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# Determining the Service Quality in Medical Tourism via Structural Equation Model

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**Abstract**
The attempts of the individuals to be healthier by means of resting, exercising or going to thermal springs resulted with the emergence of a new and different type of tourism as 'medical tourism' within the tourism industry. In the environment of rapidly increasing competition, countries and health service providers make great efforts in order to take more shares from the medical tourism, which is directly related to the quality of the provided service and customer satisfaction. From this point, the aim of this research is to measure the service quality in medical tourism, reveal the current situation, investigate the relationship between service quality, satisfaction and loyalty and make suggestions. In this sense, the servqual scale, widely used in the health sector in particular, was taken as basis and implemented to the medical tourism participants. In this context, the observed result was that the most important service quality dimension for the participants was reliability and the dimension with the least likelihood to meet the expectations was sensitivity. However, it was concluded that there was a positive relation between the perceived service quality and customer satisfaction and that customer satisfaction played an intermediary role in achieving the customer satisfaction.

## 1. Introduction

People make great efforts to protect their health, increase their life quality and regain their health. They visit various countries apart from their residence due to many reasons such as the developments in technology, communication and transportation, long waiting hours in their own countries, some diseases not being within the scope of the insurance and the increase in the possibility to obtain health service of better quality. For long years, foreign citizens have been visiting USA,developed countries and Europe for medical treatment and care. More recently, the citizens of developed countries including USA and European countries have started to travel to the less developed regions of the world for medical treatment (Leahy, 2008, p. 260). This type of tourism, in the literature defined as the health tourism, covers tourism types such as medical tourism, spa-wellness tourism and tourism for elders and handicapped.

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Health tourism and medical tourism concepts are used mostly as interchangeable. Health tourism is a type of tourism that covers the applications of the thermal tourism, spa-wellness, 3rd age tourism, tourism for handicapped, health tourism etc. In this context, it is necessary to define that medical tourism is not synonymous with health tourism, but one of the types of medical tourism (Lunt and Carrera, 2010, p. 28). Compared to other sectors such as traditional tourism and other sub-sectors of tourism, medical tourism is, despite being new, is one of the sectors with the most rapid development (Connell, 2006, p.1093–1100; Herrick, 2007, p.1-40). Medical tourism grows rapidly within the tourism sector and is a concept defining the fact that people travel to long-distance countries to receive medical treatment and that they are also vacationists. Health tourism has reached a volume of $100 billion dollars in the world, reaching a point that whets all countries' appetites (Aydın et al., 2011). In this sense, health tourism did not stop at the point of thermal tourism or spa tourism but also covered medical applications, in other words, medical treatments (İbiş, Sinan, 2009).

## 2. Health Tourism

Health tourism is defined as going to another place to receive the health services that do not exist or regarded as insufficient in the place of residence, while remaining in the destination to benefit from the natural or artificial opportunities for a specific period of time and returning back home (Lee and Spisto, 2007, p.1; Sarwar et al., 2012, p.2; Baukute, 2012, p.6; Tshibalo, 2011, p.126; Vajirakachorn, 2004, p.8, Jeevan, 2011). Although the equivalent of the trips made to overseas with treatment purposes in the literature is still a matter of discussion, medical trip (Huat, 2006a, Fedorov et al., 2009, Cormany and Baloglu, 2011, Crozier and Baylis, 2010), medical refugees (Milstein and Smith, 2006), external patients (Jones and Keith, 2006), bio-technological pilgrims (Song, 2010) are some of the terms used for the definition purposes therein.

Tourism and health concepts can evoke different things when used together. However, health tourism includes the basic attributes of health and tourism sectors. Therefore, there are different definitions on the health tourism in the literature (Bennett et al., 2004, s.123; Cook, 2008, p.7; Henderson, 2004, p.113; Lee ve Spisto, 2007, p.1; Sarwar et al., 2012, p.2; Baukute, 2012, p.6; Tshibalo, 2011, p.126; Vajirakachorn, 2004, p.8). In this regard, it can be stated that health tourism covers the common points of medicine and tourism, which are two different service sectors. In this context, manifesting as a niche market, medical tourism allows the people to make intercontinental trips both with medical and touristic purposes (Bookman and Bookman, 2007; Jones and McCullough, 2007:1077-1080; Medheka, 2013: p.205-207).

T.R. Ministry of Culture and Tourism defines the health tourism briefly as "the trips made with treatment purposes". In other words, health tourism is the type of tourism allowing the growth of the health institutions by means of utilizing international patient potential along with those requiring physiotherapy and rehabilitation (T.R. Ministry of Culture and Tourism, 2011). As the main motivation in the health tourism is to purchase the services that will be beneficial for personal health, health tourism may manifest in different forms. In this context, health tourism can be examined under three topics:

- Thermal and spa-wellness tourism,
- Tourism for elders and handicapped,
- Medical tourism.

Goeldner (1989) has highlighted that there are five main components of health tourism market (Hall, 2011, p. 6).

- Sun and fun activities (Entertainment tourism)
- Healthy activities (main motivation is not health) (Outdoors recreation, adventure tourism, sports tourism and wellness tourism)
- Travels with the health being the primary motive (health tourism)
- Travels for sauna, massage and other health activities (Spa-wellness tourism)
- Medical treatment (medical tourism)

Medical Tourism: Van Sliepen (1992) defines the medical tourism as the trips made in the spare time with treatment purposes, with the condition of accommodation. According to Suad Imran (1995), it is defined as a person going to another country due to doctor suggestion or their own discretion for treatment and for a short period of time (Harahsheh, 2002, s. 23-24; Demirer, 2010, p. 6). Medical tourism or medical travel defines the trips made to other countries with medical purposes (Connell, 2006, p. 1094; Garcia Altes, 2005, p. 262; Akdu, 2009, p. 35). With reference to the definitions stated above and in the literature, it is possible to define the concept of medical tourism as *"the travels made by the people to the places other than the place of residence in order to regain and/or protect their health, on the condition of lasting for minimum 24 hours and maximum 1 year without any commercial purposes and by virtue of receiving medical treatment and participating in touristic activities based on the treatment period and type"* (Akdu, 2014, p.9).

According to Cohen (2006), tourists or visitors are grouped in 5 main categories in terms of health tourism market. These are (İçöz, 2009, p. 2261);

**Only tourists:** The tourists or visitors that do not benefit from any medical services in the country they visit.

**The tourists that are treated on vacation:** The tourists who receive medical service and treatment during their travels due to injuries or accidents.

**Tourists with vacation and treatment purposes:** These tourists do not go to the country or region due to specific medical reasons. However, the availability of treatment opportunities for some diseases in the visited region is a reason of preference. In other words, they are tourists with treatment-on-vacation purposes.

**Vacating patients:** These visitors go to a region with treatment purposes, however, they also have a vacation in that particular region following their recovery.

**Only patients:** The medical tourists in this group go to a region only to be treated or undergo surgery. They do not have vacation purposes.

When the medical tourism concepts are examined, it can be concluded that the priority of the medical tourists is medical treatment. In this sense, when the classification by Cohen and the definition of medical tourism is compared, it becomes more appropriate to classify the audience that can be taken as medical tourists as 'patients on vacation', 'only patients' and partially 'tourists with vacation and treatment purposes', respectively. The reason for this classification is the priority of the two tourist types to have a vacation.

## 3. Medical Tourism in the World

The first and most important attribute of medical tourism is that it is associated with tourism (Gonzales et al., 2001, p.1-211) and medicine (Tupasela, 2010, p. 1-144) and that the developments, changes, audiences; in other words, all the factors affecting and being affected by these sectors play an important role in medical tourism. Therefore, the subjects affecting the tourism and medicine sector are in the lead for medical tourism researches Spasojeviç and Susiç, 2010, p.201-208). Technical equipment and advanced medical opportunities in the developed countries are means of attraction for individuals from less-developed or developing countries with financial ability that sought better treatment options (Khafizova, 2011, p. 68; TÜSİAD, 2009, p. 5-6; Yirik, 2015). From this perspective, it can be stated that the specific objective of medical tourism is medical services (Kruja and Gjyrezi, 2011, p. 77-89). The stay in the country visited with medical tourism purposes may be organized for a long or short period of time (Suchdev et al., 2007, p.317-320; Fukahori et al., 2011, p.168-173).

The studies determined that around 750.000 American citizens traveled to different countries for treatment (Keckley and Underwood, 2008). Keckley (2008) estimated that this number would reach a value around 3 or 5 million USD by 2010 (Keckley and Underwood, 2008, Keckley and Eselius, 2009). Considering these values, it is observed that USA citizen tourists correspond to around 10% of the people traveling with health purposes (Ehrbeck et al., 2008), hence it can be concluded that the number of people traveling with health purposes is around 30-50 million. Along with number of tourists, another parameter that allows the evaluation of the medical tourism sector size is the material size of the sector. For instance, this value is estimated to be 60 billion USD for 2008 (MacReady, 2007, Crone, 2008, Keckley and Underwood, 2008).

The increase in the medical tourism activity has facilitated the efforts of countries that want to take a share from this market. In this sense, low price in particular has been an important element of competition. Table 1 includes an inter-country price comparison for several operations.

**Table 1:** Comparison of the Treatment Fees between the Countries (USD)

| Operation / Country | USA | Turkey | Thailand | Germany | Singapore | India | England | Switzerland |
|---|---|---|---|---|---|---|---|---|
| Heart-Bypass (CABG) | 129.750 | 11.375-15.000 | 11.000 | 17.335 | 30.000-33.000 | 8.666 | 27.770 | 44.596 |
| Cardiac Valve Change | 58.250 | 16.950 | 10.000 | - | 12.500 | 11.750 | 25.000 | 47.794 |
| Hip Prosthesis | 45.000 | 10.750 | 11.000-14.000 | 11.644 | 10.725 | 7.883 | 15.840 | 19.899 |
| Knee Prosthesis | 40.000 | 11.200 | 10.500 | 11.781 | 9.350 | 7.833 | 20.600 | 20.432 |
| Bone Marrow Transplantation | 300.000 | 40.000-70.000 | 50.000-60.000 | 250.000 | 250.000 | 40.000 | 250.000 | 200.000 |
| Liposuction | 9.000 | 3.333 | 1.200 | 4.376 | 3.000 | 2.500 | 4.950 | 7.551 |
| Spine Fusion | 62.000 | 7.125 | 7.000 | 13.500-15.000 | 9.000 | 12.000 | 32.400 | 30.915 |

The changes in the patient activity between the countries started with a big project called "Europe 1992" in 1990s and the attempts to remove the barriers preventing the free circulation of goods and services (Demirer, 2010, p. 21). Health service procurement in European countries is of top quality, but very expensive. Society expectations are at the highest level. The European societies are getting older, which causes the increase in their need for health services. Therefore, Europe became a candidate for receiving cheap health services from abroad (Health Tourism Association and Turkish Health Foundation, p. 18).

For instance: Being very advanced in health department, Germany stands out with complicated surgery and other advanced health services (Ministry of Health, 2010, p. 32). Located at the center of Europe, Germany attracts the attention of 59.000 medical tourists from 163 countries every year (hospitalscout.com) England is among the countries that send patients with mostly medical tourism purposes. The health insurance institution in England is called NHS (National Health Service), which assigns very long waiting periods for many examination, observations or surgeries. The patients who are not willing to wait, have started to receive these services in private hospitals on their own expense or seek alternatives for these services. According to current figures, 50.000 individuals in England purchase medical services abroad. Almost 400 medical institutions and corporations from various countries of the world introduce themselves in the English market and try to attract patients. Most of them are state-supported introduction projects (Akdu, 2009; 51; Özsoy, 2007).

The important region in the world for medical tourism is Asia continent. The region attracts 1.3 million medical tourists per year and the scope of medical tourism extended surprisingly with the countries such as Thailand, Singapore, India and South Korea. Thailand leads the medical tourism destinations in Asia that dominates the market. Medical tourism activities in Thailand had started with gender change operations in 1970s and the focus later shifted to aesthetic surgery (BAKA, 2011, p. 9; Connel, 2006, p. 1095; MugombaandC.Danell, 2007, p. 4; Connell, 2010, p. 61).

Following a strategic perspective in medical tourism via the collaboration of the political authorities and private sector, India has announced that it will allocate 6.5 million USD as resources to develop the medical tourism in the following years.

With this amount of resources to be spent by the Ministry of Tourism, hospitals with appropriate budgets will be built, as well as hotels to reinforce the accommodation opportunities of the patient relatives. (TÜSİAD, 2009: 9, Connel, 2006: 1095, BAKA, 2011: 10). However, Indian government has recently started a program called "medical visa", also known as "M-Visa", for medical tourists. Again, a standardization has been procured in the prices of health services offered by the government (AMA, 2007, p. 6, Akdu, 2009, p. 46).

Another medical tourism destination preferred by the Europeans is South Africa. Despite the fact that it is not in competition with other medical tourism regions of the world in terms of medical treatment costs, the world-class treatment quality attracts the attention of the tourists (Tengilimoğlu et al., 2013, s.114-115). For instance, some developments are in progress for medical tourism with the slogan 'Medical Safari: Feelings on medical tourism are not always positive', with the purpose of attracting medical tourists (Kulkarni, 2008, p.16). Despite having unreliable reputation and lacking JCI accreditation, it attracts more tourists compared to other less developed countries (Mozambique 32%; Lesotho 28%; Botsvana, 13%; Svaziland, 12%)

## 4. Medical Tourism in Turkey

As in world tourism, medical tourism is one of the most discussed topics in Turkish tourism recently. Despite both possessing hospitals and doctors providing world-class service and providing many alternatives in terms of tourism values, Turkey's share from health tourism is next to none. Compared to other countries in the world, 200.000* visitors for health tourism and specifically for medical tourism, 100.000* visitors visit Turkey per year. The countries that send patients to Turkey can be examined in four sections (Akdu, 2009, p. 39; Genç, 2007, p. 97; Aydın et al., 2011, p. 30):

- Countries that host a large Turkish population within due to various reasons (Germany, the Netherlands, Belgium, etc.)
- Developing countries that strive in terms of service due to the lack of infrastructure and doctors (Balkan countries, Turkish Republics in the Middle Asia)
- Countries where health services are expensive and where are patients who demand services not covered by insurances (USA, Germany)
- Countries with long waiting periods due to the imbalance in supply-demand (England, the Netherlands and Canada)

The low surgery prices in Turkey and hospitals providing hospitality services are important factors for the medical tourists to visit Turkey. It is known that costs of many surgeries are cheaper compared to the countries of the target audience and the rival countries. For instance: While a by-pass surgery in America costs $130.000, it costs around $30.000-$45.000 in Europe and $10.000-$15.000 in Turkey. A face-lifting operation costs around $18.000 in USA and $12.000 in

* The numbers were presented in the 5th International Health Tourism Congress.

Europe, while it costs $4000 in Turkey; root canal operation costs around $1.000 in USA and $400 in Europe, whereas it costs around $150 in Turkey. The situation is alike for eye operations, which is another similar market for Turkey. For instance, while one must pay around $4.000 in USA and $2500 in Europe for a lasik surgery, this operation costs around $1500 in Turkey (Akdu, 2009; İçöz, 2009; Khafizova, 2011; TÜSİAD, 2009).Being cheaper than the European countries is not the only reason for choosing Turkey. For instance, one of the reasons people choose Turkey for in vitro fertilization is that the first-try success ratio of Turkey is higher than European countries. Foreign patients coming from Middle Eastern countries or Eastern Europe choose Turkey for cancer treatment along with in vitro fertilization. One of the devices used in only five countries in Europe is available in Turkey, which has had significant progression on cancer researches and treatment. In this way, foreign patients obtain the opportunity to receive treatment with world-class services offered without queuing and have a vacation.

## 5. Service Quality

Bitner, Bom and Mohir (1994) defined service quality as the general impression of the consumers regarding the deficiency or superiority of an organization. While other researchers (for instance Cronin and Taylor, 1994; Taylor and Cronin, 1994) see the service quality as a type of attitude that represents a general evaluation in long-term; Parasuraman, Zeithaml and Berry (1985, p. 48) define service quality as 'a function of the quality dimensions as well as the differences between the expectations and performance' (Fen and Lian. 2007, p. 61). In short, service quality can be defined as the difference or gap between the customer perception and service expectations. Due to its multidimensional nature, it is very hard to determine the service quality. An increase in the service quality requires an increase in the qualities of several dimensions. Many opinions were raised in terms of service quality dimensions.

**Table 2:** Opinions of Service Quality Dimensions

| **Authors** | **Suggested Service Quality Dimensions** | |
|---|---|---|
| Saser, Olsen, Wyckof | Quality of the materials used in production<br>Physical atmosphere of the service and technical opportunities such as tools and devices<br>Attitude and behavior of the personnel providing the service | |
| Lehtinen and Lehtinen | Physical Quality<br>Interaction Quality<br>Company Quality | |
| Grönroos | Technical Quality<br>Functional Quality<br>Corporation Image | |
| Parasuraman, Zeithaml and Berry | Reliability<br>Enthusiasm<br>Talent<br>Availability<br>Kindness | Communication<br>Credibility<br>Safety<br>Understanding the Customer<br>Material Values |

**Sources:** Mehmet Emin Merter (2006) Narrator: Kekeç, (2008)

Lehtinen and Lehtinen (1991) defined three dimensions regarding the service quality, being Physical Quality (both product and support), Interaction Quality

(Interaction between the customer and service provider) and Company Quality (Corporation Image). Grönroos noted that the service quality has three functions, being 'Technical Quality', 'Functional Quality' and 'İmage'. According to Grönroos, technical quality is the output obtained by the customer from the service provided. Parasuraman, Zeithaml and Berry (1985) subsumed the service quality under ten dimensions: Reliability, Sensitivity, Talent, Accessibility, Kindness, Communication, Credibility, Understanding the Customer and Material Values. Service quality dimensions and service quality measurement model defined by Parasuraman Zeithaml and Berry forms the basic model for this research. Parasuraman et al. approached the concept of service quality with a wider perspective and developed the Servqual measurement method to measure it. According to this scale, the service quality is defined as the 'measurement of difference between the desires or expectations and perceptions' (Dilşeker, 2011, p. 23; Doğan, 2010, p. 38; Torun, 2009, p. 53).

## 6. Aim and Importance of the Research

This study aims to measure the expected and perceived service quality of the foreign patients who received treatment in Turkey within the scope of medial tourism and accordingly, to determine the level of perceived service quality in medical tourism. In this sense, determining the variables associated with the expected and perceived service quality of the patients who received health services within the scope of medial tourism, the patients' perception on the perceived health service, patients' socio-demographic characteristics and the effects of these characteristics on their expectations and perceptions and the effects of perceived service quality on customer satisfaction and loyalty forms the foundation of the research. The fact that the studies analyzing the perceptions, expectations and perspectives of the patients that participate in the medical tourism activities are limited and that the general tendencies of the stakeholders are ascertained exhibits the importance of this research.

## 7. Scope of the Research

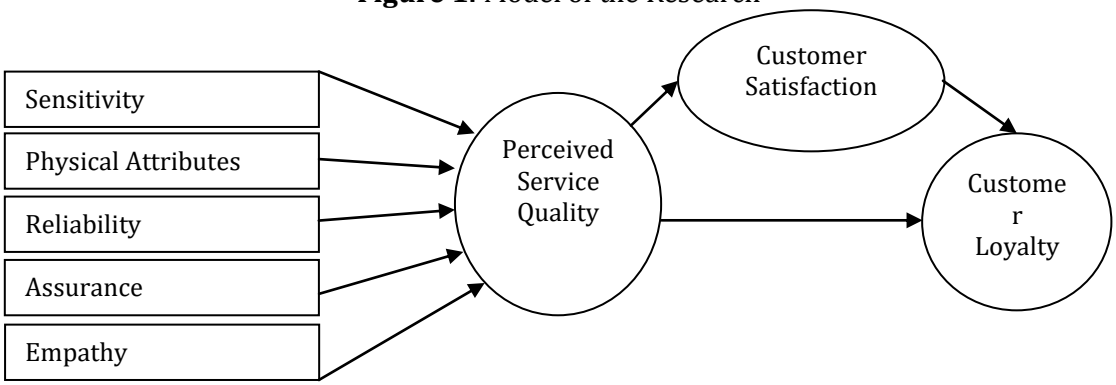
In 2012, a total number of 59.473 visitors, 5847 of whom being in public hospitals and 53986 of whom in private hospitals, visited Turkey with medical tourism purposes (Ministry of Health (a), 2012, p. 6). Accordingly, the foreign patients who received treatment in the public and private hospitals in operation in Turkey were included in the research.

## 8. Model of the Research

Many studies in service quality literature (Yang and Tsai, 2007; Boulding, Kalra, Staelin, Zeithaml, 1993; Zeithaml, Berry, Parasuraman, 1996) note that high-quality service perception and high service satisfaction has great influence on the intention in repeated preference. According to Zeithaml et al. (1996), the customer loyalty increases in line with the increase in the service quality of a business. In this regard, the Servqual scale, which was developed by Parasuraman, Zeithalm and Berry in 1998 with validity and reliability being recognized by many scientists, was used to measure the service quality.

Results of many researches indicate that service quality does not have a direct influence on customer loyalty and customer satisfaction, but has a mediating influence between the service quality and customer loyalty (Moutinho, Albayrak and Caber, 2011; Rodgers et al., 2005; Cronin et al., 2000). According to Zeithaml et al. (1996), the customer loyalty increases and the tendency to switch business, price sensitivity and complaining behavior decreases as the service quality of a business increases. It can be stated in the light of this information that service quality influences customer satisfaction which also affects customer loyalty. In other words, customer satisfaction plays a mediating role between the five dimensions of perceived service quality and customer loyalty. This study conducts a relational analysis of perceived service quality, customer satisfaction and customer loyalty variables set out in the research model. The main model of the research is exhibited in Figure 1.

**Figure 1:** Model of the Research




## 9. Research Population and Sample Preference

The patients receiving treatment in Turkey within the scope of medical tourism forms the population of the research. In this sense, the health tourism patients who came to Turkey in 2012 are shown in Table 3.1.

**Table 3:** The Number of Health Tourism Patients Based on the Hospital Type (2012)

| Hospital Type | Number of Patients |
|---|---|
| Public | 5487 |
| Private | 53986 |
| Total | 59473 |

**Sources:** Ministry of Health (2012 (d)) 'Health Tourism Activity Report 2012' http://www.saglikturizmi.gov.tr/duyuru/22-saglik-turizmi-daire-baskanligi-2012-faaliyet-raporu.html

As observed in Table 3, the patients and their relatives who come to Turkey for medical tourism mostly prefer private hospitals. Due to some reasons such as the reluctance of private institutions for data sharing, details like arrival date, departure date, treatment period etc. of the incoming medical tourism patients not being available beforehand, the difficulties in distinguishing the medical tourism patients and patients within the scope of tourist health, the population size, the material and time limitation of the application and the difficulty to convince the patients in treatment and their relative to fill the questionnaire, the method of convenience sampling, which is a random sampling method, was used. This

method aims to take the individuals into account from whom the information and data that has the easiest collectability of the scope of the example.

A scan of the literature creates the expectation that the researches utilizing structural equation model and linear factor analysis are to fulfill two fundamental benchmarks on sample size and number of variables. The researches has exhibited two fundamental criterion, being the collection of at least 150-200 data for sample size and/or the number of questions in the scales should be 5 to 10 times more than the number of questions in the scales (Brown, 2006, p. 412-413; Chen et al., 2008; Dursun and Kocagöz, 2010; Çetinkaya and Şimşek, 2008, p. 8 narrator: Sezerel, 2013, p. 80). However, Gorsuch (1983) has noted that 5 individuals and at least 200 samples per statement would suffice, while Streiner (1994) noted that 10 individuals and at least 10 samples per statement would be sufficient (Çepni: 2010). It can be stated that the data obtained from here (n=223) fulfill the qualifications stated above.

## 10. Findings and Comments

### 10.1. Descriptive Statistics on Participants

The distributions that include the age, gender, education status, residence country, type of application to the hospital, patient and companion information are located in the following sections of the research. As the patients or their relatives do not want to share information on their income levels, the question on the income level was removed from the analysis. Table 4 indicates the information that include the genders, ages and education status of the participants.

**Table 4:** Ages, Genders and Educational Statuses of the Participants

| Attribute | | f (n=223) | % |
|---|---|---|---|
| Gender | Male | 144 | 64,6 |
| | Female | 79 | 35,4 |
| Age | 18-28 | 51 | 22,9 |
| | 29-39 | 71 | 31,8 |
| | 40-50 | 59 | 26,5 |
| | 51-60 | 23 | 10,3 |
| | 61 and above | 19 | 8,5 |
| Educational Status | Secondary Education (High School) and below) | 20 | 9,0 |
| | Associate Degree | 71 | 31,8 |
| | Bachelor's Degree | 80 | 35,9 |
| | Post-Graduate | 23 | 10,3 |
| | Other | 29 | 13,0 |

Table 4 displays that 64,6% (144 individuals) of 223 participants are male and 35,4% (79 individuals) are female. The age characteristics indicate that 29-39 age bracket includes the most participants by 31,8% (71 individuals) and 61+ age bracket includes the least number of participants by 8,5% (19 individuals). An observation on the education status of the participants exhibit that participants with a bachelor degree form the highest number of participants by 35,9% (80 individuals), while the participants with post-graduate education level form the lowest number of participants 10,3% (23 individuals). 29 participants marked the

option "Other", which is considered to be due to the differences between the education system between the countries.

**Table 5:** Distribution of the Participants Based on Countries

| Country | f | % |
|---|---|---|
| Germany | 57 | 25,6 |
| Russia | 31 | 13,9 |
| The Netherlands | 20 | 9,0 |
| France | 17 | 7,6 |
| Belgium | 11 | 4,9 |
| Azerbaijan | 8 | 3,6 |
| Ukraine | 7 | 3,1 |
| Iraq | 7 | 3,1 |
| Kazakhstan | 2 | ,9 |
| Other | 63 | 28,3 |
| Total | 223 | 100,0 |

Table 5 indicates the distribution of the participants based on the countries they come from. The order of countries presented in the table was determined based on the order of countries in Health Tourism Activity Report 2012 prepared by T.R. Ministry of Health and no changes were made in the ordering. The table exhibits that Germany has the most number of participants by 25,6% (57 individuals), followed by Russia (31 individuals) and the Netherlands (20 individuals).

**Table 6:** Distribution of the Participants Based on Being Patients or Companions

| Participant | f | % |
|---|---|---|
| Patient | 192 | 86,1 |
| Companion | 31 | 13,9 |
| Total | 223 | 100,0 |

It can be observed from the Table 6 that a vast majority of the participant by 86,1% (192 individuals) are patients who come to hospital within the scope of medial tourism and 13,9% of them (31 individuals) are companions who come along with the patient.

**Table 7:** Distribution of the Participants Based on the Type of Application

| Type of Application | f | % |
|---|---|---|
| Personal application | 161 | 72,2 |
| Application via insurance company | 47 | 21,1 |
| Application via travel agencies and/or tour operators | 14 | 6,3 |
| Other | 1 | ,4 |
| Total | 223 | 100,0 |

Table 7 displays the application and admittance of the respondents to the hospital to which they came within the scope of medial tourism. The table indicates that a vast majority of the participants by 72% (161 individuals) has applied personally, followed by the applications via insurance company (47 individuals), applications via travel agencies and/or tour operators (14 individuals) and other (1 individual).

### 10.2. Exploratory Factor Analysis

Before the exploratory factor analysis, the Kaiser-Meyer Olkin (KMO) test was applied to the perception theorems in order to test the suitability of the sample

size to be factorized, which revealed a KMO value of 0.938. According to Sharma (1996), KMO value being between 0,80 and 0,90 is interpreted as 'Very Good' and 0,90 and above is interpreted as 'Perfect' (Kalaycı, 2008; 322). Therefore, it can be stated that the scale is suitable for factorization.

Table 8 includes converted component analysis. Factor analysis have been carried out on the converted components via Varimax rotation. As suggested by Hair et al. (1998), the variables whose factor loading are above 0,50 were collected and factor components were created. After the first factor analysis, 4 questions with cyclical loads (reliability 5, sensitivity 10, assurance 15 and empathy 19) were removed from the scale and the results in the table were obtained.

**Table 8:** Findings of the Converted Components Analysis on Perception Theorems

| | Components | | | | |
|---|---|---|---|---|---|
| Question Theorems | 1 | 2 | 3 | 4 | 5 |
| Reliability8perception | ,865 | | | | |
| Reliability7perception | ,828 | | | | |
| Reliability6perception | ,810 | | | | |
| Reliability9perception | ,768 | | | | |
| PA2perception | | ,817 | | | |
| PA3perception | | ,769 | | | |
| PA1perception | | ,741 | | | |
| PA4perception | | ,709 | | | |
| Sensitivity12perception | | | ,757 | | |
| Sensitivity13perception | | | ,744 | | |
| Sensitivity11perception | | | ,663 | | |
| Sensitivity14perception | | | ,636 | | |
| Empathy21perception | | | | ,822 | |
| Empathy22perception | | | | ,820 | |
| Empathy20perception | | | | ,698 | |
| Assurance18perception | | | | | ,825 |
| Assurance17perception | | | | | ,731 |
| Assurance16perception | | | | | ,606 |

Table 8 yields the results that a total of 18 questions were collected under 5 factors, excluding those eliminated from the scale. Accordingly, the 1st Factor was named as 'Reliability', 2nd Factor as 'Physical Assets', 3rd Factor as 'Sensitivity', 4th Factor as 'Empathy' and 5th Factor as 'Assurance'. The scale explains 84,491% of the total variance. As a result of the KMO analysis made for satisfaction and loyalty scale, KMO value has been found out to be ,900. The factor analysis on the scale has resulted with the elimination of 1 question (satisfaction 6) falling under another factor. A total of 9 questions has been collected under 2 factors. The scale explains 83,363% of the total variance.

### 10.3. Confirmatory Factor Analysis (CFA)

The chi-squared statistic -$\chi^2$, Comparative Fit Index (CFI), Tucker-Lewis Index and the Root Mean Square Error of Approximation (RMSEA) are sufficient to assess the general fit finesse of the model (Perryer, 2009: 247). The post-analysis examination of the conformance values of the model indicated that, while the Chi-

squared/Degree of Freedom ($X^2$/SD) should be around 2:1-3:1, some researches note that 5 or a lower value may be sufficient for the acceptance of a model (Çetintürk, 2010, p. 80). Although Normed Fit Index (NFI) value is between 0 and 1, Bentler and Bonnet (1980) noted that the value should be bigger than 0,90 in order for a better fit (Hooper et al. 2008, s. 55). CFI and TLI values being under 0,95 and RMSEA value being under 0,60 indicate that model has a high degree of fitness, Browne and Cudeck (1993) and Hair, Black, Babin, Anderson, and Tatham (2006) note that values below 0,90 are acceptable for CFI and TLI and below 0,80 are acceptable as RMSEA values (Perryer, 2009, p. 248; Hooper et al., 2008, p. 23-55).

The fit index results of the model indicates the following: CMIN/DF ($\chi^2$:df):2,108 (253,006/120), P: 0,000, TLI: 0,958, NFI: 0,940, CFI:0,967 and RMSEA:0,071. In conclusion, these fit indexes have revealed that model has a good fit. Relevant results are displayed in Table 9.

**Table 9:** Fit Indices of the Confirmatory Factor Analysis on the Servqual Scale

| $X^2$ | DF | RMSEA | CFI | TLI | NFI | P | CMIN/DF |
|---|---|---|---|---|---|---|---|
| 253,006 | 120 | 0,071 | 0,967 | 0,958 | 0,940 | 0,000 | 2,108 |

The study continues with the confirmatory factor analysis on the customer satisfaction and loyalty scale. The fit index results of the model of Satisfaction and Loyalty scales yield the following: CMIN/DF ($\chi^2$:df):2,021 (44,451/22), P: 0,003, TLI: 0,984, GFI:0,959, NFI: 0,981, CFI:0,990 and RMSEA:0,068. In conclusion, these fit indexes have revealed that model has a good fit. Relevant results are displayed in Table 10.

**Table 10:** Fit Indices of the Confirmatory Factor Analysis on the Satisfaction and Loyalty Scale

| $X^2$ (CMIN) | DF | RMSEA | CFI | NFI | GFI | P | CMIN/DF |
|---|---|---|---|---|---|---|---|
| 44,451 | 22 | 0,068 | 0,990 | 0,981 | 0,959 | 0,003 | 2,021 |

## 10.4. Reliability Analyses

Alpha Model (Cronbach Alpha Coefficient) was used to test the reliability of the scale. Relevant results are provided in Tables 11 and 12.

**Table 11:** Results of the Reliability Analysis on the Servqual Scale

| Entire Scale | | Perception Scale | | Physical Attributes | | Reliability | | Sensitivity | | Assurance | | Empathy | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| α | n | α | n | α | n | α | n | α | n | α | n | α | n |
| .967 | 40 | .963 | 18 | .912 | 4 | .931 | 4 | .936 | 4 | .901 | 3 | .926 | 3 |

**Table 12:** Results of the Reliability Analysis on the Satisfaction and Loyalty Scale

| Entire Scale | | Satisfaction Factor | | Loyalty Factor | |
|---|---|---|---|---|---|
| α | n | α | n | α | n |
| .958 | 9 | .933 | 5 | .955 | 4 |

## 10.5. Structural Equation Model Test on the Research Model

The utilization of the structural equity model is a statistical technique used to test the models which include causal relations and correlations between observed and unobserved variables, being a multivariate method formed by the merging of

analyses such as variance, covariance analyses, factor analysis and multiple regression with the purpose of estimating the dependence relations (Dursun ve Kocagöz, 2010, p. 3).

**Table 13:** Observed and Unobserved Variables of the Research

| Unobserved Variables | Observed Variables | |
|---|---|---|
| Perceived Service Quality | Physical Attributes | (PA1) The hospital from which you receive services possess modern devices and equipment. |
| | | (PA2) The employees of the hospital from which you receive services are well-dressed and clean-looking. |
| | | (PA3) The physical environments of the hospital from which you receive services (rooms, corridors, WC etc.) are aesthetical and clean. |
| | | (PA4) The additional service environments of the hospital from which you receive services (cafeteria, waiting hall, etc.) are complete and useful. |
| | Reliability | (Rl6) Diagnoses are made correctly and appropriate treatments are applied in the hospital where you get service. |
| | | (Rl7) The hospital from which you receive services fulfills the procedures regarding the treatment period as it has committed. |
| | | (Rl8) The medical responses of the doctors and nurses are appropriate and reliable in the hospital where you get service. |
| | | (Rl9) Doctors in the hospital where you get service provide sufficient and understandable information to the patients about the diseases and the treatment method. |
| | Sensitivity | (S11) The employees are willing and voluntary in helping the patients in the hospital where you get service. |
| | | (S12) The patient wishes are responded as quickly as possible in the hospital where you get service. |
| | | (S13) The suggestions and complaints of the patients and their relatives are considered in the hospital where you get service. |
| | | (S14) The behavior of the doctors and nurses in the hospital where you get service are always kind and invokes trust in the patient. |
| | Assurance | (Asr16) The hospital from which you receive services always prioritizes patient benefits. |
| | | (Asr17) The hospital from which you receive services assures you in terms of being careful in terms of the factors that may harm the patients (tool sterilization, bed cleaning, etc.). |
| | | (Asr18) In the hospital from which you receive services the private information of the patients regarding their diseases are not shared with other without the patients' consent. |
| | Empathy | (Em20) The employees of the hospital from which you receive services shares their feelings when patientsand their relatives have problems and make efforts to help. |
| | | (Em21) The employees of the hospital from which you receive services are sensitive against the special wishes and needs of the patients. |
| | | (Em22) Same level of attention and sensitivity is shown to all patients in the hospital where you get service. |
| Customer Satisfaction | (C1) I am very satisfied with the quality of the service provided in general. | |
| | (C2) The service I have received from the hospital has completely fulfilled my expectations. | |
| | (C3) I am very satisfied with the behavior of the personnel in duty in the hospital apart from the doctors and nurses. | |
| | (C4) The service I have received is worth for the money I have paid. | |
| | (C5) Compared to the previous hospitals you received service from, this hospital provides a more-quality service. | |
| Customer Loyalty | (L7) I will tell positive things to other people about the hospital. | |
| | (L8) I will safely recommend this hospital to those who want my suggestion. | |
| | (L9) I can safely send my family and friends to this hospital. | |
| | (L10) I will prioritize this hospital in my preference if I need treatment in the future. | |

While it is very similar to the regression analysis, SEM is an analysis that models the interactions and is capable of coping with non-linear occasions. It is also a very

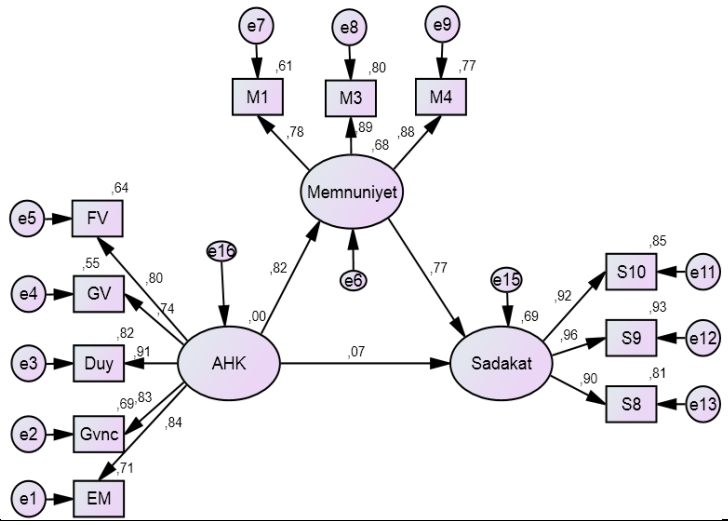
strong statistical technique that allows correlation between independent variables, incorporates the measurement errors into the model, considers the measurement errors with correlation between and exhibits and tests the relations between multiple independent and dependent latent variables, each of which has been measured with multiple observed variables. While many multivariate statistical methods possess explanatory attributes, SEM has a confirmatory structure (Çetintürk, 2010, p. 64).

The most common method used in the structural equation modeling literature to assess whether the data supports the model is the two-stage method. In the first phase during analyses, the measurement model is tested and whether the measurements in the structures of the model measures the relevant structures correctly is examined; the second phase examines the structural models. Because if the researcher does not have a correct measurement or the statements that s/he has assumed to measure the structures do not measure the structure sufficiently, it will not make sense to analyze the structural model (Dursun and Kocagöz, 2010: 3).

The model of the research is based on the relation between the perceived service quality dimensions and customer satisfaction and loyalty. While drawing the research model path diagram, 6 questions were eliminated as a result of the previous factor analysis. In this context, the unobserved variables and observed variables of the research are located in Table 13 below.

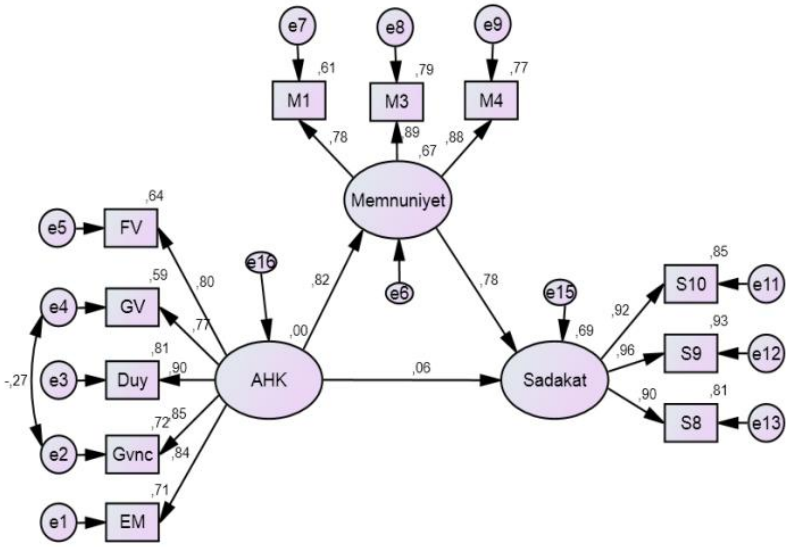
As a result of the analysis made after including variables stated above, the 3 questions (C2, C5 and L7) were removed from the analysis and path diagram was redrawn. For model that has a positive relation between the perceived service quality and customer loyalty variables,fit index was firstly examined in order to test the model hypotheses. In this context, the fit index results of model 1 yields the following values: CMIN/DF ($\chi^2$:df): 2,509 (100,356/40), P: 0,000, TLI: 0,963, NFI: 0,956, CFI:0,973 and RMSEA:0,082. Among these values, all the values apart from the RMSEA value have a good fit. In order to get the best fit for the model, a modification was made between e2 and 24. The results are provided in Figure 2.

**Figure 2:** Model 1-Structural Equation Model, Direct Mediating Non-Impact Analysis Results




| $X^2$ | DF | RMSEA | CFI | TLI | NFI | P | CMIN/DF |
|---|---|---|---|---|---|---|---|
| 100,356 | 40 | 0,082 | 0,973 | 0,963 | 0,956 | 0,000 | 2,509 |

**Figure** Hata! Belgede belirtilen stilde metne rastlanmadı.**:** Model 2 - Structural Equation Model, Direct Mediating Non-Impact Analysis Results




| $X^2$ | DF | RMSEA | CFI | TLI | NFI | P | CMIN/DF |
|---|---|---|---|---|---|---|---|
| 91,311 | 39 | 0,078 | 0,977 | 0,967 | 0,960 | 0,000 | 2,341 |

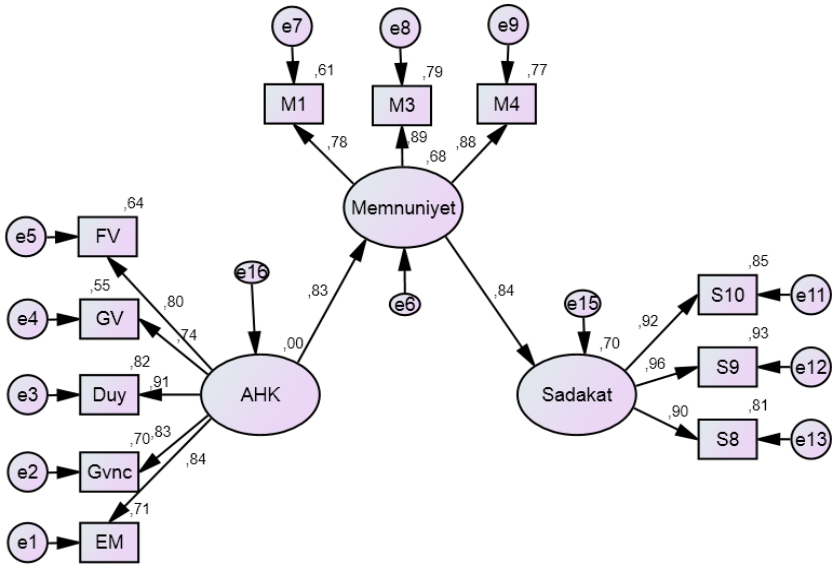
The modification made for the best results yield the following change in the fit index of model 2: CMIN/DF ($\chi^2$:df): 2,341 (91,311/39), P: 0,000, TLI: 0,967, NFI: 0,960, CFI:0,977 and RMSEA:0,078. Among these values, RMSEA value has an acceptable fit while the other values have a very good fit.

The values indicated in Figure 3 display the standardized regression results. Considering the magnitude of influence on the standardized loads, the values lower than .10 has lower magnitude; values above .30 have moderate magnitude and the values above .50 point out the high level magnitude (Çakmak, 2013, p. 58).

The examination of the model exhibits that there is a high level relation (0,82) between the perceived value variable and customer satisfaction variable and also a high level relation (0,78) between the satisfaction and loyalty variables. When the direct influence (non-mediating influence) between the perceived service quality and loyalty variables is considered, it is observed that the relation between these two variables is almost equal to zero.

Next step of the analysis has examined the type of changes on the fit index of the model and relation between the variables by means of removing the direct influence in order to re-test the model. The results on Model 3 are displayed in Figure 4 below.

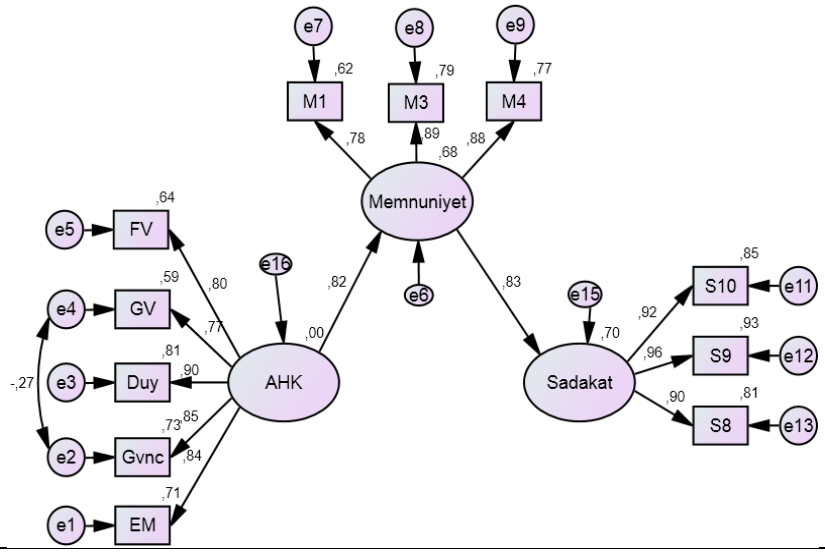
**Figure 4:** Model 3 - Structural Equation Model Mediating Influencing Analysis Results




| $X^2$ | DF | RMSEA | CFI | TLI | NFI | P | CMIN/DF |
|---|---|---|---|---|---|---|---|
| 100,855 | 41 | 0,081 | 0,973 | 0,964 | 0,956 | 0,000 | 2,460 |

The fit index results of model 3 yields the following values: CMIN/DF ($\chi^2$:df): 2,460 (100,855/41), P: 0,000, TLI: 0,964, NFI: 0,956, CFI:0,973 and RMSEA:0,082. Among these values, all the values apart from the RMSEA value have a good fit. In order to get the best fit for the model, a modification was made between e2 and 24, similar to the modification in direct, non-mediating analysis. The results on Model 4 are provided in Figure 5.

**Figure 5:** Model 4 - Structural Equation Model Mediating Influencing Analysis Results




| $X^2$ | DF | RMSEA | CFI | TLI | NFI | P | CMIN/DF |
|---|---|---|---|---|---|---|---|
| 91,678 | 40 | 0,076 | 0,977 | 0,968 | 0,960 | 0,000 | 2,292 |

The examination of analysis results presents that, with the removal of direct effect, the change MIN/DF ($\chi^2$:df): 2,292 (91,678/40), P: 0,000, TLI: 0,968, NFI: 0,960, CFI:0,977 and RMSEA:0,076 occurs and model has been improved. Meanwhile, it is observed that the relation between the satisfaction variable and loyalty variable has also increased (0,83). Therefore, evaluating all these results together, it can be stated that the satisfaction variable has a mediating effect between the perceived service quality and loyalty variables. This result is line with the research by Zeithalm et al. (1996), the developers of the scale) and with the literature (Moutinho, Albayrak and Caber, 2011; Rodgers et al., 2005; Cronin et al., 2000). Structural equation model results reveal that the dimensions of physical attributes (0,80), reliability (0,70), sensibility (0,90), assurance (0,85) and empathy (0,84) influence the perceived service quality positively and customer satisfaction positively affects the customer satisfaction (0,83).

## 11. Conclusion

Factors such as the developments in the worldwide health services, increasing health service prices, developments in communication and transportation opportunities, long waiting lists in developed countries in particular and the desire to have a vacation along with the treatment have caused people to shift towards different countries in their pursuit of health. These travels has also contributed significantly to the development of the medical tourism type that has been approached within the scope of health tourism. The countries and health service providers are considering taking more important role or increasing their shares of medical tourism as it has a high international demand, makes important contributions to tourism incomes and hence the country economy, shortens the treatment period for patients, decreases the treatment period and presents alternatives of choosing type of treatment or doctors. Therefore, in order to develop this specific type of tourism certain countries and interested health providers aremaking great efforts to improve their health systems in particular..

Customer satisfaction underlies these improvement efforts and procuring the customer satisfaction is surely in line with the quality of the service provided. Thus, this study focused on the service quality in medical tourism and investigated the effect of perceived service quality on the customer satisfaction and customer loyalty.

The structural equation model analysis that has been carried out within the scope of this research has revealed that all the dimensions of the perceived service quality (physical attributes, reliability, sensitivity, assurance and empathy) influence the perceived service quality and that customer satisfaction variable has a mediating role in increasing the customer satisfaction. In other words, perception of higher service quality will result with higher customer satisfaction, hence the loyalty of the satisfied customer towards the business will increase. This result is in line with the research by Zeithalm et al. (1996), the developers of the scale) and with the literature (Moutinho, Albayrak and Caber, 2011; Rodgers et al., 2005; Cronin et al., 2000). Meanwhile, many researches that have examined the relation between the service quality and customer satisfaction (Bitner, 1990; Bolton and Drew, 1991; Williams and Calnon, 1991; Cronin and Taylor, 1992; Oliver, 1993; Taylor and Baker, 1994; Varinli, 1999; Lassar et al., 2000; Caruana, 2002, Kayral, 2012 and Yunus et al., 2013) argue that there is a positive relation between customer satisfaction and service quality and that the increase in the offered service quality will also increase the customer satisfaction. Meanwhile, the research by Saleeby in 2008 revealed a positive relation between the service quality and customer loyalty. However, many researches (Kheng et al., 2010; Caruana, 2002; Butcher, 2001, Ehigie, 2006; Lam and Burtan, 2006) revealed that there is a mediating effect of customer satisfaction between service quality and customer loyalty.

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