

RESEARCH ARTICLE

The Mediating Role of Patient Loyalty on the Relationship Between Satisfaction on Physical Environment and Intention to Recommend

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Abstract: The health care industry, in general, has experienced a change in the last years due to stiff competition. More and more are now expected from hospitals, not only on offering competitive prices but also on providing quality services. With the greater expectations from patients, the need to deliver holistic quality service is a must. Hence, the present study aims to examine the level of satisfaction of patients on the aspect of the physical environment and how this satisfaction leads to the intention to recommend. Furthermore, it investigates how patient loyalty indirectly influences the relationship between satisfaction with the physical environment and intention to recommend. The respondents were selected using consecutive sampling, and they were patients from a private tertiary hospital located in Clark Freeport Zone, Philippines. Using a predictive-causal design of research and utilizing partial least squares (PLS) path modeling, the study revealed that patient satisfaction with the physical environment significantly and positively affects patient loyalty and intention to recommend. It was also found that patient loyalty leads to the intention to recommend. The mediation analysis showed that patient loyalty improves the significant and positive relationship between patient satisfaction and intention to recommend.

Keywords: patient satisfaction, patient loyalty, intention to recommend, tertiary hospital, physical environment

In recent years, the health care industry environment has significantly changed. The last decade witnessed a series of dramatic transformations in the scope of service delivery in the health care industry. Higher service expectations from patients, advancement of technology, greater access to health-related information through the Internet, and a holistic approach to health and well-being concerns are a few of those paradigm shifts that brought about overall transformation (Francis, 2010). Hence, competition among health service providers, particularly private hospitals, has increased dramatically. Today, more than ever, the call

for differentiation is the make or break of these health service providers.

According to Kapoor et al. (2011), a service provider has to make sure that it is viewed differently by its customers in a better way to create its own demand that is different from the competition, to have a pool of loyal customers, and to ultimately earn better. The product similarities in the competitive market put a lot of strain on the positioning strategy of the brand, but due to their intangible nature in service, the differentiation becomes a much more difficult task to achieve. The differentiation will come through by

making effective use of the intangibles as well as the tangibles attached to the services. A service provider, like a hospital, adds tangibles in the form of personnel, process, brand perception, and physical ambiance to establish an identity and presence that is different from its competition (Sahoo & Ghosh, 2016).

Hutton and Richardson (1995) noted that a patient-centered health care service structure has emerged and puts additional focus on designing the atmospherics or the physical environment of a health care facility. This is primarily because the technical components of health care services are much more difficult to manage when compared to the tangible elements of health care service encounters (Sahoo & Ghosh, 2016). Health care service delivery is incredibly different from other service encounter situations that are commonly found in banking, telecommunication, and airlines. Patients find it difficult to acknowledge, measure, and evaluate the technical nature of a typical health care service they avail. As a result, the tangible elements of a health care service play distinct roles in patient satisfaction (Sahoo & Ghosh, 2016; Zeithaml et al., 2009).

With the relative importance of delivering quality service and the level of competition among health care services, providers of such now require evaluation of satisfaction of patients not only on the medical services but also on the tangible aspects, such as the physical environment of hospitals (Gesler & Curtis, 2017). Therefore, the present study aims to examine how the satisfaction of patients in a hospital's physical environment affects loyalty, which, in turn, leads to the intention to recommend. In a health care setting, more than the advancement of equipment and technologies, expertise of professionals, compassionate care, and interpersonal communications and relationships of the provider and the patient, the physical environment plays a vital role in satisfaction and loyalty (Liu et al., 2018). It may not be the sole determinant of patient satisfaction, but it can have an impact that is worth studying.

Literature Review

Satisfaction of Patients on Hospital's Physical Environment

According to El-Adly (2019), customer satisfaction is a measure of how products and services supplied by a company meet or surpass customer expectations.

This definition supports the findings of Zairi (2000), which indicated that customer satisfaction might also be a guide for monitoring and improving the different current and potential performance of a business. In marketing literature, customer satisfaction is an important central concept as it means meeting the demands and needs of the customer (Han & Ryu, 2009; La & Yi, 2015). Furthermore, customer satisfaction is the act of just doing enough to be acceptable to a customer and simply meeting the basic expectations (Mudie & Pirrie, 2012).

Similar to customer satisfaction, Kupfer and Bond's study (2012) described patient satisfaction as the instance of patients assessing the service received in comparison to their expectations. When expectations exceed the service rendered, patients see the service quality to be high; the reverse is true if the service quality does not meet their expectations. Despite the different definitions of satisfaction in existing literature, patient satisfaction remains an ill-defined concept in the present time despite the recent attempts to define it as the level of a patient's actual experience of the service rendered versus the patient's expectations (Asadi-Lari et al., 2004) and the patient's evaluation of treatment plan and results (Shikiar & Rentz, 2004).

The definition of the constructed physical environment is handled differently by various researchers in the literature (Kim & Moon, 2009; Lee & Kim, 2014; Ryu & Jang, 2008). The first definition of the physical environment was suggested by Kotler (1973), referring to physical elements under the concept of "atmospherics" or the intentional effort of the business to design its physical store or facility aiming for favorable customer behavior. When applied in a hospital setting, the satisfaction of patients on physical environment refers to the favorable response of patients towards health care facility in terms of its aesthetics, functional layout, ambiance, smell or odor, and lighting (Lee & Kim, 2014; McNair, 2004; Pollock & Easton, 2002; Ryu & Jang, 2008).

Patient Loyalty

Customer loyalty has been considered a widely researched concept (Leong et al., 2012). It is viewed as a behavior as it is measured in terms of repeat purchases, and as an attitude as it is measured in terms of positive preference or commitment expressed over time (Lacap & Tungcab, 2020; Saini & Singh, 2020; Wolter et al., 2017). The study of Khan (2018) showed a common

framework for a better understanding of loyalty. In the study, the loyalty pyramids showed what loyalty is like in a typical firm and proposed a “preferred” state that companies should achieve to maximize their profitability. Customer loyalty improves profitability principally by reducing costs incurred in acquiring new customers (Cheng et al., 2011; Jadaghi et al., 2011; Razavi et al., 2012; Taleghani et al., 2011).

However, in the hospital setting, because of the complicated nature of the services and the high level of involvement of patients in interactions with health care personnel, the interaction with the health care provider is more vital than that with the environment. Patients come to health care facilities to be healed (Astuti & Nagase, 2014); hence, the core services provided can create positive physical and psychological reactions to doctors and treatment, which can increase loyalty (Salgaonkar, 2006). In the present study, patient loyalty combines the behavioral (e.g., revisit intention) and attitudinal aspects (e.g., commitment to continuing to patronize the hospital services).

Patient Satisfaction with Physical Environment and Loyalty

Many studies have been conducted to prove the relationship between customer satisfaction and loyalty. In most of the studies, a positive relationship was found between customer satisfaction and loyalty (Alegre & Cladera, 2009; Ha & Jang, 2010; Han & Ryu, 2009; Ismail & Yunan, 2016; Jalil et al., 2016; Lee & Lee, 2013; Ryu & Han, 2011; Ryu et al., 2012). In addition, customer satisfaction plays an important role in promoting and managing customer loyalty (Ryu & Han, 2011). However, satisfaction does not always guarantee loyalty (Chow et al., 2007).

Precedent studies (Canny, 2014; Cetinsoz, 2019; Cristo et al., 2017; Guzel & Dincer, 2018; Han & Ryu, 2009) argued that satisfaction with the physical environment affects loyalty. Weiss et al. (2004) found that loyalty happens due to customers’ satisfaction in the physical environment. Unal et al. (2014) stated that the physical environment and atmosphere affect customer emotions, which subsequently impact satisfaction and loyalty. This claim is also in consonance with the study of Mahalingam et al. (2016), where the physical environment of a place may transform into customer loyalty.

In the health care sector, patient satisfaction was found to be strongly related to the establishment of

patient loyalty (Astuti & Nagase, 2014; Elleuch, 2008; Sharma, 2016). In a study conducted by Messala and Paul (2018) in hospitals in India, it was affirmed that patient satisfaction is an integral component of patient loyalty. Patients who experienced a service compared their expectations with their actual experience; if they feel satisfied, they will be strongly loyal to the health care provider (Astuti & Nagase, 2014). Positive patient inclination will build trust, which can result in positive judgments of the hospitals (Chahal & Mehta, 2013; Naidu, 2009).

The physical environment of a hospital plays a crucial role in the formation of patient satisfaction, which, in turn, leads to loyalty (Shabbir et al., 2016). Kim et al. (2008) confirmed that patient satisfaction affects revisit intention. Additionally, Fatima et al. (2018) highlighted that the service quality aspect of the physical environment in private hospitals was found to be a good indicator of patient loyalty and a strong predictor of patient satisfaction. Their study showed that in private hospitals, facilities, infrastructure, functions, equipment, medical devices and apparatus, and medical staff appearance are well-maintained, and hospital administration is more focused on neatness, infection control, and hygiene, which are all crucial and requisites to meet patient satisfaction. Hence, it is hypothesized that:

- H1. Patient satisfaction with the physical environment positively and significantly affects loyalty.

Intention to Recommend

Intention to recommend, as a behavioral intention construct, refers to a positive consumer behavior such as saying encouraging things about a product or a service (word-of-mouth) and favorable recommendation (Hosany et al., 2017; Pi & Huang, 2011; Xu & Gursoy, 2020). In one study, Pi and Huang (2011) concluded that the willingness to recommend products or services to the public and give commendations is a secondary behavior resulting from and a measurement category of customer loyalty. This is further confirmed in the studies of Bose and Rao (2011), Dhandabani (2010), and Shih-I (2011), asserting that one of the behaviors of a loyal customer is to recommend products and services to others, known as word-of-mouth.

Word-of-mouth (WOM), another term used to describe and signify the intention to recommend

a customer, is defined by Lau and Ng (2001) as a verbal face-to-face communication between a communicator who is not an agent of a brand and a receiver concerning a brand. Favorable WOM behavior is a component of behavioral intentions that depicts a customer's willingness to recommend (Zeithaml & Berry, 1996). Constructive WOM turned out to be the most substantiated indicator in forming future conduct and attitude (Buttle, 2011). Furthermore, literatures related to health care show that service quality can also act as an indicator of a patient's willingness to recommend a provider to friends and relatives (Hanzaee & Shojaei, 2011).

Patient Satisfaction with Physical Environment and Intention to Recommend

Satisfaction is considered a predictor of behavioral intentions. Satisfied patients are more likely to return to the same provider (loyalty) and recommend them to their families and friends (positive word-of-mouth). It is deemed that satisfaction reflects positive judgments of patients from their health care service experiences. Satisfied patients appear to have more trust in their providers, be more confident about their transactions and be more willing to recommend them to others. Similarly, it has been observed that readiness to return to the hospital and the intention to recommend to others are called behavioral intentions (Chahal & Mehta, 2013; Swan et al., 2003).

Prior studies indicated that the level of service quality is a factor in a patient's willingness to recommend a health care provider to friends and relatives (Arab et al., 2012; Barringer, 2008; Otani et al., 2005; Tung & Chang, 2009). Li et al. (2013) further noted that satisfaction translates into a positive intention to recommend. In the health care setting, Fatima et al. (2018) asserted that better quality of health care services helps build satisfaction and loyalty intention wherein a satisfied client will make positive word-of-mouth (WOM). In another study, results showed that the willingness to communicate positive WOM and recommend the hospital to others was affected by costing, process quality, interaction quality, and environment quality (Arab et al., 2014). Hence, it is postulated that:

H2. Patient satisfaction with the physical environment positively and significantly affects the intention to recommend.

Patient Loyalty and Intention to Recommend

A great deal of past researches suggests that intention to recommend (e.g., positive word-of-mouth) is a by-product of customer loyalty (Bose & Rao, 2011; Cheng et al., 2011; Dhandabani, 2010; Durukan & Bozaci, 2011; Suprihanti, 2011). These studies cited evidence asserting that loyalty can actually be interpreted as an expectation to continue a relationship with a particular brand beyond repeat purchases. Furthermore, some studies reported that the development or transformation of customer loyalty into a willingness to recommend entails processes, patterns, or phases.

In the study of Bahri-Ammari (2012), it is contended that customer loyalty is expressed by trust and commitment, which is more than just a continuous purchase of a particular brand. When an individual establishes a connection to a product or service, the formation of loyalty happens. Moreover, the formation of loyalty translates into favorable recommendations towards the product, service, brand, or even organization (Mazzarol et al., 2019). Therefore, the strongest evidence of customer loyalty is the percentage of customers who are ready to recommend the product/service to others (Bahri-Ammari, 2012). The relationship between customer loyalty and the intention to recommend benefits both the company (i.e., reduction of operating cost and acquisition expense) and the customers (i.e., product improvement through sincere suggestions of loyal customers), as argued by Tu et al. (2011). Based on the foregoing, it is hypothesized that:

H3. Patient loyalty positively and significantly affects the intention to recommend.

Past studies have established that patient satisfaction with the physical environment has been noted to influence loyalty (Fatima et al., 2018; Messala & Paul, 2018; Shabbir et al., 2016) and intention to recommend (Arab et al., 2012; Arab et al., 2014; Fatima et al., 2018; Barringer, 2008; Otani et al., 2005; Tung & Chang, 2009). Additionally, it was also found that loyalty may lead to the intention to recommend (Bahri-Ammari, 2012; Mazzarol et al., 2019; Tu et al., 2011). Therefore, the loyalty of a patient may transform into the formation of positive recommendation (intention to recommend) towards a health care facility to others. Based on the foregoing, it is postulated that:

H4. Patient loyalty mediates the relationship between satisfaction with the physical environment and intention to recommend.

From the formulated research hypotheses, the study's framework was established (see Figure 1). The research framework reflects the three direct hypothesized relationships of the study (H1, H2, and H3) and the mediating effect of patient loyalty on the relationship between satisfaction with the physical environment and intention to recommend. Patient satisfaction in the physical environment was analyzed using a hierarchical component of model (higher-order construct, formative; Sarstedt et al., 2019) having five dimensions—facility aesthetics, functional layout, ambiance, smell/odor, and lighting. On the other hand, patient loyalty and intention to recommend were evaluated as lower-order (first-order constructs).

Method

Participants of the Study

The participants of the study were patients of a private tertiary hospital in Clark Freeport Zone, Philippines. The respondents were identified using a consecutive sampling technique. Consecutive sampling technique falls under non-probability sampling, where samples are selected based on the convenience of the researchers but take into consideration all available

subjects as a component of the sample (Omar, 2014). A set of criteria was established in the selection of respondents. Admitted and outpatients were considered as participants of the study. Employees, regardless of whether they have been patients of the hospital, guests, and patient's relatives, were disqualified from the sample population. Furthermore, patients below 18 years old were also excluded. We sought the approval of the hospital to conduct the survey. Informed consent was also discussed and presented to each participant. The informed consent includes the purpose of the study, the time it would take for each participant to answer the questionnaire, confidentiality of the responses and information of the respondents, the risk and benefits associated with answering the survey, and the contact details of the researchers.

Due to the coronavirus (COVID-19) pandemic, each respondent was given the option to answer the questionnaire online (using Google form) or offline (using a printed survey). During the whole duration of the data gathering, a hospital representative guided the enumerator in the distribution and retrieval of responses. Safety standards and protocols of the hospital were also observed by the enumerator during the data gathering process. Out of 150 survey questionnaires distributed, both written and online, 110 were completed accurately by the respondents, resulting in a response rate of 73.33%. The survey questionnaires were floated in April 2020.

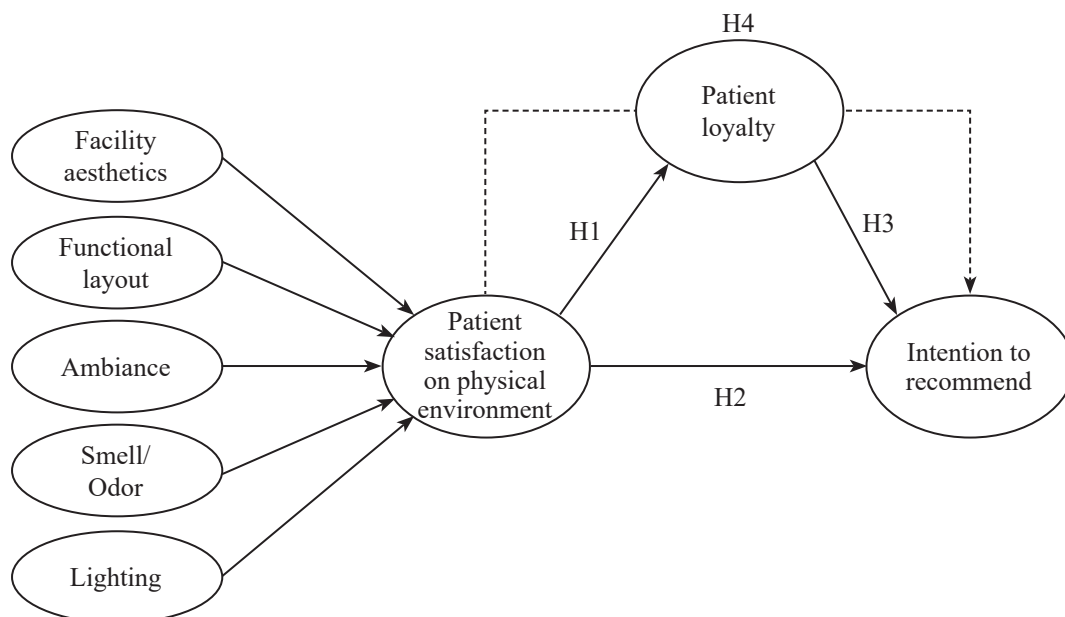


Figure 1. Research Framework

The sample size was computed using power analysis using G*Power. Power analysis, a way to determine the sample size, has been suggested by most scholars, researchers, and PLS-SEM gurus (Hair et al., 2019; Kline, 2015; Memon et al., 2020; Ringle et al., 2018). Additionally, a priori sample size, a sample size estimation technique for structural models (Memon et al., 2020; Soper, 2020), was employed. Using a medium effect size ($f^2 = .15$), the statistical power of .80, and inputted two predictors based on the present structural model, the recommended sample size is 68. The current study had 110 respondents; hence, the sample size used is sufficient to support the robustness of the results of the hypothesized relationships.

The socio-demographic profile of the participants is reflected in Table 1. Out of 110, the majority were female (66.4%). Most of the respondents (30.9%) were from the young age group (22–28 years old), whereas there was an almost equal distribution between middle-aged and elderly groups at 28.2% and 25.2%, respectively. Out of the total population, 50% were single, 77.3% were college degree holders, and 66.4% were employed. Thirty-three percent of the population earns between the range of Php 15,000 to Php 30,000 monthly. In terms of visit category, 92.7% were outpatients, and there was an almost equal distribution between first time and second to fifth-time visits at 38.2% and 37.3%, respectively.

Research Instrument

The primary data collected were based on the survey questionnaire. The questionnaire has four parts. In the first part, questions were about the demographic characteristics, which include the participant's sex, age, personal status, highest educational attainment, occupation, income level, visit category, and frequency of visit.

In the second part, questions were intended to measure the level of patient satisfaction with the physical environment based on five dimensions: facility aesthetics (six items), functional layout (five items), ambiance (four items), lighting (six items), and smell/odor (five items). In the third part, six items were used to measure the level of patient loyalty, whereas, in the last section, there were three items that measured patient intention to recommend.

The items on the dimensions of patient satisfaction in the physical environment were adapted from various studies, including that of Lee and Kim (2014),

McNair (2004), Pollock and Easton (2002), and Ryu and Jang (2008). As for patient loyalty, the items were taken from the studies of Delgado-Ballester and Luis Munuera-Aleman (2001), Salmones et al. (2005), and Zeithaml and Berry (1996). Furthermore, the items on intention to recommend were adapted from the studies of Hosany and Prayag (2013) and Hosany et al. (2017).

A four-point Likert scale, ranging from 4, which means strongly agree, to 1, which means strongly disagree, was used to measure the items for each construct.

Data Analysis

A causal-predictive research design was used in the present study to measure the significant effect of patient satisfaction in the physical environment on patient loyalty and intention to recommend and the intervening role of patient loyalty on the relationship between patient satisfaction in the physical environment and intention to recommend. This type of research design is appropriate for studies that employ partial least squares (PLS) path modeling (Chin et al., 2020). All hypothesized relationships of the present study were gauged using PLS structural equation modeling using WarpPLS 7.0 (Kock, 2020). This statistical approach is appropriate when the aim of the study is to measure a model from a prediction perspective, small size is small, and when constructs are reflectively and formatively measured (Ali et al., 2018; Hair et al., 2019).

Results

Measurement Model Evaluation

Table 2 presents the results of the reliability and convergent validity tests. Part of the convergent validity is the examination of the factor loadings for each of the items of the first-order reflective constructs. The threshold for factor loading must be at least 0.5, and each item must be significant ($p < .05$). Moreover, for the reflective construct to exhibit convergent validity, the average variance extracted (AVE) must be equal to or higher than .5 (Fornell & Larcker, 1981; Hair et al., 2009; Kock, 2014; Kock & Lynn, 2012). It can be gleaned from the results that all first-order reflective constructs—patient loyalty, intention to recommend,

Table 1*Demographic Characteristics of the Respondents*

Demographic Factors	Frequency	Percent
Sex		
Male	37	33.6
Female	73	66.4
Age		
Adolescents (18-21)	4	3.6
Young (22-28)	34	30.9
Middle-aged (29-38)	31	28.2
Elderly (39-55)	28	25.5
Aged adult (56 and above)	13	11.8
Civil Status		
Single	55	50.0
Married	49	44.5
Divorced	2	1.8
Separated	1	0.9
Widowed	3	2.7
Educational Attainment		
Secondary / High School	11	10.0
Tertiary / College	85	77.3
Graduate Studies	14	12.7
Occupation		
Employed	73	66.4
Self-employed	19	17.3
Unemployed	18	16.4
Gross monthly income		
Below Php 15001	21	19.3
Php 15001 –Php 30000	36	33.0
Php 30001 – Php 45000	16	13.8
Php 45001 – Php 70000	14	12.8
Php 70001 – Php 85000	3	2.8
Above Php 85000	20	18.3
Visit Category		
Inpatient	8	7.3
Outpatient	102	92.7
Mode of visit		
First Time	42	38.2
2nd – 5th visit for the past year to current	41	37.3
More than 5 for the past year to current	27	24.5

Table 2*Reliability and Convergent Validity*

Reflective, First-Order Construct / Items	Factor loading
Patient loyalty: AVE = 0.689; CR = 0.930; CA = 0.908	
PL1. I will still go to the same hospital in the next five years.	0.775
PL2. If I will be given an option to choose other hospitals, I will still choose the same hospital.	0.744
PL3. I consider myself to be loyal to this hospital.	0.913
PL4. To me, this hospital is clearly better than the other hospitals in the market.	0.784
PL5. I would continue with this hospital even if its rates increased slightly.	0.891
PL6. I would not change my hospital if another hospital brand will offer a better price.	0.858
Intention to recommend: AVE = 0.797; CR = 0.922; CA = 0.873	
ITR1. I would recommend this hospital if somebody asks for my advice.	0.871
ITR2. I would say positive things about this hospital to other people.	0.895
ITR3. I would encourage friends and relatives to choose this hospital.	0.912
Facility aesthetics: AVE = 0.564; CR = 0.885; CA = 0.842	
FA1. Level of cleanliness.	0.605
FA2. Attractiveness of the waiting areas.	0.816
FA3. Attractiveness of the lobby/reception areas.	0.713
FA4. Attractiveness of the patient rooms.	0.740
FA5. Attractiveness of furniture and fixtures.	0.823
FA6. Visual appeal of interior design and decorations.	0.785
Functional layout: AVE = 0.653; CR = 0.903; CA = 0.863	
FL1. Comfort of the waiting areas.	0.841
FL2. Comfort of the examining and patient rooms.	0.869
FL3. Arrangement of units is comfortable & not confusing.	0.842
FL4. Arrangement of chairs in waiting areas is comfortable.	0.846
FL5. Signage and directions are easy to follow.	0.614
Ambiance: AVE = 0.627; CR = 0.869; CA = 0.798	
AM1. Temperature is comfortable.	0.654
AM2. The restfulness of the hospital.	0.827
AM3. The privacy in the room where you spent the most time.	0.830
AM4. Total ambiance reflects the image of the hospital.	0.840
Smell / Odor: AVE = 0.625; CR = 0.892; CA = 0.849	
SM1. No food odor in the hospital vicinity (except canteen).	0.690
SM2. No tobacco smoke odor.	0.798
SM3. No moldy or building material odor.	0.799
SM4. No foul odor in the comfort rooms.	0.821
SM5. Don't feel odor problem in this hospital.	0.836
Lighting: AVE = 0.633; CR = 0.911; CA = 0.882	
LI1. Adequate lighting in waiting areas.	0.806
LI2. Adequate lighting in the patient rooms.	0.848
LI3. Patient room offers mood lighting option.	0.701
LI4. Adequate lighting in corridors and hallways.	0.875
LI5. Adequate lighting in the parking area.	0.804
LI6. Brightness of the lobby/reception.	0.725

Indicator loadings are significant at 0.001 ($p < .001$). PL-patient loyalty; ITR- intention to recommend; FA-facility aesthetics; FL-functional layout; AM-ambiance; SM-smell/odor; LI-lighting.

facility aesthetics, functional layout, ambiance, smell/odor, and lighting (dimensions of patient satisfaction on the physical environment)—satisfied all convergent validity criteria.

Composite reliability (CR) and Cronbach's alpha (CA) were also measured to gauge the internal consistency of each item for every reflective construct. To establish that internal consistency is achieved, the values of CR and CA must be at least .7 (Fornell & Larcker, 1981; Kock, 2014; Kock & Lynn, 2012; Nunnally, 1978; Nunnally & Bernstein, 1994). Based on the results in Table 2, all constructs are within the threshold for reliability.

Discriminant validity of the first-order reflective constructs was measured using Fornell-Larcker and HTMT ratios. For every latent, first-order construct, the square root of the AVEs should be greater than any of the correlations involving the said variable (Fornell

& Larcker, 1981). In short, the diagonal values must be greater than any of the values to their left or right in the same row (Kock, 2020). As Table 3 reveals, all constructs exhibit discriminant validity.

To confirm the result of the Fornell-Larcker criterion, discriminant validity through HTMT ratio was also performed. The threshold for HTMT ratios must be smaller than 0.9 (Henseler et al., 2015). As seen in Table 4, discriminant validity was established.

In the present study, patient satisfaction with the physical environment was assessed as a formative higher-order construct with five dimensions—facility aesthetics, functional layout, ambiance, smell/odor, and lighting. Using the disjoint two-stage approach, the formative higher-order construct was evaluated (Agarwal & Karahanna, 2000; Becker et al., 2012). Measurement model evaluation for the construct of patient satisfaction in the physical environment

Table 3

Discriminant Validity Using Fornell-Larcker Criterion

	PL	ITR	FA	FL	AM	LI	SM
PL	0.830						
ITR	0.743	0.893					
FA	0.563	0.474	0.751				
FL	0.551	0.481	0.713	0.808			
AM	0.702	0.625	0.711	0.695	0.792		
LI	0.496	0.450	0.579	0.723	0.641	0.795	
SM	0.508	0.446	0.476	0.515	0.583	0.574	0.791

PL-patientloyalty; ITR- intention to recommend; FA-facility aesthetics; FL-functional layout; AM-ambiance; SM-smell/odor; LI-lighting.

Table 4

Discriminant Validity Using HTMT Ratios

	PL	ITR	FA	FL	AM	LI	SM
PL							
ITR	0.836						
FA	0.644	0.560					
FL	0.629	0.566	0.843				
AM	0.829	0.756	0.867	0.851			
LI	0.558	0.515	0.685	0.839	0.759		
SM	0.589	0.520	0.574	0.619	0.709	0.668	

PL-patient loyalty; ITR- intention to recommend; FA-facility aesthetics; FL-functional layout; AM-ambiance; SM-smell/odor; LI-lighting.

includes scrutiny of variance inflation factor (VIF), outer weight and the corresponding p-value, and full collinearity (Ramayah et al., 2018; Rasoolimanesh et al., 2017). To say that patient satisfaction with the physical environment as a higher-order construct passed the measurement model assessment, each of the outer weights must be significant ($p < .05$). Moreover, the VIF must be equal to or lower than 3.3 (Diamantopoulos & Siguaw, 2006). To measure the discriminant validity, full collinearity VIF was gauged (Rasoolimanesh et al., 2017). The requirement for full collinearity VIF is that the coefficient must be lower than 3.3 (Kock, 2015; Kock & Lynn, 2012). Based

on the analysis of the data, patient satisfaction with the physical environment as a formative higher-order construct passed all the requirements for measurement model assessment (see Table 5).

Structural Model Assessment

Figure 2 and Table 6 manifest the results of the direct and indirect effects. The findings show that patient satisfaction on physical environment significantly and directly influences loyalty ($\beta = 0.678$, $p < 0.001$) and intention to recommend ($\beta = 0.172$, $p = 0.031$). As the level of patient satisfaction with the physical environment rises, the level of patient loyalty

Table 5

Measurement Model Assessment for Formative Higher Order Construct

Formative, higher-order construct	Factor weight	p-value	VIF	Full-collinearity VIF
Patient’s satisfaction				
<i>Facility aesthetics</i>	0.239	0.004	2.487	
<i>Functional layout</i>	0.252	0.003	3.019	1.907
<i>Ambiance</i>	0.250	0.003	2.712	
<i>Smell/Odor</i>	0.241	0.004	2.446	
<i>Lighting</i>	0.212	0.010	1.693	

VIF=variance inflation factor

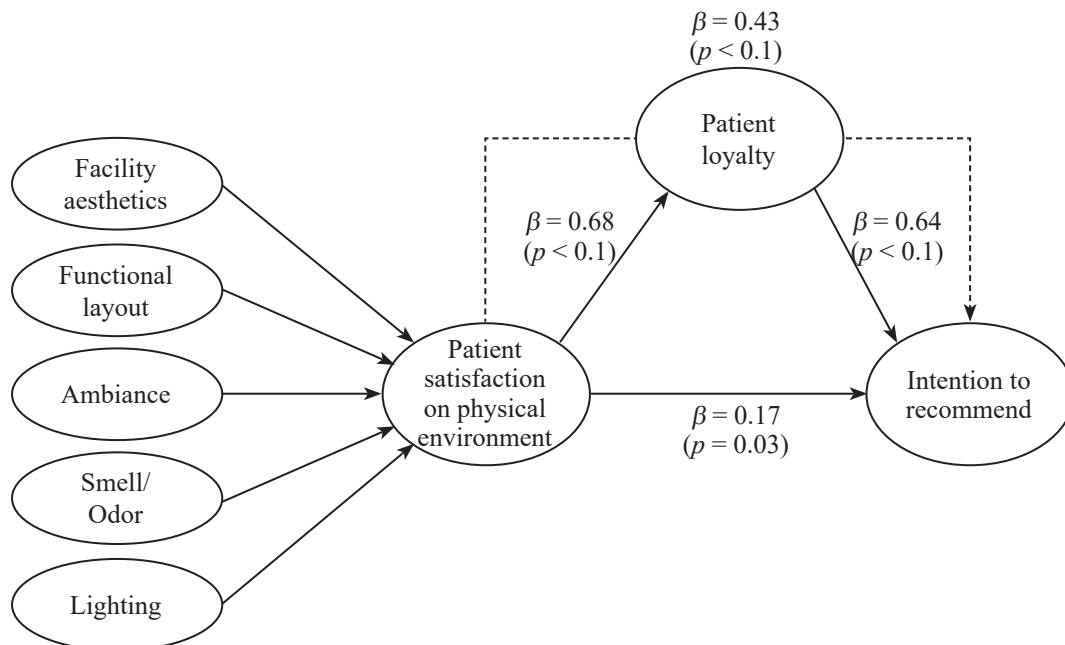


Figure 2. Structure Model

Table 6*Hypothesis Testing*

Hypothesis	β	<i>p</i> -value	SE	f^2	Decision
<i>Direct effects</i>					
H1. PSAT → PL	0.678	<0.001	0.080	0.459	Supported
H2. PSAT → ITR	0.172	0.031	0.091	0.104	Supported
H3. PL → ITR	0.636	<0.001	0.081	0.479	Supported
<i>Indirect effect</i>					
H4. PSAT → PLOYAL → INTENT	0.431	<0.001	0.060	0.260	Supported

f^2 is the effect sizes (Cohen, 1988) where 0.02 = small, 0.15 = medium, 0.35 = large. SE = standard error; β = standardized path coefficient. PSAT-patient satisfaction on physical environment; PL-patient loyalty; ITR-intention to recommend.

strongly moves in the same direction as manifested with a large effect size ($f^2 = 0.459$). The same is true with the influence of patient satisfaction on the physical environment on the intention to recommend. When patient satisfaction with the physical environment increases, the intention to recommend also rises with a small effect size ($f^2 = 0.104$). Therefore, H1 and H2 are supported.

Moreover, it was also found that patient loyalty and intention to recommend are significantly and positively related ($\beta = 0.636, p < 0.001$). The positive relationship signifies that as the level of patient loyalty increases, the intention to recommend also moves in the same manner with a large effect size ($f^2 = 0.479$). Hence, H3 is supported.

The mediation analysis performed showed that patient loyalty intervenes in the relationship between patient satisfaction and intention to recommend ($\beta = 0.431, p < 0.001$). The mediating effect of patient loyalty strengthens the significant and positive relationship between patient satisfaction with the physical environment and intention to recommend with a medium effect size ($f^2 = 0.260$). Therefore, H4 is supported.

Discussion

The results of the study revealed that patient satisfaction with the physical environment and loyalty are significantly and positively related. This finding suggests that the physical environment of a hospital

plays an important role in satisfying the patients, which can favorably translate to loyalty to the health care facility. Prior studies have also emphasized how satisfaction with the physical environment of a health care facility leads to loyalty of patients (Fatima et al., 2018; Kim et al., 2008; Shabbir et al., 2016). With the level of competition among health care facilities, factors that influence patient satisfaction come not only from the medical treatment they receive but also from the tangible aspects of a hospital, such as its physical environment.

The findings also show that patient satisfaction with the physical environment is a contributory factor to the intention to recommend. This result indicates that the formation of positive behavioral intention, such as the intention to recommend, is a result of satisfaction. In the health care sector, the satisfaction of patients with the physical environment leads to the intention to recommend the hospital to others. This favorable behavioral intention can be in the form of favorable recommendations or word-of-mouth. Precedent studies (Arab et al., 2012; Barringer, 2008; Otani et al., 2005; Tung & Chang, 2009) have emphasized the role of patient satisfaction in the physical environment and its effect on the intention to recommend. Fatima et al. (2018) further asserted that satisfied patients are always willing to share good reviews via word-of-mouth.

Moreover, analysis of the results reveals that patient loyalty and intention to recommend are significantly and positively related. The finding shows that loyal patients will always say good things about a health care facility. With a substantial effect size, the formation

of behavioral and attitudinal loyalty among patients leads to favorable behavioral intentions. Bahri-Ammari (2012) and Mazzarol et al. (2019) argued that loyal customers tend to build a connection with a product, service, brand, or organization, which, in the long run, translates into positive recommendations from them.

And lastly, patient loyalty was found to indirectly affect the relationship between patient satisfaction with the physical environment and intention to recommend. This result suggests that patient satisfaction with the physical environment significantly affects loyalty, which, in turn, influences the intention to recommend. Hence, patient loyalty does not only directly affect the intention to recommend but also indirectly influences the relationship between patient satisfaction with the physical environment and intention to recommend.

Management Implications, Limitations, and Future Research Direction

The present study highlights how patient satisfaction with a hospital's physical environment substantially affects loyalty. Moreover, it also underscores the role of satisfaction of patients on the physical environment of a hospital in relation to the intention to recommend. These results imply that the perception and expectation of patients towards a health care facility go beyond the medical services; the physical environment of a hospital is now also an emerging factor. With the intense rivalry in the health care industry, health care facilities, especially private hospitals, are finding ways to stay in the competition or be better than their rivals. With the increasing demands of patients, marketing professionals in the health care sector need to explore mechanisms and find ways to further establish competitive advantages. Differentiation strategy such as investing in the physical environment of a healthcare facility is an exceptional source of distinctive competencies. In the present study, the satisfaction of patients with the physical environment includes facility aesthetics, functional layout, ambiance, smell/odor, and lighting. Most of these factors are typically neglected as hospitals tend to focus on their primary products—medical services. Based on the results of the study, these five dimensions are essential factors in the formation of loyalty and intention to recommend.

Furthermore, patient loyalty was found to directly affect the intention to recommend. Today, transforming customers into loyal ones is a hard task, especially with the stiff competition in the health care sector. Patients look for better services and demand exceptional medical treatment. However, when the behavior and attitude of patients translate into loyalty, their propensity to say positive things about their experiences and towards the facility is high. This is evident in the large effect size of the link between patient loyalty and intention to recommend.

The indirect impact of patient loyalty on the relationship between patient satisfaction with the physical environment and intention to recommend indicates that health care facility owners and leaders need to consider the physical environment in attaining the expectations of their patients and transform them to be satisfied customers. When patients are satisfied, loyalty is possible. And loyal patients can be carriers of favorable word-of-mouth (due to substantial recommendation intentions). Therefore, it is recommended that hospitals place attention on maintaining and enhancing their physical environment as it can affect patient loyalty and intention to recommend. The relationship between patient loyalty and intention to recommend benefits both the company and the customers. For health care institutions, considering the physical environment as part of their differentiation strategy will result in a higher standard of care for the greater public. In the end, more than the benefits in market share, an improved health care system and how these services are accessed and delivered to the patients are the more noble utilitarian purposes for delivering holistic and exceptional medical treatment and services.

The present study also has limitations. First, it only included respondents from a private tertiary hospital in Clark Freeport Zone, Philippines. Other researchers may want to explore the interrelationships of the variables—patient satisfaction with the physical environment, patient loyalty, and intention to recommend—but this time, by including participants from other tertiary hospitals in other major cities in the Philippines. Second, the present study concentrated on the three identified variables. Future researchers may examine other variables that may affect patient loyalty and intention to recommend, such as dimensions of health care quality and post-treatment services of hospitals. And lastly, a comparative study between

private and public hospitals can also be done by future researchers on the interrelationships of the variables used in the present.

Declaration of Ownership

This report is our original work.

Conflict of Interest

None.

Ethical Clearance

This study was approved by the institution.

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