

# Antecedent Hospital Environment, Communication and Responsiveness in Hospitals during the Covid-19 Pandemic According to Patient Perceptions of Willingness to Recommend

Hendsun<sup>1</sup>, Hendra Achmadi<sup>2</sup>

<sup>1,2</sup>Faculty of Management, Universitas Pelita Harapan, Jakarta, Indonesia

Hendsunh@gmail.com, Hendra.achmadi@upd.edu

## Abstract

*Patient recommendations are the most basic form of marketing. However, hospitals often face patient reluctance to recommend them. This study uses independent variables in the form of the hospital environment, communication with patients, and responsiveness to patient needs, which are components of the HCAHPS questionnaire to measure the overall rating of the hospital as a mediating variable. The independent variable will be tested for its effect on willingness to recommend the hospital. This type of research is quantitative research with hypothesis testing (hypothesis test). This study obtained 164 respondents willing to survey from January to February 2022 and processed using PLS-SEM. The dependent variable hospital environment, communication with patients, and responsiveness to patient needs gave an R<sup>2</sup> value of 0.675 to the overall rating of the hospital mediating variable. The mediating variable succeeded in showing a strong positive influence on willingness to recommend with R<sup>2</sup> 0.624 and mediated the independent variable's influence. The hospital environment, communication with patients, and responsiveness to patient needs have a significant positive effect on the overall rating of the hospital, which then describes a significant positive effect on willingness to recommend.*

## Keywords

willingness to recommend;  
rating of hospital; hospital  
environment; communication;  
responsiveness



## I. Introduction

Hospital is an institution that is engaged in health services. Hospital institutions provide comprehensive health services consisting of inpatient, outpatient, and emergency services. (Kementrian Kesehatan Republik Indonesia, 2021) Hospitals complement and strengthen the effectiveness of multiple health systems, providing continuously available services for acute and complex conditions. The hospital concentrates scarce resources in a well-planned referral network to respond efficiently to the population's health needs. Hospitals are also an essential part of the development of the health system. Today, external pressures, health system deficiencies, and hospital sector shortages drive new visions for hospitals in several parts of the world. In this vision, hospitals have an essential role in supporting other healthcare providers, community outreach, and the referral network to function correctly. Hospitals have a place for coordination and integration of care. Hospitals often provide settings for the education of doctors, nurses, and other health professionals and clinical research. (Shimizu, 2020)

Based on the Ministry of Health data, the number of hospitals throughout Indonesia until 2021 is 2,925 units. The number consists of 1071 public hospitals and 1854 private hospitals. This number has increased from previous years, illustrating that the number of hospital industries in Indonesia is growing. Region-2 is the region with the most growth

after Java. Bangka Belitung is one of the provinces in region-2. This growth indicates that the Healthcare industry in Bangka Belitung is an industry whose competition is getting tougher. A total of 22 hospitals will operate in Bangka Belitung Province in 2021.(Kemenkes, 2021)

Since the end of December 2019, there has been a series of phenomena of unexplained pneumonia cases in Wuhan, China. On January 12, 2020, the World Health Organization (WHO) gave the terminology for the new virus as Novel Coronavirus 2019 (2019-nCoV). On January 30, 2020, WHO declared the epidemic status of the 2019-nCoV infection and warned of a public health emergency that has become a severe problem at the international level or a pandemic. WHO has officially given the term 2019-nCoV as Corona Virus Disease 2019 (COVID-19), later referred to as Severe Acute Respiratory Syndrome of Corona Virus-2 (SARS-CoV-2).(Firmansyah et al., 2021) As of December 13, 2021, WHO reported that there were 267,865,289 confirmed cases of COVID-19 with 5,285,888 deaths, which continues to increase. COVID-19 cases in Indonesia currently reach 4.26 million cases, with 144,000 deaths.(WHO, 2021) COVID-19 cases in Indonesia encourage the government to take decisions to reduce the spread of COVID-19 by imposing restrictions on mobilization in Indonesia.(Hendsun et al., 2021)

The health industry is the sector most affected by the COVID-19 pandemic situation. Several fundamental changes in patients have emerged over time and emerged from and were exacerbated by the spread of COVID-19. Health care systems around the world are currently facing the same problem. These problems are changing patient demographics, increasing health care costs, growing customer expectations, new market players in the healthcare industry, increasingly complex health knowledge and technology ecosystems.(Deloitte, 2020) These changes affect health care decision making.(Deloitte, 2021)

The impact of the global economic recession related to the pandemic also appears to have depressed health care spending in 2020. Global public and private healthcare spending is expected to decline by 2.6% in 2020. In most countries, non-essential surgeries and examinations are delayed for several months, although outpatient care is significantly more affected when compared to inpatient and outpatient care event pharmacy. Patients are also reducing visits to doctor's practices, clinics, and emergency departments, delaying refilling prescription drugs, and reducing discretionary health care purchases. In some countries, job loss affects contribution rates for job-based health insurance, despite broad government support.(Deloitte, 2021)

The Ministry of Health of the Republic of Indonesia, in its efforts to implement several regulations to treat COVID-19 patients and provide services to general patients at the same time as a balancing act step by prioritizing the safety of patients and health workers on duty. These guidelines are made so that hospital services can apply screening, triage, and special case management procedures. For example, the government provides guidelines for setting a bed distance of 1.5-1.8 meters between patients. The guidelines also design that health workers anticipate transmission with infection prevention and control procedures.(Hasan et al., 2020) This guideline causes changes in patient interactions with health workers, which are thought to result in changes to the quality of service in hospitals.(Widya Astari, Noviantani and Simanjuntak, 2021)

Patient satisfaction correlates with the quality of service in the hospital. A patient is anyone who consults on his health problems to obtain the necessary health services, either directly or indirectly, at the hospital.(Kementrian Kesehatan Republik Indonesia, 2021) It must contain experiential and functional elements, physical, mental, and social dimensions and apply to individuals and populations patients in search of Health experience physical

and psychological well-being. Good health and lousy health do not occur as a dichotomy but as a continuum. The absence of disease or disability is necessary to produce good health for the patient.(McCartney et al., 2019).

Based on Government Regulation No. 47 of 2021, patients have rights and obligations in obtaining health services in hospitals. Some of the patient's rights in the regulation state that patients have the right to obtain humane, fair, honest, and without discrimination, including choosing a doctor and treatment class following the wishes of the patient and the regulations that apply in the hospital. Patients in the form of dissatisfaction have the right to obtain quality health services following professional standards and standard operating procedures effectively and efficiently. Patients dissatisfied with health services have the right to file complaints on the quality of services obtained and complain about hospital services that are not under service standards through print and electronic media per the provisions of laws and regulations. The complaint service unit, as intended, is to collect information, clarify, and resolve patient complaints regarding dissatisfaction with the services provided by health workers in hospitals and service procedures at hospitals.(Kementrian Kesehatan Republik Indonesia, 2021) The government regulation indicates that hospital services from health, non-health workers, and hospital facilities create satisfaction and comfort for patients.

The form of patient satisfaction with service quality can affect the patient's desire to recommend a hospital. Patient recommendations are the most important form of marketing. However, hospitals often face patient reluctance to recommend them. One study found that 20% of patients at 15 different hospitals in the United States did not want to recommend the hospital to others (Vyas et al., 2021). Other research suggests that the COVID-19 pandemic is making this even worse. During the COVID-19 pandemic, 23% of patients did not recommend the hospital where they received services. This phenomenon occurs because patients will not recommend their hospital because they feel they are being given services that seem rushed by their health care provider, and 15% feel they are confused by the instructions they get for their care.(Funk and Gramlich, 2020)

An empirical study was conducted to assess the validity and usefulness of the HCAHPS survey between two hospitals (A and B). The study shows that the structural model fits the data. The model explains a significant proportion of variance in the overall quality assessment ( $R^2$  0.69 for Hospital A and  $R^2$  0.80 for Hospital B) and willingness to recommend ( $R^2$  0.87 for Hospital A and  $R^2$  0.81 for Hospital B). This study shows that the overall HCAHPS rating strongly correlates with the willingness to recommend a hospital.(Westbrook, Babakus and Grant, 2014)

This research model will be tested empirically on people in Indonesia receiving treatment in hospitals during the COVID-19 pandemic. This study adopts the research model conducted by Westbrook, Babakus, and Grant (2014) using three independent variables, namely hospital environment, communication with patients, and responsiveness to patient needs, which are components of the HCAHPS questionnaire as a measure of the overall rating of the hospital as a mediating variable. The independent variable will be tested for its effect on willingness to recommend the hospital. Researchers hope that the results of this study can also be implicated in hospital care management during the COVID-19 pandemic to improve the performance of more effective inpatient health services.

## II. Research Method

### 2.1 Object of Research

The purpose of this study was to examine the positive effect of the independent or independent variables, namely: Hospital environment, communication with patients, and responsiveness to patient needs. The research object is the primary concern in a study that will be analyzed further to answer research questions (Sekaran and Bougie, 2016). The objects in this study are all variables included in this research model as the dependent or dependent variable is a willingness to recommend the hospital, while the overall rating of a hospital is a mediating variable. (Sekaran & Bougie, 2016)

### 2.2 Research Type

Based on the time of data collection, this type of research is classified as a cross-sectional study. A cross-sectional study is conducted only once at a particular time or in one period only. The data is then processed and used to answer research questions. This research is based on specific considerations and research designs where data collection at one time can be stated. (Sekaran & Bougie, 2016)

This type of research based on type is quantitative research with hypothesis testing. Hypothesis testing aims to explain the effect of one variable on other variables in the research model by looking at the significance of the relationship based on the data parameters that have been collected. The results of testing this hypothesis if they meet the requirements are considered generalizable to a broader population (Sekaran & Bougie, 2016)

*Correlation analysis* is a statistical test that aims to determine whether there is a significant relationship between variables and determine the direction of influence and strength of the relationship between two or more variables or constructs in the study. This type of research is correlational and not causality (cause and effect) between research variables. Therefore, this study will only analyze the correlation between two or more variables in one research model based on the variance data. (Sekaran & Bougie, 2016).

This research is non-interventional, meaning that no special treatment or intervention is carried out on the research subjects during the research period. The research data was only obtained through observations on the subject obtained through a questionnaire prepared under the research model.

### 2.3 Variable Measurement

In research design, one of the crucial stages in determining the variables in the research model. The dependent variable is the primary variable in the study, which will be investigated to explain its variability and be predicted as the final result of modeling (Sekaran & Bougie, 2016), where the dependent variable in this study is the willingness to recommend the hospital, following the considerations described in the previous chapter.

The measurement of variables in the research model uses a scale according to the construct. In measurement, data is used on a scale to distinguish one unit of analysis from another, namely individuals as research respondents. (Sekaran and Bougie, 2016) The measurement scale in research can be divided into four types: nominal scale, ordinal scale, interval scale, and ratio scale. In this study, an ordinal scale was used to determine the differences between each construct where it was possible to convert the data received from the respondents through the questionnaire question items into a numeric form or in numbers.

In this study, a Likert scale with 5 points was used. The Likert scale is the most commonly used in social research, including management research. This Likert scale uses five points with levels from one (1), which strongly disagrees, two (2) disagrees, three (3) are neutral, four (4) agrees, and five (5) firmly agree. (Sekaran & Bougie, 2016). This Likert scale has the advantage that it is easy to use where respondents can quickly and easily understand how to use the scale. By using a Likert scale, respondents can express their agreement more precisely for each statement submitted.(Baltimore, 2021)

#### 2.4 Conceptual Definition and Operationalization of Variables

An operational definition is the reduction of an abstract concept from one variable to make it measurable in a tangible way. (Sekaran and Bougie, 2016). The conceptual and operational definitions of the variables in this study, along with their sources, are summarized in the table below:

**Table 1.** Conceptual Definition and Operationalization of Variables

| Variables                              | Conceptual Definition                                                                                                                                            | Symbol | Operationalization of Variables                                                                 | Sources/Scales                              |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------|---------------------------------------------|
| <b>Hospital Environment</b>            | The hospital environment is created to provide patients with a comfort/commodity, health (cleanliness, solidity) and well-being. (Rohde <i>et al.</i> , 2020)    | HE1    | My bathroom are often cleaned by hospital staff                                                 | (Baltimore, 2021)<br>Skala Likert (1 s/d 5) |
|                                        |                                                                                                                                                                  | HE2    | The inpatient room and surroundings are quiet at night                                          |                                             |
| <b>Communication with patient</b>      | Activities that aim to collect data and information so that hospital staff can understand the tasks that must be done to patients. (Dwyer, 2018)                 | C1     | Nurses often treat me politely                                                                  | (Baltimore, 2021)<br>Skala Likert (1 s/d 5) |
|                                        |                                                                                                                                                                  | C2     | Nurses often listen to me carefully                                                             |                                             |
|                                        |                                                                                                                                                                  | C7     | Before giving the new medicine, the hospital staff informed me about the use of the medicine    |                                             |
|                                        |                                                                                                                                                                  | C8     | Before giving a new drug, hospital staff often explain the possible side effects that can occur |                                             |
| <b>Responsiveness to Patient Needs</b> | The elapsed time from the point when the patient makes a complaint/request to the point when a reply from the hospital staff is received. (Istanbulluoglu, 2017) | RPN1   | During treatment, I often get help as soon as I ask for help                                    | (Baltimore, 2021)<br>Skala Likert (1 s/d 5) |
|                                        |                                                                                                                                                                  | RPN2   | I am often helped to go to the bathroom as soon as I need it                                    |                                             |
|                                        |                                                                                                                                                                  | RPN3   | I am often helped to get to the mattress as soon as I need it                                   |                                             |
| <b>Overall Rating of Hospital</b>      | The value of standardized surveys and data collection methodologies for                                                                                          | HR1    | How much value do you give to the hospital facilities during your hospitalization?              | Skala Likert (1 s/d 5)                      |

|                                          |                                                                                                                           |     |                                                                                     |                                             |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|---------------------------------------------|
|                                          | measuring patient experience and satisfaction in many of the world's hospitals. (Herrin, Mockaitis and Hines, 2018)       | HR2 | How much value do you give to the hospital's health workers during hospitalization? |                                             |
|                                          |                                                                                                                           | HR3 | How much value do you give to the hospital during hospitalization?                  |                                             |
| <b>Willingness to Recommend Hospital</b> | Percentage of patients surveyed to indicate that they would recommend a hospital to others. (Farris <i>et al.</i> , 2016) | WR1 | I will recommend this hospital to friends                                           | (Baltimore, 2021)<br>Skala Likert (1 s/d 5) |
|                                          |                                                                                                                           | WR2 | I will recommend this hospital to my family                                         |                                             |
|                                          |                                                                                                                           | WR3 | I will recommend this hospital to people I don't know                               |                                             |

Source: Results of research data processing (2022)

## 2.5. Population and Sample

Sampling is a process of selecting a sample in sufficient quantity precisely from the population so that the sample is understood and its characteristics or characteristics are studied. The population in the study is the total number of individuals whose traits or characteristics are to be analyzed. In comparison, the sample is part of the population whose properties or characteristics can represent the population. Therefore, the analysis results on the sample are possible to be generalized to the population. (Sekaran & Bougie, 2016). The population in this study was all hospitalized in a hospital. There are several criteria used to select the sample of respondents who will fill out the research questionnaire, namely: The respondents have four mandatory criteria that must be met:

1. Be 18 years of age or older at the time of entry.
2. At least one night stay in the hospital as an inpatient.
3. MS-DRG/primary non-psychiatric diagnosis at discharge.
4. Live on exit.

### a. Determination of Number of Samples

Sampel pada penelitian ini adalah pasien yang menjalani rawat inap di Rumah Sakit Umum Daerah Bangka Tengah. Pengambilan sampel tersebut dilakukan di bulan Januari-Februari 2022. Berdasarkan pendekatan sampel minimal untuk metode *partial least square – structural equation modelling* (PLS-SEM) dari (Kock and Hadaya, 2018), The minimum sample size required is 160 respondents when using the inverse square root method. This minimal sample will give optimal results in calculations with PLS-SEM. Because this study uses the PLS-SEM analysis method, the minimum value of 160 is a consideration in determining the minimum sample size.

### b. Sampling Method

The sampling method was carried out using the purposive sampling method in this study, meaning that the sample was taken from certain target groups from the population. Sampling with this purposive sampling method is limited to specific individuals who can provide the desired information, either because they have it or fit some criteria set out in the study. (Sekaran and Bougie, 2013). One of the respondent's mandatory criteria is a patient who uses a health consultation service application. If the respondent meets these criteria and voluntarily agrees to be a research respondent, the person concerned will be sent a link to a questionnaire filled out online or offline.



## 2.6 Method of Collecting Data

The data in this study were obtained directly from the respondents through a questionnaire. The questionnaire was conducted by giving several written statements to the respondents to be answered or given approval. For variable questions, each statement given is equipped with five answer choices in the form of a Likert scale with five points. In addition to variable questions, the questionnaire is also equipped with questions about the demographic profile of the respondents and their behavior related to the quality of inpatient services.

## 2.7 Data Analysis Method

The data analysis method used in this study uses a multivariate analysis approach because the research model proposed is quite complex and uses latent variables or constructs (Sekaran & Bougie, 2016). This research model has eleven variables with ten paths and two mediating variables. Therefore, we need an analytical method to test the effect between variables simultaneously or towards the dependent variable (independent). Furthermore, the various available multivariate analysis methods were selected using the analysis method of partial least squares - structural equation modeling (PLS-SEM) based on variance.

The PLS-SEM method is used for various reasons; first, the nature of the analysis is to develop theories in exploratory research. It is different from co-variance based or CB-SEM, where the confirmatory approach. The following reason is that the PLS-SEM method is under the research objective, namely to test the proposed research model whether it has an explanation and predictive abilities in this study for further development.(Hair *et al.*, 2018) The last reason is that PLS-SEM does not require input data usually distributed.

## III. Results and Discussion

### 3.1 Results

This quantitative research explores the hospital environment, communication with patients, and responsiveness concerning the willingness to recommend a regional general hospital in Bangka Belitung Province. This study obtained as many as 164 respondents willing to survey from January to February 2022. The outer loading value is the required value as the limit for each indicator so that it can be said to be reliable. In PLS-SEM, an indicator can be reliable if the outer loading value is more than 0.708.(Hair *et al.*, 2018)

**Table 2.** Outer Loading

|      | Outer Loading |
|------|---------------|
| CP1  | 0.704         |
| CP2  | 0.779         |
| CP7  | 0.771         |
| CP8  | 0.734         |
| HE1  | 0.806         |
| HE2  | 0.830         |
| ORH1 | 0.841         |
| ORH2 | 0.784         |
| ORH3 | 0.814         |

|             |              |
|-------------|--------------|
| <b>RPN1</b> | <b>0.808</b> |
| <b>RPN2</b> | <b>0.839</b> |
| <b>RPN3</b> | <b>0.789</b> |
| <b>WR1</b>  | <b>0.703</b> |
| <b>WR2</b>  | <b>0.816</b> |
| <b>WR3</b>  | <b>0.832</b> |

Source: PLS-SEM Research Data Processing Results (2021)

Based on the results of the tests carried out as shown in the table above, all indicators of the hospital environment variable, overall rating of a hospital, and willingness to recommend have a reliable value to measure the construct. The communication with patient variable has four reliable variables followed by three indicators of responsiveness to patient needs. These variables have outer loading values above 0.708 as the required limit. (Hair *et al.*, 2018) Based on this, it can be concluded that all indicators in this study are reliable to measure the construct.

In the analysis of the outer model, reliability tests were carried out regarding the composite reliability value. The required value in assessing composite reliability is expected to be between 0.7 to 0.95. The composite reliability value of 0.95 is considered the upper bound; if it is greater than that value, it can be assumed that there is redundancy in indicators. In testing construct validity or a reflective model, it is called convergent validity; the value used as a reference is the average variance or average variance extracted (AVE). A variable can be declared valid if the AVE value is more than 0.50.(Hair, Howard and Nitzl, 2020)

**Table 3.**Construct Reliability

|                                        | <b>Composite Reliability</b> | <b>Average Variance Extracted (AVE)</b> |
|----------------------------------------|------------------------------|-----------------------------------------|
| <b>Communication with Patients</b>     | <b>0.835</b>                 | <b>0.559</b>                            |
| <b>Hospital Environment</b>            | <b>0.802</b>                 | <b>0.669</b>                            |
| <b>Overall Rating of Hospital</b>      | <b>0.854</b>                 | <b>0.662</b>                            |
| <b>Responsiveness to Patient Needs</b> | <b>0.853</b>                 | <b>0.660</b>                            |
| <b>Willingness to Recommend</b>        | <b>0.828</b>                 | <b>0.617</b>                            |

Source: PLS-SEM Research Data Processing Results (2021)

From the test data, it can be concluded that all indicators have been declared reliable to measure the construct. The table above shows that the composite reliability of all variables has a value between 0.7 as the lower limit to 0.95 as the upper limit. The average variance extracted (AVE) on all research variables has a value of more than 0.50 as required. Based on this, it can be concluded that the indicators in this research model have been considered valid to measure their respective constructs jointly.

This study conducted a nomological validity test to see how one construct was correlated with each construct. The correlation results for each construct show that each construct provides a positive correlation, as shown in table 4.



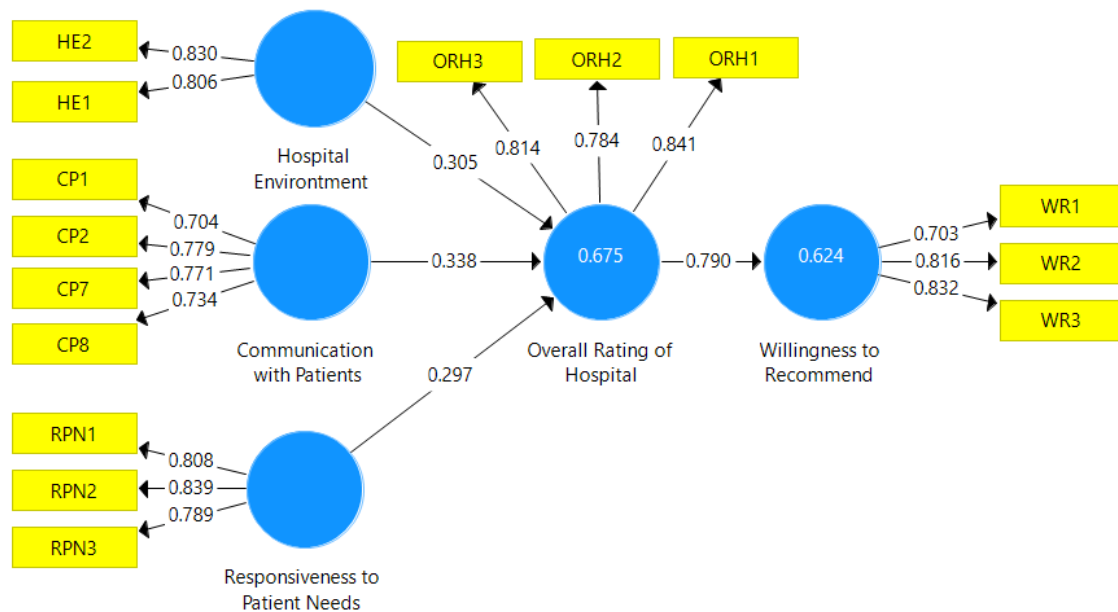
**Table 4.** Correlation Between Each Variable

|      | CP1   | CP2   | CP7   | CP8   | HE1   | HE2   | ORH1  | ORH2  | ORH3  | RPN1  | RPN2  | RPN3  | WR1   | WR2   | WR3   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CP1  | 1.000 | 0.429 | 0.403 | 0.291 | 0.412 | 0.363 | 0.556 | 0.436 | 0.311 | 0.416 | 0.473 | 0.408 | 0.312 | 0.586 | 0.269 |
| CP2  | 0.429 | 1.000 | 0.485 | 0.411 | 0.343 | 0.215 | 0.391 | 0.634 | 0.320 | 0.476 | 0.481 | 0.335 | 0.374 | 0.555 | 0.535 |
| CP7  | 0.403 | 0.485 | 1.000 | 0.445 | 0.411 | 0.297 | 0.498 | 0.403 | 0.353 | 0.534 | 0.403 | 0.452 | 0.353 | 0.512 | 0.453 |
| CP8  | 0.291 | 0.411 | 0.445 | 1.000 | 0.386 | 0.427 | 0.462 | 0.440 | 0.538 | 0.495 | 0.399 | 0.519 | 0.495 | 0.482 | 0.451 |
| HE1  | 0.412 | 0.343 | 0.411 | 0.386 | 1.000 | 0.338 | 0.535 | 0.294 | 0.495 | 0.292 | 0.385 | 0.503 | 0.343 | 0.521 | 0.300 |
| HE2  | 0.363 | 0.215 | 0.297 | 0.427 | 0.338 | 1.000 | 0.463 | 0.454 | 0.486 | 0.467 | 0.380 | 0.394 | 0.406 | 0.499 | 0.349 |
| ORH1 | 0.556 | 0.391 | 0.498 | 0.462 | 0.535 | 0.463 | 1.000 | 0.476 | 0.572 | 0.486 | 0.482 | 0.557 | 0.274 | 0.655 | 0.465 |
| ORH2 | 0.436 | 0.634 | 0.403 | 0.440 | 0.294 | 0.454 | 0.476 | 1.000 | 0.429 | 0.622 | 0.502 | 0.341 | 0.525 | 0.473 | 0.607 |
| ORH3 | 0.311 | 0.320 | 0.353 | 0.538 | 0.495 | 0.486 | 0.572 | 0.429 | 1.000 | 0.358 | 0.484 | 0.520 | 0.322 | 0.534 | 0.600 |
| RPN1 | 0.416 | 0.476 | 0.534 | 0.495 | 0.292 | 0.467 | 0.486 | 0.622 | 0.358 | 1.000 | 0.532 | 0.429 | 0.484 | 0.391 | 0.638 |
| RPN2 | 0.473 | 0.481 | 0.403 | 0.399 | 0.385 | 0.380 | 0.482 | 0.502 | 0.484 | 0.532 | 1.000 | 0.508 | 0.325 | 0.461 | 0.536 |
| RPN3 | 0.408 | 0.335 | 0.452 | 0.519 | 0.503 | 0.394 | 0.557 | 0.341 | 0.520 | 0.429 | 0.508 | 1.000 | 0.329 | 0.620 | 0.486 |
| WR1  | 0.312 | 0.374 | 0.353 | 0.495 | 0.343 | 0.406 | 0.274 | 0.525 | 0.322 | 0.484 | 0.325 | 0.329 | 1.000 | 0.386 | 0.432 |
| WR2  | 0.586 | 0.555 | 0.512 | 0.482 | 0.521 | 0.499 | 0.655 | 0.473 | 0.534 | 0.391 | 0.461 | 0.620 | 0.386 | 1.000 | 0.472 |
| WR3  | 0.269 | 0.535 | 0.453 | 0.451 | 0.300 | 0.349 | 0.465 | 0.607 | 0.600 | 0.638 | 0.536 | 0.486 | 0.432 | 0.472 | 1.000 |

Source: PLS-SEM Research Data Processing Results (2021)

### 3.2 Discussion

This research model has five variables with four paths marked as arrows to describe the research hypothesis. The picture of the research model and the hypothesis is shown in Figure 5. This research model was adopted from previous research.(Westbrook, Babakus and Grant, 2014) Willingness to recommend becomes the dependent variable influenced by the overall rating as a mediator variable. The hospital environment, communication with patients, and responsiveness to patient needs are antecedents that affect the overall rating of the hospital.



**Figure 1.** Research Model

The dependent variable hospital environment, communication with patients, and responsiveness to patient needs gave an R<sup>2</sup> value of 0.675 to the overall rating of the hospital mediating variable. The mediating variable succeeded in showing a strong positive influence on willingness to recommend with R<sup>2</sup> 0.624 and mediated the independent variable's influence. This finding is in line with previous research (Westbrook, Babakus and Grant, 2014), which showed that an increase in the overall rating of the hospital could increase willingness to recommend.

**Table 5. Bootstrapping**

|                                                                         | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics ( O/STDEV ) | P Values     |
|-------------------------------------------------------------------------|---------------------|-----------------|----------------------------|--------------------------|--------------|
| <b>Communication with Patients -&gt; Overall Rating of Hospital</b>     | 0.338               | 0.341           | 0.066                      | 5.116                    | <b>0.000</b> |
| <b>Hospital Environment -&gt; Overall Rating of Hospital</b>            | 0.305               | 0.300           | 0.056                      | 5.464                    | <b>0.000</b> |
| <b>Overall Rating of Hospital -&gt; Willingness to Recommend</b>        | 0.790               | 0.789           | 0.044                      | 17.937                   | <b>0.000</b> |
| <b>Responsiveness to Patient Needs -&gt; Overall Rating of Hospital</b> | 0.297               | 0.296           | 0.050                      | 5.895                    | <b>0.000</b> |

Source: PLS-SEM Research Data Processing Results (2021)

From table 5, related to the results of the hypothesis test above, it can be seen that of the four hypotheses in the research model tested, it was found that all of them had significant values with positive coefficient values following the direction of the proposed hypothesis. The description for each hypothesis is explained in further discussion.

#### **a. Correlation between Hospital Environment and Overall Rating of Hospital**

The hospital environment significantly affects the overall hospital rating, with a p-value of 0.000. The standardized coefficient value in this hypothesis is obtained at 0.305, which means it has a positive direction according to the direction of the hypothesis. One aspect of comfort in hospitals that is often overlooked is the psychological effect of inadequate privacy, especially relevant where a person rests. (Rohde *et al.*, 2020) One of these comforts is the acoustic aspect, divided into three acoustic performance problems.

Regarding isolation between resting areas:

1. Absence of unwanted noise
2. Desired sound of the right level and quality
3. Opportunity for activities without being heard by others or disturbing them

While the first issue is a typical comfort issue, the second can include architectural acoustics and exposure to pleasant sounds like water drops or birds chirping. A third problem is the psychological effect of noise, with long-term adverse physical implications. Acoustic comfort is an essential aspect for a person regarding the person as a sound receiver and a sound source. Noise exposure can not only disturb but also know that one's activities can be heard by others, which indicates a lack of privacy in the environment. (Rasmussen, 2010)

Cleanliness is considered the condition of the hospital environment that can affect the perception and value of the hospital. Cleanliness, and more specifically visible dirt and

stains, as well as the presence of litter, the perception of the cleanliness of the hospital environment, affects the perception of actual cleanliness. The cleanliness of the hospital environment can also affect the perception of service quality in the hospital environment. The quality of hospital services (e.g., medical care, catering) is considered worse when the actual cleanliness of the hospital does not meet visitor expectations.(Vos *et al.*, 2018) Cleanliness and silence in the hospital environment are assessed in the rating of the hospital as a value of patient satisfaction in the hospital in terms of the hospital environment.

#### **b. Relationship between Communication with Patient and Overall Rating of Hospital**

Communication with patients has a significant effect on the overall rating of the hospital, with a p-value of 0.000. The standardized coefficient value in this hypothesis is obtained at 0.338, which means it has a positive direction according to the direction of the hypothesis. Communication is associated with patient-centeredness and is a critical element of many models of patient-centered approaches. Previous research has focused on the role of patient-level factors in predicting satisfaction with physician-nurse communication, showing that in most circumstances, patients prefer patient-centered communication over physician-centered or directed communication.(McFarland, Johnson Shen and Holcombe, 2017) HCAHPS divides communications in hospitals by profession and information discussed. Communication by profession in HCAHPS is divided into communication with doctors and nurses. Communication-based information in-hospital care is divided into communication about treatment (purpose of drug administration/actions and side effects) and information about discharge (advice during outpatient care and signs and symptoms to pay attention to when outpatient).(Herrin, Mockaitis and Hines, 2018)

#### **c. Relationship between Responsiveness to Patient Needs and Overall Rating of Hospital**

Responsiveness to patient needs has a significant effect on the overall rating of the hospital, with a p-value of 0.000. The standardized coefficient value in this hypothesis is obtained at 0.297, which means it has a positive direction according to the direction of the hypothesis. Quick and positive response to consumer complaints improves the company's image and increase customer loyalty, but also has a more substantial influence on overall complaint satisfaction than other factors that affect satisfaction. Similar to communication, receiving a faster response has a positive impact on consumer perceptions of the company and post-complaint satisfaction.(Istanbulluoglu, 2017)

Responsiveness is one of the critical factors affecting post-complaint satisfaction. There are two benefits of quick response: ensuring that consumer problems are resolved promptly and emphasizing that the company pays attention to consumer concerns. As a result, overall customer satisfaction is directly related to good response times. When consumers receive faster responses, their satisfaction and perception of their response will increase. (Istanbulluoglu, 2017)

In addition, because the effect of response time on satisfaction levels is context-specific and shaped by situational and personal factors, the purpose of the complaint can also affect consumer satisfaction with complaint handling. Findings from the Istanbulluoglu study (2017) show that a faster first response and a faster conclusive response result in higher satisfaction in handling complaints. (Istanbulluoglu, 2017)

#### d. Correlation between Overall Rating of Hospital and Willingness to Recommend

Overall rating of the hospital has a significant effect on willingness to recommend with a p-value of 0.000. The standardized coefficient value in this hypothesis is obtained at 0.790, which means it has a positive direction according to the direction of the hypothesis. Believing that the delivery of high service quality is an aspect that must be considered to achieve several desired behavioral, organizational, and societal outcomes, service quality continues to attract the attention of scholars and marketing practitioners. It remains at the forefront of service, marketing literature, and practice. Interest is largely driven by the awareness that high service quality results in customer satisfaction and loyalty, greater willingness to recommend to others, reduced complaints, increased customer retention/return rates and organizational effectiveness, efficiency, and long-term profitability.(Yavas *et al.*, 2016)

An empirical study found that high service quality results in customer satisfaction and loyalty, greater willingness to recommend to others, reduced complaints, increased customer retention/return rates, organizational effectiveness, efficiency, and long-term profitability. The study implies that in order to maintain or improve the overall quality rating of the hospital and the tendency of patients to recommend the hospital, the top management of the hospital should take concerted action, above all, to improve quality based on the components contained in the HCAHPS questionnaire used to assess hospital ratings. sick.(Westbrook, Babakus and Grant, 2014)

### IV. Conclusion

This study found that the hospital environment, communication with patients, and responsiveness to patient needs had a significant positive effect on the overall rating of the hospital, which then described a significant positive effect on willingness to recommend. Further research is needed to find out other mediating variables that can affect the correlation with the willingness to recommend a hospital to determine external and internal factors that can improve the quality of the hospital in its services to patients and their families.

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