence Muslim tourists towards MMITD? *Journal of Islamic Marketing*, *8*(1), 48-73.
4. Rahman, M. K., Zailani, S., & Musa, G. (2017). Tapping into the emerging Muslim friendly medical tourism market: Evidence from Malaysia. *Journal of Islamic Marketing* 8(4), 514-532.
5. Rahman, M. K., & Zailani, S (2017). The Effectiveness and Outcomes of the Muslim Friendly Medical Tourism Service Supply Chain. *Journal of Islamic Marketing* 8(4), 732-752.

Paper presented

1. Rahman, M. K., Musa, G., & Zailani, S. (2017). Muslim friendly medical services quality, satisfaction and loyalty intention: Perspective of Muslims at Shariah compliant hospitals. Mini Symposium on Islamic Tourism 2017, Mini Auditorium, MATIC, Kuala Lumpur, Malaysia, 13 & 14 April 2017.
2. Rahman, M. K. (2018). Healthcare services in Palestine: Challenges and Opportunities, Research Seminar on Palestinian Issues-3, 26 June 2018, Mini Theatre, Level 2. Azman Hashim Building, Faculty of Business and Accountant, University of Malaya, Kuala Lumpur, Malaysia.