

## Research Space

Journal article

**Factors influencing patient loyalty to outpatient medical services:  
an empirical analysis of the UAE's government healthcare system**  
**Dayan, M., Al Kuwaiti, A. I., Husain, Z., Ng, P. and Dayan, A.**

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## Factors influencing patient loyalty to outpatient medical services: An empirical analysis of the UAE's government healthcare system

### Abstract

**Purpose:** The aim of this research is to uncover issues that inhibit patients' satisfaction and loyalty and identify factors that could enhance customer retention by government hospitals in the United Arab Emirates (UAE). We tested the mediating impact of outpatient satisfaction on service quality, word of mouth (WoM), hospital image, outpatient–physician relationship, and outpatient loyalty.

**Design/methodology/approach:** The sample data used to test the hypotheses were drawn from a pool of patients served by a government healthcare agency (GHA) in Abu Dhabi. Questionnaires were provided to 418 participants using methods such as short message service, e-mail, and face-to-face delivery. The data were analyzed using SmartPLS 3.3.2 software.

**Findings:** The results indicate that service quality, WoM, and outpatient–physician relationship positively impact outpatient satisfaction and indirectly effect outpatient loyalty; that hospital image positively impacts outpatient satisfaction and loyalty and has a partially mediating effect on loyalty; that waiting time satisfaction has no effect on outpatient satisfaction and no moderating effect on the outpatient satisfaction–loyalty relationship; and that switching cost has a positive effect on loyalty but no moderating effect on the outpatient satisfaction–loyalty relationship.

**Originality/value:** This is the first study to investigate the mediating impact of outpatients' satisfaction between its antecedents and loyalty in the UAE. These results provide an improved understanding of the factors influencing patient choices and establish more accurate methods for increasing patient loyalty to retain more patients.

**Keywords:** Patient satisfaction, loyalty, service quality, word of mouth, patient–physician relationship, UAE

**Paper type:** Research paper

## Introduction

Over the last few decades, patient opinion has become one of the most vital means of assessing healthcare effectiveness. Therefore, scholars have recently focused on patient satisfaction to enhance the quality of healthcare services by identifying and resolving outstanding issues (Batbaatar *et al.*, 2015; Chang *et al.*, 2013; Özer *et al.*, 2017; Teke *et al.*, 2012).

Reilly *et al.* (2014) described patient satisfaction as a vital and commonly used indicator to examine the quality level of the healthcare services provided to patients. From the business perspective of patient satisfaction, Asadi *et al.* (2014) determined that hospitals and medical clinics with a high level of patient loyalty command higher prices without losing profit or market share. Many patients are willing to incur additional costs to obtain good-quality care provided in these healthcare facilities. López and Sicilia (2013) demonstrated that medical staff had a lower turnover rate when patients were satisfied with the services from healthcare providers. Therefore, patient satisfaction is significant not only for patients but also for hospital management, who can avoid incurring the additional costs of hiring new personnel. Waljee *et al.* (2014) defined patient expectations as the pre-trial principles regarding the care services offered by healthcare facilities.

The process of acquiring new patients is a continual challenge for many healthcare providers worldwide. An even more significant challenge is the ongoing effort of building trust and loyalty with existing patients. Kesuma *et al.* (2013) stated that patient satisfaction and loyalty are vital phenomena that have become influential in both inpatient and outpatient settings. Despite development of patient loyalty being a key goal for healthcare providers, Sumaedi *et al.* (2014) determined that substantial challenges in providing quality healthcare to patients still remain. Although many studies have explored the various factors affecting patient satisfaction and loyalty, some aspects still remain to be fully investigated. These areas

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3 are the focus of this research. Some of the most critical factors that have not yet been  
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5 satisfactorily explained include the impacts of switching costs, waiting time, and patient-  
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7 related characteristics, such as age, gender, and marital status. Although the patient–physician  
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9 relationship has been discussed in many previous studies, few have considered the effects of  
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11 these factors on satisfaction and loyalty among patients in the United Arab Emirates (UAE).  
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15 Astuti and Nagase (2014) indicated that, because of the geographic location and  
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17 cultural diversity of the UAE, there are insufficient studies that evaluate and determine the  
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19 factors that influence residents not to access medical services from accredited facilities. Most  
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21 studies that have considered patient loyalty to healthcare services have been based in the  
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23 United States and Europe. However, studies investigating this issue in the UAE are lacking.  
24  
25 According to Hofstede (2003), the UAE scores low on individualism and is therefore  
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27 considered to be a collectivistic society. The nature of a collectivistic culture, as identified by  
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29 Hofstede (2003) is that individuals belong to a group that takes care of its members in  
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31 exchange for loyalty. Therefore, loyalty is an integral part of the Emirati culture. In the UAE,  
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33 loyalty is paramount and is considered above most other social rules and regulations, which  
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35 could have a significant influence on hospital loyalty. Nevertheless, the number of patients in  
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37 government-agency managed hospitals has been decreasing over time, which is a clear  
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39 indication of a possible a defect or breakdown in the service—such as a lack of patient  
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41 satisfaction—that has discouraged patients from re-accessing the same service when a future  
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43 need arises. Appropriately identifying and addressing these factors can help reduce cases of  
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45 patients unsubscribing from government healthcare agency (GHA) registration and therefore  
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47 increase their number of hospital visits.  
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#### 54 *Research objectives*

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56 The following were identified as the principle objectives of this research. This study intends  
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- measure the satisfaction of patients covered by a GHA in Abu Dhabi, the capital of the UAE, receiving outpatient hospital services;
- validate the patient satisfaction index (PSI) model on GHA patients for outpatient services;
- identify the factors that have more influence on GHA patient satisfaction and loyalty;
- provide recommendations to GHA policymakers that might contribute to improving healthcare services in GHA facilities; and
- contribute to future attempts, if any, to developing a National Customer Satisfaction Index for the UAE or the Middle Eastern region in general.

#### *Research questions*

The research questions that this study intends to address are as follows.

*RQ1. Is the PSI a valid model for measuring GHA patient loyalty for outpatient services?*

*RQ2. To what extent are GHA patients satisfied with outpatient services based on the PSI model?*

*RQ3. To what extent does the patient–physician relationship influence GHA patients' satisfaction and loyalty?*

*RQ4. Which dimensions of the PSI model have been acknowledged by GHA patients as important in outpatient services?*

*RQ5. Does waiting time moderate the patient satisfaction–loyalty relationship?*

*RQ6. Does switching cost moderate the patient satisfaction–loyalty relationship?*

## Literature review

### *Service quality, outpatient satisfaction, and loyalty*

The goal of every healthcare facility is providing its customers with high-quality care services. According to Dagger *et al.* (2007), if a company is involved in providing high-quality products to the market, it is likely that the same company will satisfy its customers' needs and cultivate their loyalty. Customer satisfaction is the first process occurring before the eventual development of customer loyalty. Only customers who are satisfied with the quality of a company's various offerings will remain loyal. Cohen *et al.* (2016) explained that apart from the need to find easily accessible and reliable care services, active patients are willing to pay for services in private hospitals that can provide them with quality care that enable them to effectively address their healthcare needs, even if public hospitals are free of cost.

Hurley and Estelami (1998) argued that satisfaction and service quality are specific constructs and that a relationship exists between the two. The feeling of satisfaction generated by the perception of service quality influences a consumer's future purchasing behavior. Perceived quality is part of Fornell *et al.*'s (1996) American Customer Satisfaction Index (ACSI), which measures customer satisfaction according to the following three items: (1) overall evaluation of the quality of the experience; (2) evaluation of the experience in terms of customization to meet the customer's specific requirements; and (3) evaluation of the reliability of the experience. However, these items cannot be used to represent the desired evaluation of the various aspects of one's experience in a healthcare facility. As previously established, many factors contribute to patients' level of satisfaction. The SERVQUAL has been adopted by many scholars such as Al-Neyadi *et al.* (2016) to assess service quality in the healthcare sector. While its purpose is to explore the variables affecting customer satisfaction and loyalty, in this study, SERVQUAL will be adopted to represent the quality

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2  
3 construct in the patient satisfaction model, as the five SERVQUAL dimensions comprise the  
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5 depth of customers' perception of service quality. Hu *et al.* (2009) employed SERVQUAL to  
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7 represent the service quality impacting patient satisfaction and demonstrated that it has a  
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9 positive impact on the level of customer satisfaction. Therefore, this study proposes the  
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11 following hypothesis.  
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16 *H1a: Service quality positively impacts patient satisfaction.*  
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19 According to Naidu (2009), patient satisfaction as a construct is considered  
20  
21 multidimensional, since healthcare is influenced by many different variables. While  
22  
23 healthcare quality affects patient satisfaction, which positively influences patient behavior  
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25 toward the hospital, such behavior can be equated to loyalty. Choi and Kim (2013) validated  
26  
27 the impact of service quality on customer satisfaction, which, in turn, impacts customer  
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29 loyalty. Hu *et al.* (2009) demonstrated that service quality has no significant impact on  
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31 behavioral intention, although it was indirectly related to behavioral intention via customer  
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33 satisfaction. Therefore, this study puts forth the following hypothesis.  
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39 *H1b. Patient satisfaction positively mediates the service quality–loyalty relationship.*  
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#### 42 *Hospital image and loyalty*

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44 An analysis of extant literature that explores the relationship between customer satisfaction  
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46 and corporate image as well as its influence on the development of high-quality products and  
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48 customer loyalty led to the formulation of Hypothesis 2. Although hospital image not a part  
49  
50 of the ACSI (Fornell *et al.*, 1996), it is part of the European Customer Satisfaction Index  
51  
52 (ECSI) and other attempts by scholars (e.g., Askariazad and Babakhani, 2015) to consider the  
53  
54 effects of customer satisfaction and loyalty. While the significant relationship between the  
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56 variables in this hypothesis was discussed in Section 2, it is still important to evaluate the  
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58 nature of the relationship that occurs when a hospital has a strong image and a high level of  
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3 patient satisfaction as well as how they influence patient loyalty. Zameer *et al.* (2015) showed  
4 that a relationship exists among customer satisfaction, service quality, and company image.  
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7 When products are capable of adequately satisfying the needs of customers, this promotes  
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9  
10 and facilitates the development of loyalty. Most importantly, it should be noted that all of  
11  
12 these variables are interconnected.  
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15 A company cannot satisfy the needs of its customers if it does not provide them with  
16  
17 quality products; delivering high-quality products and services will promote a strong  
18  
19 corporate image and customer loyalty (Srivastava and Sharma, 2013). The process of  
20  
21 building the hospital's image and promoting patient satisfaction can only take place if the  
22  
23 care services are of the right quality to satisfy patient needs. The relationship between  
24  
25 hospital image and patient behavior is still a matter of debate. Kandampully and Suhartanto  
26  
27 (2000) studied the effect of image on the loyalty of hotel visitors and established that image  
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29 was an essential factor and that hotel image and customer satisfaction were positively  
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31 correlated with customer loyalty.  
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35 Wang *et al.* (2013) confirmed the effects of hospital image on patient satisfaction.  
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37 Hildebrandt (1988) indicated the decisive role of image in increasing customer loyalty, which  
38  
39 was positively correlated with customer satisfaction. Johnson *et al.* (2001) revealed that  
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41 image as a factor was not included in the ACSI; however, he noted that including it in the  
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43 model was planned. Therefore, this study adopts the ECSI model by developing the following  
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45 hypotheses.  
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50 *H2a.* Hospital image is positively related to outpatient loyalty.  
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53 *H2b.* Hospital image is positively related to outpatient satisfaction.  
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57 A review of previous studies indicates that patient or customer loyalty often takes place  
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59 following patient/customer satisfaction. A meta-analysis conducted by Newsome and Wright  
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3 (1999) specified that a constructive association exists between customer satisfaction and the  
4  
5 intention to repurchase products because of loyalty. The occurrence of patient loyalty and a  
6  
7 positive hospital image varies according to the capability of the care services provided to  
8  
9 satisfy patient needs. Senić and Marinković (2013) indicated that if patients were not  
10  
11 satisfied, they would not remain loyal to a certain hospital and would instead be compelled to  
12  
13 seek other hospitals in their locality that can provide them with the quality of care that they  
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15 require.  
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19       Ansah *et al.* (2013) proposed that patients' satisfaction level influences the  
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21 development of a positive hospital brand image. If patients are not satisfied, they will not  
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23 provide positive reviews about their previous hospital experiences and will be more likely to  
24  
25 provide negative reviews, which might undermine the hospital's brand image in the market.  
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27 The hospital's image, patient satisfaction, and patient loyalty are not independent variables,  
28  
29 because their existence depends on the quality of services being delivered by hospitals. In this  
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31 regard, Newsome and Wright (1999) suggested that there is a need to enhance the quality of  
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33 care services to promote the development of patient satisfaction.  
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38       Within the branding literature, it has been indicated that a favorable corporate brand  
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40 image promotes customer satisfaction and loyalty. Newsome and Wright (1999) established  
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42 that there is an encouraging bond between hospital image and patient loyalty. Patient  
43  
44 satisfaction is a positive variable for hospital image and patient loyalty. Generally, patient  
45  
46 satisfaction can be measured using different approaches, such as positive word of mouth  
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48 (WoM), loyalty, and the patient–physician relationship. Based on a study by Senić and  
49  
50 Marinković (2013), patient satisfaction can be conceptualized using two-dimensional  
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52 constructs, such as the attitude of patients toward the care services provided and their  
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54 behavior.  
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3 Newsome and Wright (1999) also argued that patient satisfaction is more important  
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5 than the development of patient loyalty and a positive hospital image. This is linked to the  
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7 assumption that hospitals should focus on providing care services that can help save lives,  
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9 rather than on the financial returns from the entire healthcare process. This does not mean  
10  
11 that hospitals should not be concerned about generating revenue by performing medical  
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13 procedures. The ability of hospitals to promote the development of patient satisfaction will  
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15 affect the correlation between hospital image and patient loyalty. Therefore, the review of  
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17 extant literature led to the development of the following hypothesis.  
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23 *H2c. Outpatient satisfaction positively mediates the hospital image–patient loyalty*  
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25 *relationship.*  
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#### 28 *Word of mouth (WoM) and patient satisfaction*

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31 Various researchers have highlighted the importance of WoM in the field of marketing,  
32  
33 particularly its impact on the development of customer satisfaction and loyalty. The  
34  
35 conclusions of a study by Ranaweera and Jayawardhena (2014) indicated that there is a  
36  
37 higher chance of those customers whose needs are satisfied convincing other colleagues to  
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39 consume the same products—a conclusion that facilitated the formulation of this research  
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41 hypothesis. Various researchers have investigated the impact that different variables have on  
42  
43 WoM (Casidy and Wymer, 2015); however, the present study aims to measure the impact of  
44  
45 WoM on patient satisfaction because it also influences patient expectations prior to a visit.  
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47 Palacios-Marques *et al.* (2016) explained that the ability of healthcare facilities to attract and  
48  
49 retain loyal patients depends on the successful implementation of a customer-centric  
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51 healthcare strategy.  
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56 Despite the fact that Uysal and Gitelson (2015) stated that patient loyalty can be  
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58 developed through the application of repeat patronization, Casidy and Wymer (2015) proved  
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3 that the application of WoM to promote customer loyalty can be considered a strong  
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5 marketing tool leading to satisfaction and loyalty. Therefore, healthcare service companies  
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7 should institute a strong marketing plan that can enable them to develop a stable base of  
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9 patients through positive WoM advocacy. While patients whose healthcare needs are satisfied  
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11 are most likely to disseminate positive reviews about those specific services, there are new  
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13 customers who can be convinced through the use of positive WoM that the services they are  
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15 about to avail will satisfy their healthcare needs.  
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20 Another finding from extant literature that helped in the formulation of this hypothesis  
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22 is from a study by Gu *et al.* (2013) that determined that heuristics theories posit that  
23  
24 consumers are biased in making adjustments to accommodate new knowledge. Positive WoM  
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26 about a well-known product should have a positive impact, otherwise consumers would  
27  
28 ignore information that is inconsistent with their previous beliefs. WoM could also be a vital  
29  
30 tool for enhancing a patient's quality of life by disseminating specific healthcare  
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32 recommendations (Martin, 2017). To a large extent, physicians play a more critical role than  
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34 patients in promoting positive WoM.  
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38 Because SERVQUAL will be included in the model, only one component of patient  
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40 expectations—WoM—will be utilized. Therefore, this research will focus on WoM as an  
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42 aspect of patient expectations and explore the impact of WoM on patient satisfaction. This is  
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44 in line with Caruana and Fenech's (2005) call for further research on this topic. WoM as a  
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46 variable is not considered the only aspect that impacts patient satisfaction; however, it is a  
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48 potential variable that can influence it (Argan, 2016). Therefore, the following hypothesis is  
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50 put forth.  
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54 *H3a.* WoM is positively related to outpatient satisfaction.  
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3 The literature has emphasized the role that WoM has on revisit intention and loyalty (Roy *et*  
4 *al.*, 2014). Because determining the causes of the reduction in patient volume for the GHA-  
5 managed hospitals is an objective of this research, this study investigates WoM as a sign of  
6 patient satisfaction and explores the relationship between WoM and its impact on patient  
7 loyalty. Therefore, the following hypothesis is postulated.  
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16 *H3b.* Patient satisfaction mediates the WoM–patient loyalty relationship.  
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### 19 *Patient–physician relationship and outpatient satisfaction*

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21 The importance of the patient–physician relationship in developing patient satisfaction has  
22 been explored by numerous scholars (Taqdees *et al.*, 2018; Shabbir *et al.*, 2017; ). The effect  
23 of the patient–physician relationship on the development of patient loyalty has also been  
24 evaluated by various studies. The findings from a study by Mohammed and Chakravarty  
25 (2014) affirmed that when patients and physicians can communicate effectively, the chances  
26 of making patients feel satisfied with care services are often very high.  
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35 Rhodes *et al.* (2004) indicated that there are some limited circumstances wherein the  
36 creation of the patient–physician relationship might be achieved without the explicit  
37 agreement of patients. Such conditions include the process of providing emergency care  
38 services when the patient being examined is in the context of an independent medical  
39 examination that requires strict observation of ethical guidance. Huang *et al.* (2014)  
40 confirmed that the relationship between the patient and the physician would lead to patient  
41 loyalty toward the surgeon and the clinic.  
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51 Regarding a proposal by Mohammed and Chakravarty (2014), it can be noted that a  
52 positive patient–physician relationship can lead to improvements in the quality of care  
53 services being delivered to patients. High-quality services will satisfy patient needs, enabling  
54 them to develop repurchasing behaviors. In a study that evaluated the impact of patient–  
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3 physician relationship length on the development of patient satisfaction, Mohammed and  
4 Chakravarty (2014) determined that high scores on patient satisfaction were recorded in  
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6 situations wherein physicians offered to spend more time with patients during consultations.  
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10 Both patients and physicians value continuity. According to Honavar (2018), effective  
11 communication not only improves the patient–physician relationship but also the satisfaction  
12 for both parties, minimizes errors and complaint rates, and increases compliance with  
13 treatment among patients, in addition to improving overall clinical outcomes. Leech *et al.*,  
14 (2013) confirmed that an effective patient–physician relationship can maintain the health  
15 status for chronic diseases, such as diabetes. Such communication efficiencies are important  
16 in promoting high-quality care services that will eventually lead to the retention of patients  
17 because they will become loyal to those healthcare facilities. The importance of the patient–  
18 physician relationship in the development of the satisfaction–loyalty relationship, as indicated  
19 in previous studies, led to the formulation of Hypothesis 4, which is as follows.  
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34 *H4a.* The patient–physician relationship is positively related to patient satisfaction.

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37 *H4b.* The patient–physician relationship is positively related to patient loyalty.

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40 *H4c.* Patient satisfaction positively mediates the patient–physician relationship–  
41 loyalty relationship.  
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#### 46 *Waiting time, outpatient satisfaction, and loyalty*

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48 Past research (e.g., Buller and Buller, 1987; Zhu *et al.*, 2012) demonstrated that long waiting  
49 time has a negative impact on outpatient perceptions of services. Patient waiting time in  
50 outpatient clinics is one of the major complaints patients have about their experience, which  
51 makes waiting time a crucial variable affecting patient satisfaction and a common source of  
52 patient dissatisfaction (Eilers, 2004). Bielen and Demoulin (2007) cited waiting time as one  
53 of the most important factors that had a substantial impact on patient satisfaction. Eilers  
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(2004) confirmed that the minimization of patient waiting time within an outpatient unit might improve patient satisfaction. By reducing the average time spent by patients before receiving care services, there is a higher chance of increasing patient satisfaction and promoting the development of patient loyalty within an outpatient setting (Bielen and Demoulin, 2007). Mestdagh *et al.* (2014) demonstrated that patients have different expectations regarding time depending on their health status, age, or status as a patient or a companion and indicated that when patients are exposed to lengthy waiting times, they are more likely to develop a negative experience of service delivery, thereby prompting them to form an unfavorable perception that prevents them from being satisfied and developing loyalty.

Alternatively, Hulme *et al.* (2013) stated that unsatisfied patients will become satisfied overall if sufficient time is spent with the physician after such waiting time. Magro and Aquilina (2016) concluded that improving waiting time satisfaction will have a constructive effect on patient satisfaction; a potential approach in this regard is reducing patients' boredom and increasing their comfort in the waiting area. Therefore, the following hypothesis was developed.

*H5a.* Waiting time satisfaction is positively related to outpatient satisfaction.

A study by Bielen and Demoulin (2007) revealed that waiting time satisfaction does not only play a mediating role on the patient satisfaction–patient loyalty relationship but also moderates it. He further explained that the effect of the relationship depends on the level of satisfaction concerning waiting time. To further illustrate this point, when a patient has to wait for a long time and becomes disappointed, better service should subsequently be offered to ensure loyalty. By contrast, when they are happy with the waiting time, it will have a

constructive effect on patient satisfaction. A high level of service quality satisfaction is worth the sacrifice of time. Thus, this study proposes the following hypothesis.

*H5b.* Waiting time satisfaction positively moderates the patient satisfaction–loyalty relationship.

#### *Switching costs and patient loyalty and satisfaction*

Both Heide and Weiss (1995) and Burnham *et al.* (2003) defined switching cost as the cost that a customer incurs when switching from one vendor to another or from an original service provider to a new one. Dick and Basu (1994) defined this cost as comprising money, time, and effort as well as a conversion cost. Gremler and Brown (1999) noted that the cost could also include various efforts, such as learning, searching, inertia, and continuing contract costs, and that the higher the cost, the less likely the customer will switch to another service provider. It is similar to the patient switching cost that is incurred if a patient decides to visit another hospital. Therefore, the following hypothesis was developed.

*H6a.* Switching cost is positively related to patient loyalty.

Macintosh and Lockshin (1997) and Kumar *et al.* (1995) agreed that the higher the switching cost expected by a customer, the higher the maintenance is for the current relationship. Given the high uncertainty avoidance for UAE nationals, according to Hofstede (2003), this study proposes that the higher the switching cost for the patient, the less effort a patient will put into building a new affiliation with another service provider.

*H6b.* Switching cost positively moderates the patient satisfaction–loyalty relationship.

#### *Patient satisfaction and loyalty*

As has been shown, customer satisfaction is a complex phenomenon that involves a range of variables such as expectation of customer over service quality. According to Terblanche



(2006), customer satisfaction drives loyalty in the ACSI model and is therefore considered a good predictor of customer loyalty. Fornell *et al.* (1996) considered customer satisfaction to be at the center of patient relationships and to culminate in the development of customer loyalty. An extensive list has been provided by scholars (Fornell *et al.*, 2006) to identify the positive relationship that customer satisfaction has with customer loyalty, which also leads to reduced costs on warranties and transactions as well as a reduction in the number of complaints. A study by Hu *et al.* (2010) confirmed that customer satisfaction is the most substantial factor affecting customer loyalty. Therefore, this study put forth the following hypothesis.

*H7. Patient satisfaction is positively related to loyalty.*

Figure 1 presents the relationships and the model proposed in this study.

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**Insert Figure 1 about here**  
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## **Research methodology**

### *Research instruments*

With the intention of obtaining more detailed and reliable results, the study used questionnaires that were holistically developed by incorporating the available literature about patient loyalty and satisfaction. Each questionnaire featured 58 questions, and the participants were expected to answer all of them.

The questionnaire used in this case included a cover letter that provided the patients with information about the main aim of the study, the specific information that would be required from them, and how the study would be beneficial to Abu Dhabi's healthcare system. Ethical considerations of the study were also addressed. Subsequently, the participants' right to protection was met by providing a letter of consent that was signed by

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3 the participants and the researcher. The main aim of this letter was to reaffirm that the  
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5 information provided by every participant would be treated with utmost confidentiality. The  
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7 names of the participants remained anonymous. Further, the participants were informed that  
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9 the survey was voluntary and were provided with the option of withdrawing from the study if  
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11 they wished to do so.  
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15 Given that the target population is considered as speaking Arabic, the questionnaire  
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17 was translated from English to Arabic by a professional translator and then back-translated to  
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19 English by a different professional translator. Changes were made based on recommendations  
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21 by the translators and the researcher. After completing the questionnaire translation, two  
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23 interviews with experts in the field of patient satisfaction were conducted, followed by  
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25 several interviews with patients, academic personnel, and hospital staff to gather feedback  
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27 about the questionnaire. Changes were then implemented to ensure the mutual understanding  
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29 and clarity of the items while maintaining the purpose of the questionnaire as well as what the  
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31 questions represented.  
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35 The data to be analyzed in this study were derived from the information provided by  
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37 the participants and could be reviewed by the participants if they needed to make any  
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39 changes. The questions were composed based on various factors, such as the patient's  
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41 demographic information, the patient-physician relationship, and the response of the hospital  
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43 management to patient concerns. Each question had five options, which were constructed  
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45 according to a Likert scale (i.e., 1 = strongly agree, 2 = slightly agree, 3 = neutral, 4 = slightly  
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47 disagree, and 5 = strongly disagree). The participants were expected to choose only one  
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49 option for each question.  
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54 To answer Research Question 1 (RQ1), a five-point Likert scale was used in the  
55  
56 questionnaire (5 = strongly agree to 1 = strongly disagree). The weighted mean was treated to  
57  
58 measure the satisfaction and loyalty of the patients regarding GHA-accredited hospitals  
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(Petzer and van Tonder, 2019). To measure the satisfaction and loyalty level using a five-point Likert scale, the range was set by subtracting the minimum from the maximum point, which, in this case, was 5 minus 1; the result of 4 is then divided by the largest value in the scale, which was 5, producing a result of 0.80 (Al-Neyadi *et al.*, 2016). This result was added to the lowest number in the scale to determine the range, and afterward, 0.80 was added to each scale.

### *Research sample*

According to the UAE's Department of Health (DoH, 2016), 269,300 patients were served in Abu Dhabi hospitals as of 2016. Although our primary intention was determining the possible elements that impacted patient satisfaction and loyalty, not all patients or members of the Abu Dhabi community were included in the study, because adding such a large sample would have required substantially more time, given the number of questions in the questionnaire. Thus, 418 participants were selected as the final research sample.

The number of participants chosen for this study was representative of the total population under investigation. The patients' information and mobile numbers were extracted from the agency-managed hospital's electronic medical records. Demographic factors such as age, marital status, gender, educational level, and frequency of visits were considered during the recruitment of participants. The inclusion of these factors was necessary to prevent certain demographic factors from being unrepresented in the study. The questionnaires were provided to participants through several methods, such as short message service, an e-mail with a link to the survey, or a face-to-face meeting. If the participants were unable to access the questionnaire through e-mail because of constraints such as inadequate knowledge of the Internet or an inability to access a computer, they were provided with the option of using a drop-and-collect approach. The drop-and-collect technique involved providing participants with a hard copy of the questionnaire that they would manually fill out and then return after

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2  
3 completion. Before the initiation of the actual research on the patients, approval from the  
4  
5 government agency's research committee was obtained. The approval made it easy, legal, and  
6  
7 ethical to access information on patients, including their demographic characteristics.  
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### 10 11 **Research findings**

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14 The actual data analysis was achieved through the application of SmartPLS 3.0  
15  
16 software. Ghozali and Latan (2015) indicated that SmartPLS 3.0 represents a milestone in  
17  
18 latent variable modeling because it can combine different state-of-the-art modeling  
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20 techniques, such as partial least squares–prediction-oriented segmentation (PLS-POS),  
21  
22 importance-performance map analysis (IPMA), and complex bootstrapping routines, with an  
23  
24 intuitive graphical user interface that is easy to use and interpret. Furthermore, this method  
25  
26 generates the required results in real time and has therefore become one of the most effective  
27  
28 and reliable approaches to quantitative data analysis. Bootstrapping was used to estimate the  
29  
30 accuracy of sample size estimates. The bootstrapping used in this research considered a  
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32 resampling procedure to 1,000 resamples. Another tool used from SmartPLS was the partial  
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34 least squares (PLS) algorithm.  
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#### 40 *Reliability, discriminant validity, and descriptive results*

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42 The results obtained from the Cronbach's alpha analysis determined that the reliability  
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44 coefficient values for all of the variables included in the study were accepted because their  
45  
46 values were higher than the defined threshold of 0.70. Based on the results, the factors that  
47  
48 indicated the highest reliability had a value above 90, including hospital image, patient  
49  
50 satisfaction, patient–physician relationship, and service quality. As shown in Table I,  
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52 although all of the variables' reliability was accepted, switching cost and tangibility showed  
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54 the lowest reliability coefficients, with values of 0.73 and 0.72, respectively.  
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**Insert Table I about here**

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To assess discriminant validity, we followed the recommendation of Fornell and Larcker (1981) and compared the average amount of variance that a construct accounts for in its own indicators, namely, average variance extracted (AVE), with the amount of variance that the construct shares with other constructs. All AVE scores of the constructs included in our proposed model and their respective first-order factors were above 0.50, which is in line with the acceptable threshold suggested by Bagozzi and Yi (1988). To evaluate discriminant validity, the AVE scores of the first-order factors with their shared variances were compared with other first-order factors. All AVE scores were higher than all shared variances, suggesting the discriminant validity of the model's constructs. As suggested by Fornell and Larcker (1981), the AVE scores could also be used to assess convergent validity. Because the AVE scores were higher than the benchmark of 0.50, there exists sufficient evidence of convergent validity (see Table II).

**Insert Table II about here**

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#### *Hypotheses testing results*

The results of hypotheses testing are presented in Tables III, IV, and V. The tables show the p-values of the hypothesized relationships depicted in Figure 1.

**Insert Table III about here**

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**Insert Table IV about here**

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**Insert Table V about here**

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3 Through a path coefficient analysis of the collected data, the p-value for the service  
4 quality–outpatient satisfaction relationship was determined to be 0.00, which is lower than  
5 the threshold of 0.05. A powerful relationship between these two variables was confirmed at  
6 the threshold of 0.05. A powerful relationship between these two variables was confirmed at  
7 a confidence level of 97.5%, and a t-value of 4.66 was obtained, which is higher than the set  
8 threshold of 1.96. These results confirm that there is a positive relationship between service  
9 quality and outpatient satisfaction.  
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17 The next subsection of the hypothesis posits the likelihood that there exists a positive  
18 mediating effect of outpatient satisfaction on the service quality–loyalty relationship. In this  
19 case, the p-value and t-value for this relationship are at a 97.5% confidence level. The p-value  
20 was determined to be 0.00, which is lower than the set threshold of 0.05. The t-value of the  
21 relationship between these two variables at a 97.5% confidence level was 11.17—higher than  
22 the set threshold of 1.96. This result is aligned with Askariazad and Babakhani's (2015)  
23 finding that satisfaction mediates the service quality–loyalty relationship. The analysis of  
24 these values indicates that there is a direct positive correlation between service quality and  
25 outpatient satisfaction as well as an indirect positive correlation between service quality and  
26 loyalty; consequently, a partial mediating effect of outpatient satisfaction on the service  
27 quality–loyalty relationship exists.  
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42 An analysis of the relationship between hospital image and loyalty led to the  
43 production of a p-value of 0.00. Because this p-value is lower than the set threshold of 0.05, it  
44 can be determined that a positive relationship exists between these two variables. Between  
45 the same factors, a t-value of 6.43 was obtained. The finding here is aligned with the adopted  
46 model, which is the ECSI model, with regard to the positive impact of hospital image on  
47 patient loyalty (Fornell, 1992). These findings verify that hospital image positively impacts  
48 patients and patient loyalty.  
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3 Considering that the p-value was 0.00 and t-value was 5.45, it can be said that hospital  
4 image impacts the development of loyalty. The strength of this relationship was supported by  
5 the p-value obtained being lower than the set threshold of 0.05. This result indicates that  
6 hospital image has a positive impact on patient satisfaction and loyalty simultaneously.  
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12 Regarding Hypothesis 2c, it was determined that outpatient satisfaction positively  
13 mediates the hospital image–loyalty relationship by establishing a p-value of 0.00, which is  
14 lower than the set threshold of 0.05, and a t-value of 4.39. Similar to the corporate image of  
15 any other company, a strong hospital image is important for the development of strong  
16 patient trust in care services prior to a visit. The combination of patient satisfaction and  
17 hospital image is important for developing patient loyalty. The positive results obtained from  
18 testing Hypothesis 2 can be linked to those obtained by Askariazad and Babakhani (2015),  
19 who determined that corporate image is the most important path to loyalty.  
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31 The inclusion of Hypothesis 2 in this study aims to provide insights that can be used  
32 by service providers to better understand how the various dimensions, including the items,  
33 can impact overall service quality and patient loyalty (Cham *et al.*, 2016). On the basis of this  
34 hypothesis, the most important factors that should be optimized include patient satisfaction  
35 and hospital image. The ability of hospital management to address all of the issues that affect  
36 the development of patient satisfaction and hospital image will promote the development of  
37 high rates of patient loyalty.  
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47 The p-value for the relationship proposed in Hypothesis 3a was 0.00, which is lower  
48 than the set threshold of 0.05, and a t-value of 2.81 was registered under a percentage  
49 efficiency of 97.5%. These results suggest that a positive correlation exists between WoM  
50 and patient satisfaction. Thus, satisfying patients' healthcare needs will enable patients to  
51 spread positive WoM regarding the overall quality of care services. Nevertheless, in  
52 situations wherein the needs of patients are not adequately satisfied, there is a higher chance  
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3 that patients will develop a negative perception about the service quality, thereby leading to  
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5 negative reviews of hospital products through the use of WoM. Thus, Hypothesis 3a is  
6  
7 accepted and supported.  
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10 Hypothesis 3b comprises two types of relationships, namely, one between patient  
11  
12 satisfaction and WoM and an indirect relationship between WoM and patient loyalty. The  
13  
14 correlation between using progressive WoM and patient loyalty can be promoted by  
15  
16 providing patients with satisfaction. Some of the marketing literature has considered WoM as  
17  
18 a dependent variable for customer satisfaction and loyalty (Walsh and Mitchell, 2010;  
19  
20 Tripathi, 2017). However, this research hypothesis explores the indirect effect of WoM on  
21  
22 patient loyalty, which is similar to the work of Argan (2016) and Shi *et al.* (2016).  
23  
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26 As indicated in Hypothesis 3a, a positive relationship exists between patient  
27  
28 satisfaction and WoM because of a p-value of 0.00. In the case of the relationship between  
29  
30 WoM and loyalty, a positive relationship exists based on a p-value of 0.03, which is lower  
31  
32 than the set threshold of 0.05, and a t-value of 2.23 was obtained under the percentage  
33  
34 coefficient of 97.5%. Based on these results, Hypothesis 3b is supported. The values indicate  
35  
36 that a direct positive correlation exists between WoM and patient satisfaction and an indirect  
37  
38 positive correlation exists between WoM and patient loyalty. Consequently, patient  
39  
40 satisfaction partially mediates the service quality–loyalty relationship.  
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44 To determine the validity of Hypothesis 4a, the impact of the patient–physician  
45  
46 relationship on outpatient satisfaction must be determined. Based on the results obtained, the  
47  
48 p-value was 0.00, which is lower than the set threshold of 0.05, and a t-value of 4.66 was  
49  
50 registered under a confidence interval of 97.5%. Thus, Hypothesis 4a is supported.  
51  
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54 Evaluation of the results of the p-value obtained on the patient–physician  
55  
56 relationship–loyalty relationship indicates that Hypothesis 4b is not supported because the p-  
57  
58 value was 0.64. These findings confirm that the patient–physician relationship has a positive  
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3 impact on the formation of patient satisfaction but not patient loyalty. Furthermore, the  
4  
5 results agree with those obtained by Huang *et al.* (2014), who revealed that there is no direct  
6  
7 relationship between the patient–physician relationship and hospital loyalty.  
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10 It was also determined that a positive mediating effect of patient satisfaction on the  
11  
12 patient–physician relationship–loyalty relationship exists by establishing a p-value of 0.00,  
13  
14 which is lower than 0.05, and a t-value of 4.59. These results indicate that Hypotheses 4a and  
15  
16 4c of this study are supported, but Hypothesis 4b is not. Therefore, overall patient satisfaction  
17  
18 fully mediates the effect of the patient–physician relationship on patient loyalty.  
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21 Abuosi and Atinga (2013) established that actual waiting time has a negative impact  
22  
23 on patient perceptions of service quality and on the development of patient satisfaction and  
24  
25 loyalty. Most outpatient units are characterized by long waiting time, a factor that has led to  
26  
27 different public health issues, such as difficulty in accessing care, interruption in hospital  
28  
29 work patterns, and patient dissatisfaction. The p-value for the relationship between waiting  
30  
31 time satisfaction and outpatient satisfaction was 0.16, which is higher than the set threshold  
32  
33 of 0.05. Thus, these findings clearly indicate that there is no direct relationship between  
34  
35 waiting time satisfaction and outpatient satisfaction. Therefore, this hypothesis is not  
36  
37 supported.  
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42 No mediating effect was found between the patient–physician relationship and loyalty  
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44 by establishing a p-value of 0.72, which is higher than 0.05, and a t-value of 0.36. These  
45  
46 results indicate that Hypotheses 5a and b are not supported.  
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49 The impact of switching cost is separated into two parts. The first pertains to the  
50  
51 relationship between switching cost and patient loyalty, which gave a p-value of 0.01—  
52  
53 lower than the set threshold of 0.05—and a t-value of 2.74. These results suggest that  
54  
55 switching cost has a positive impact on the development of patient loyalty. This result  
56  
57 contradicts that of Platonova *et al.* (2008), who argued that switching cost did not have an  
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3 impact on patient loyalty. Conversely, Pişgin and Ateşoğlu (2015) identified that a  
4  
5 relationship does exist between switching cost and patient loyalty in healthcare settings.  
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8 No moderating effect was found in the relationship between patient satisfaction and  
9  
10 patient loyalty, as the p-value was 0.80, which is higher than 0.05, and the t-value was 0.25.  
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12 This result is in agreement with that of Pişgin and Ateşoğlu (2015), which indicates that the  
13  
14 moderating effect of switching cost on patient loyalty is not very strong. Thus, Hypothesis 6  
15  
16 is only partially supported, as there is a direct impact on patient loyalty but no moderation  
17  
18 effect.  
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21 The impact of patient satisfaction on loyalty has been intensively discussed in the  
22  
23 literature from the customer perspective, as in Section 2. In this study, the relationship  
24  
25 between patient satisfaction and loyalty led to the generation of a p-value of 0.00, which is  
26  
27 lower than 0.05, and a t-value of 5.66. This result indicates that patient satisfaction positively  
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29 impacts the development of loyalty.  
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33 Figure 2 illustrates the path analysis results.  
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38 **Insert Figure II about here**  
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## 41 **Discussion**

42  
43 The findings of this study indicate that service quality and hospital image in outpatient units  
44  
45 had the highest importance scores. The healthcare facilities involved should implement  
46  
47 strategies that will promote a strong hospital image and increase service quality to enhance  
48  
49 patient satisfaction and loyalty. With the intention of determining the connection between  
50  
51 these factors as well as the development of patient satisfaction and loyalty, hypothesis testing  
52  
53 was conducted.  
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57 The patient satisfaction model contains a conceptual representation of the factors that  
58  
59 should be considered during the process of developing strong patient satisfaction and loyalty.  
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3 With reference to the results obtained, patient demographic characteristics play an important  
4  
5 role in the development of patient satisfaction and loyalty.  
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7  
8 Other factors—hospital image, quality of care services (representing reliability,  
9 tangibility, responsiveness, empathy, and assurance), waiting time satisfaction, WoM, and  
10 switching cost—were determined to play a direct positive role in the development of patient  
11 satisfaction and an indirect role in the development of patient loyalty, in addition to the  
12 factors that directly impacted patient loyalty, such as hospital image and switching cost. In  
13 conclusion, the results indicate that satisfying the needs of patients can lead to the occurrence  
14 of patient loyalty, in addition to the results indicating that other factors could, directly and  
15 indirectly, influence patient loyalty.  
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### 26 27 *Theoretical implications*

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29 Retaining and increasing the number of patients who are willing to avail themselves of  
30 outpatient services from the GHA-managed hospitals was the main intention of this research.  
31 Importantly, addressing the issues that affect patient satisfaction and loyalty will not only  
32 help patients to achieve their goal of remaining healthy but will also help these hospitals to  
33 increase their financial returns. Nevertheless, it is important to prioritize the objectives and  
34 the progression of their execution to limit financial constraints among these hospitals.  
35 Concerning data from the Abu Dhabi's DoH, 51% of patients in government hospitals were  
36 Emirati nationals at the end of 2016 (DoH, 2016). Surprisingly, this number decreased by 2%  
37 the following year (DoH, 2016). The decrease in the total number of patients in the outpatient  
38 units of government health facilities has been linked to the inability of these hospitals to  
39 promote patient satisfaction to the level patient expectation, which affected their loyalty to  
40 government hospitals. In this regard, the main intention of this research was to examine the  
41 elements that are linked to patient satisfaction and loyalty, retain current patients, and  
42 eventually increase the market share.  
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3 Grounded in the information that few studies have been conducted regarding the  
4 factors that influence the development of patient satisfaction and loyalty in a healthcare  
5 setting, this study partially depended on information from the marketing industry that  
6 involves promoting product image and loyalty. In this study, the relationships that were found  
7 to impact patient satisfaction and loyalty are WoM, service quality, the strength of the  
8 patient–physician relationship, waiting time satisfaction, switching cost, hospital image, and  
9 patient demographic characteristics; these were also considered as control variables.  
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19 The findings provided the necessary information to meet the study objectives and  
20 answer the research questions. The first objective of this research was determining the rate of  
21 patient satisfaction and loyalty on the care services being provided in government healthcare  
22 facilities. Based on these findings, it can be concluded that most patients in these healthcare  
23 facilities are satisfied, and all of them are willing to continue availing these services. Patient  
24 satisfaction and loyalty are directly proportional to each other; therefore, only those patients  
25 who are satisfied with the care services will remain loyal.  
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35 The hypothesis testing proved that patient satisfaction is directly influenced by service  
36 quality, hospital image, patient–physician relationship, and WoM. By contrast, factors such  
37 as waiting time satisfaction had no influence on promoting satisfaction among the patients.  
38 Conversely, some factors positively impacted patient loyalty, including patient satisfaction,  
39 hospital image, and switching cost. Mediating effects were observed from service quality,  
40 hospital image, WoM, and patient–physician relationship on patient loyalty. By contrast,  
41 other factors such as the patient–physician relationship showed no impact on the promotion  
42 of patient loyalty.  
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54 The study successfully determined the factors that have precipitated a reduction in the  
55 number of patients seeking care services from government healthcare facilities because of the  
56 level of patient satisfaction and loyalty. The data obtained can be fully utilized during the  
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3 construction of a national customer satisfaction index that can be used by service companies  
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5 from the UAE. The variables that should be included in this service quality determination  
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7 model are customer–producer relationship, quality of services (including reliability,  
8  
9 responsiveness, tangibility, empathy, and assurance), switching cost, WoM, and corporate  
10  
11 image. Furthermore, the model should consider the impact of customer or patient  
12  
13 demographic characteristics on the development of satisfaction and loyalty. Our conceptual  
14  
15 model, which is depicted in Figure 1, could provide a baseline for further attempts to  
16  
17 establish a UAE- or Abu Dhabi-based customer satisfaction index, which is the fourth  
18  
19 objective of this research study.  
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### 23 24 25 *Practical implications*

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27 Centered on the findings from this research, increasing switching costs would prevent  
28  
29 patients from switching to other healthcare providers. Therefore, it has the potential to create  
30  
31 a false loyalty or a hostage customer (Jones and Sasser, 1995). Additionally, making patients  
32  
33 feel connected to their treatment plan and engaged in their care by developing a tool to  
34  
35 maintain their enthusiasm about their health is important. It is therefore recommended that  
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37 government hospital care providers and management consider providing online tools that  
38  
39 patients can use to self-manage their care.  
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44 Developing an online platform that can be used by those seeking outpatient care  
45  
46 services to book appointments and acquire information regarding queue times could help  
47  
48 eliminate issues related to waiting time dissatisfaction. Such an online healthcare platform  
49  
50 would enable hospitals to determine patient preferences, collect vital care information, and  
51  
52 provide patients with the estimated cost of medical care, when applicable. During the  
53  
54 treatment process, these platforms can be used to offer educational support to patients about  
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56 how they should use prescribed medications and the type of diet they should be following  
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58 while under treatment. The GHA should consider employing eWoM on such an online  
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3 platform, as the research results indicate that patients are satisfied with the service quality  
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5 provided to them as well as with the patient–physician relationship.  
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8 Providing patients with a faster and smoother registration process is another  
9  
10 recommended strategy that government hospitals should implement. As previously explained,  
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12 delays that are higher than patients' expectations decreases their satisfaction level. Such a  
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14 situation can frustrate patients and therefore prevent them from being satisfied with care  
15  
16 services.  
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19 The results regarding patients' satisfaction level suggest several areas for  
20  
21 improvement. The first pertains to waiting area entertainment and comfort because patients  
22  
23 indicated that there is not enough entertainment or ways to pass the time when waiting for  
24  
25 services. In addition to enhancing the entertainment and comfort of waiting areas,  
26  
27 government hospital staff should maintain contact with patients who are waiting to ensure  
28  
29 that they are aware of the time they will spend. Another area for improvement is the parking  
30  
31 lot. During summer, patients prefer to walk less in the sun, which causes them to seek  
32  
33 parking closer to the door. Government hospital management should consider different  
34  
35 methods for transporting patients closer to the door, such as golf carts or valet services.  
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40 The findings indicate that hospital image is the variable that should be addressed to  
41  
42 promote satisfaction and loyalty. It is recommended that government hospitals implement  
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44 strategies that will enhance the development of a strong hospital image in the healthcare  
45  
46 market. The first strategy that these hospitals should use is reexamining and knowing their  
47  
48 TASNEEF score, which is a measurement used by the DoH to determine the level of quality  
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50 for each healthcare facility (DoH, 2016) and their key performance indicators according to  
51  
52 the JAWDA data certification system related to patient safety, clinical effectiveness and  
53  
54 outcome, access and timeliness, and patient-focused care, such as patient experience (DoH,  
55  
56 2016).  
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3 Another approach regarding hospital image is corporate social responsibility (CSR).  
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5 Government hospitals should invest more in public works and community awareness of  
6  
7 certain diseases and preventive measures. This will improve the image of government  
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9 hospitals in society and ensure that its aim is public health and not pure profit. Another  
10  
11 strategy for the GHA pertains to the marketing perspective of each hospital.  
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15 For the GHA to continually monitor and improve their services, a recommendation  
16  
17 would be to test the model proposed in this research and to continue modifying it until a  
18  
19 patient satisfaction model has been established. It should then be monitored regularly. Each  
20  
21 hospital might have a variety of services and a different mixture of employees, which would  
22  
23 also influence patients' level of satisfaction and loyalty.  
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26  
27 Patient choice of a hospital can be influenced by the referring physician and WoM  
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29 (Sloane *et al.*, 1999). Given that the government agency has primary healthcare clinics that  
30  
31 refer to hospitals for specialty services, the referring physician influences patient choice.  
32  
33 Thus, government hospital management should ensure that the referring physician is educated  
34  
35 in various specialties and familiar with the physicians in the hospitals as well as understands  
36  
37 their role in the referral process.  
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41 With reference to this study's findings, it was established that physicians'  
42  
43 responsiveness to patients' emotional needs was lower than the desired level, resulting in  
44  
45 patients who are in need of outpatient care services possibly seeking treatment elsewhere. By  
46  
47 improving the efficiency of outpatient care delivery departments in these hospitals, there is a  
48  
49 higher chance to significantly boost the levels of patient satisfaction and loyalty. Another  
50  
51 reason for these results might be attributable to cultural or linguistic barriers, as most of the  
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53 physicians are from a different country and might speak languages other than Arabic.  
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### *Limitations and suggestions for future research*

The first limitation of this study concerns the fact that only patients who had previously been served by these hospitals' outpatient units were included. Furthermore, the research was not able to obtain extensive findings related to the various factors that negatively impacted patient satisfaction and loyalty among all of the departments of government hospitals, such as inpatient care and emergency care.

Another limitation is linked to the fact that the data were collected using a questionnaire. This approach often results in an emotionless response from the participants. It was very difficult for the respondents to convey their feelings and emotions regarding the quality of the care being delivered in these hospitals by responding to a questionnaire. Qualitative research on this subject could enhance findings and shed more light on patient concerns regarding healthcare services. Another limitation is the population targeted; to identify the causes underlying the reduction and ways to retain current patients, this study only targeted patients that had previously visited the agency accredited hospitals. Therefore, only a segment of the UAE population was targeted, so the study sample does not reflect the entire patient population.

Although the aim of this research was to obtain findings applicable to every GHA-run hospital, another limitation arises from the fact that the UAE's GHA runs several hospitals and primary clinics in various locations in Abu Dhabi. Therefore, the findings cannot be linked to a specific hospital as they apply to all government hospitals. This could be resolved if a similar study were conducted for each individual hospital using a case study approach and areas for improvement were identified for each case.

Finally, this study adopted a cross-sectional research design. Using a longitudinal approach would have provided a better clarification of the cause-and-effect relationships between the identified variables.



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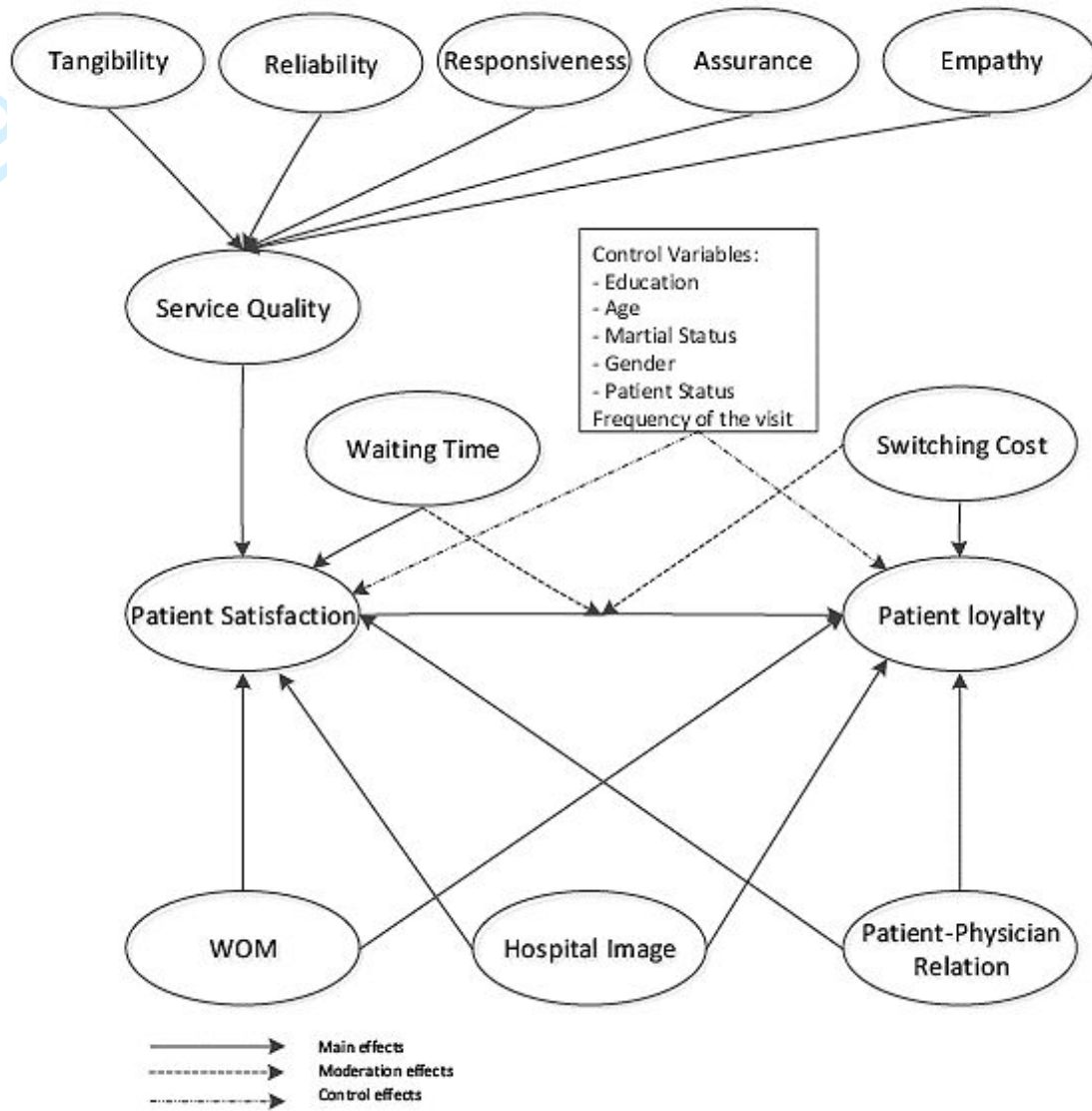


Figure 1. Patient satisfaction model

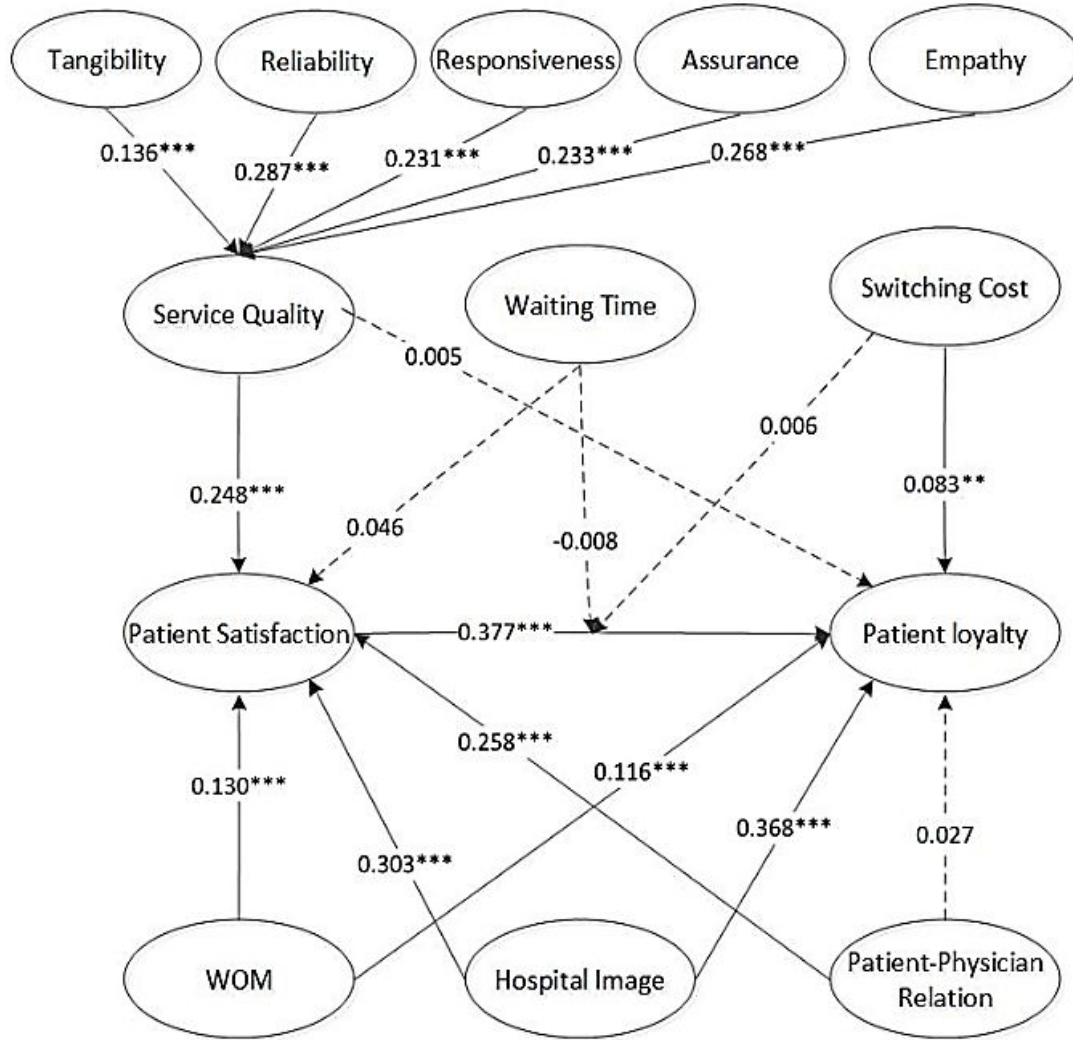


Figure 2. Analysis of the research model

Notes: Path significance: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05; the dotted lines represent insignificant relationships and the solid lines represent significant relationships.

## Tables

Table I. Cronbach's alpha reliability coefficient values

Construct	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Assurance	0.87	0.87	0.91	0.73
Empathy	0.81	0.82	0.88	0.64
Hospital Image	0.90	0.90	0.94	0.83
Patient Loyalty	0.85	0.87	0.90	0.69
Patient Satisfaction	0.91	0.91	0.94	0.85
Patient-Physician Relationship	0.91	0.92	0.93	0.63
Service Quality	0.94	0.95	0.95	0.47
Reliability	0.84	0.86	0.89	0.62
Responsiveness	0.80	0.81	0.87	0.63
Switching Cost	0.73	0.77	0.83	0.57
Tangibility	0.72	0.73	0.83	0.54
Waiting Time Satisfaction	0.86	0.87	0.91	0.71
Word of Mouth (WoM)	0.87	0.87	0.92	0.79

Source: Ringle *et al.*, 2015.

Table II. Discriminant validity

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Assurance	<b>0.85</b>												
2 Empathy	0.80	<b>0.80</b>											
3 Hospital Image	0.71	0.71	<b>0.91</b>										
4 Patient Loyalty	0.67	0.68	0.83	<b>0.83</b>									
5 Patient Satisfaction	0.72	0.68	0.80	0.84	<b>0.92</b>								
6 Patient–Physician Relationship	0.60	0.56	0.70	0.68	0.73	<b>0.79</b>							
7 Quality	0.92	0.89	0.77	0.74	0.77	0.64	<b>0.69</b>						
8 Reliability	0.76	0.75	0.72	0.70	0.73	0.60	0.90	<b>0.78</b>					
9 Responsiveness	0.80	0.72	0.65	0.64	0.68	0.55	0.88	0.73	<b>0.79</b>				
10 Switching Cost	0.36	0.34	0.48	0.51	0.45	0.43	0.39	0.36	0.33	<b>0.75</b>			
11 Tangibility	0.53	0.52	0.47	0.43	0.46	0.39	0.67	0.54	0.50	0.28	<b>0.74</b>		
12 Waiting Time Satisfaction	0.57	0.61	0.57	0.59	0.59	0.45	0.66	0.60	0.59	0.39	0.42	<b>0.84</b>	
13 Word of Mouth (WoM)	0.58	0.62	0.62	0.66	0.64	0.48	0.64	0.57	0.56	0.38	0.37	0.54	<b>0.89</b>

Notes: Numbers in bold represent the average variance extracted (AVE); the other results represent the squared correlations. Source: Ringle *et al.*, 2015.

Table III. Direct path analysis

Hypothesis	Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (O/STDEV)	P-value	Significance
Hypothesis 1a	Service Quality → Patient Satisfaction	0.25	0.25	0.05	4.54	0.00	Significant
Hypothesis 2a	Hospital Image → Patient Loyalty	0.40	0.40	0.06	6.34	0.00	Significant
Hypothesis 2b	Hospital Image → Patient Satisfaction	0.30	0.30	0.06	5.44	0.00	Significant
Hypothesis 3a	Word of Mouth → Patient Satisfaction	0.13	0.13	0.05	2.87	0.00	Significant
Hypothesis 4a	Patient–Physician Relationship → Patient Loyalty	0.02	0.03	0.05	0.46	0.64	Not Significant
Hypothesis 4b	Patient–Physician Relationship → Patient Satisfaction	0.26	0.26	0.06	4.51	0.00	Significant
Hypothesis 5a	Waiting Time Satisfaction → Patient Satisfaction	0.05	0.05	0.03	1.35	0.18	Not Significant
Hypothesis 6a	Switching Cost → Patient Loyalty	0.09	0.09	0.03	2.83	0.00	Significant
Hypothesis 7	Patient Satisfaction → Patient Loyalty	0.42	0.40	0.08	5.56	0.00	Significant

Table IV. Indirect path analysis

Hypothesis	Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (O/STDEV)	P-Value	Significance
Hypothesis 1b	Service Quality → Patient Satisfaction → Patient Loyalty	0.54	0.53	0.05	11.17	0.00	Significant
Hypothesis 2a	Hospital Image → Patient Satisfaction → Patient Loyalty	0.13	0.12	0.03	4.39	0.00	Significant
Hypothesis 3b	Word of Mouth → Patient Satisfaction → Patient Loyalty	0.05	0.05	0.02	2.23	0.03	Significant
Hypothesis 4c	Patient-Physician Relationship → Patient Satisfaction → Patient Loyalty	0.11	0.10	0.02	4.59	0.00	Significant

Table V. Moderation path analysis

Hypothesis	Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (O/STDEV)	P-value	Significance
Hypothesis 6b	Moderating Effect Switching Cost → Patient Loyalty	0.01	0.00	0.03	0.25	0.80	Not Significant
Hypothesis 5b	Moderating Effect Waiting Time → Patient Loyalty	-0.01	-0.01	0.03	0.36	0.72	Not Significant