


# Level of Acceptance of Telemedical Innovation and Its' Correlation in Health Service At Medistra Hospital

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Article info	Abstract
<p><b>Article history:</b> Received: November 27<sup>th</sup>, 2022 Revised: January 08<sup>th</sup>, 2023 Accepted: February 08<sup>th</sup>, 2023</p> <hr/> <p><b>Corresponding author:</b> Michael Aditya Marjoto Address: Universitas Esa Unggul, Jalan Arjuna Utara, Kebon Jeruk, Jakarta Barat E-mail: <a href="mailto:michael.adityamaryoto@student.esaunggul.ac.id">michael.adityamaryoto@student.esaunggul.ac.id</a></p> <hr/> <p>International Journal of Nursing and Health Services (IJNHS) Volume 6, Issue 1, February 20<sup>th</sup>, 2023 DOI: 10.35654/ijnhs.v6i1.714 E-ISSN: 2654-6310</p>	<p><b>Background:</b> The development of telemedicine for patient care, especially during the COVID-19 pandemic, is essential to improve the quality of hospital services. <b>Objective:</b> The study aimed to examine whether the perception of innovation attribute factors simultaneously influences the level of acceptance of telemedicine in Medistra hospitals. <b>Method:</b> This study applied the cross-sectional design. The samples were all polyclinic nurses, outpatient admins, outpatient billing, and general practitioners at Medistra Hospital, totaling 120 respondents. <b>Result:</b> The transformational leadership style, career development, and commitment of health workers have a direct influence on performance of health workers. The results of the indirect effect indicate that the commitment of health workers is more dominant in mediating the impact of career development on the performance of health workers. <b>Conclusion:</b> The management unit needs to pay more attention to employee career development training to obtain a career path in the hospital by increasing their work. <b>Recommendation:</b> Further researchers need employee performance to expand the other factors work discipline factors, work culture, motivation, and others, using the broad population.</p> <p><b>Keywords:</b> innovation acceptance, innovation diffusion, technology acceptance model, telemedicine, health service innovation</p>
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## Introduction

In the world of health, technological developments, especially in the field of information and digitization, have provided a change in health services, especially in developing countries. The changes offered include fast access, cost-effectiveness, and quality care (1). Telemedicine technology benefits developing countries where access to essential services is a significant concern (2).

Historically, telemedicine has been carried out since the 1960s in line with the emergence of technology in the world of military and space (3). The development of telemedicine technology continued to grow until the 2000s. It became known as telemedicine consultations conducted by patients and doctors. This development was followed by implementing technology in Smart Phones or applications (3).

The interest of the Indonesian people to seek treatment abroad is also relatively high due to several things, such as the gap in the quality of health services, the uneven distribution of medical personnel (especially Specialists) is an obstacle that is difficult to overcome (4). According to IDI data, in 1 year, Indonesian people who seek treatment abroad reach nearly 1 million people with the leading destination Malaysia. From this visit, there has been a transaction value of at least IDR 20 trillion (5). Therefore the use of telemedicine in health services is critical and becomes an opportunity, especially in increasing access to health services

In technology development, the thing that determines whether the technology is continued is discussed through the innovation diffusion theory. This theory, developed by Everett M. Rogers, explains that innovation is a process that occurs because an idea or ideas or products are introduced through all communication media (having many channels) all the time to a group of members of the social system (6).

The innovation process occurs through communication through specific channels all the time to a group of members of the social system. For an innovation to be more easily

adopted by society, Rogers said there are characteristics of the innovation that need to be met. These characteristics are relative advantage, compatibility, complexity, trialability, and observability. An innovation with these five characteristics is believed to be adopted more quickly in society (6).

In Medistra hospital, the Covid-19 pandemic in 2020 became the starting point for telemedical innovations widely accepted by Indonesia's medical community, including hospitals. Medistra. However, the condition of the hospital still needs to implement information technology for operational activities in an up-to-date and comprehensive manner. The gap between the readiness to use technology, the desire to use technology, and the need for innovation is an obstacle to implementing innovation in this organization.

Therefore, the gaps and needs are expected by the workforce in hospitals. Medistra is the basis for researchers to look at the factors involved in accepting this innovation in the Medistra hospital environment so that in the future, the existing telemedicine services can be maximized and increasingly meet the needs of Medistra Hospital medical personnel.

## OBJECTIVE

The study aimed to examine whether the perception of innovation attribute factors simultaneously influences the level of acceptance of telemedicine in hospitals. Medistra.

## METHOD

### Design

This study applied the cross-sectional design to determine the correlation between innovation attributes, including relative advantage, compatibility, complexity, trialability, and observability, on the acceptance of technology.

### Sample, sample size, & Sampling technique

The samples were all polyclinic nurses, outpatient admins, outpatient billing, and general practitioners at Medistra Hospital,

totaling 120 respondents. In this study, the sampling technique taken was the saturated sampling technique.

### The instrument for data collection

The questionnaire on innovation was applied to measure the attribute of innovation. The instrument's dimension includes relative advantage, compatibility, complexity, trialability, and observability. The likert scale such as 1=Strongly Agree, 2=Agree, 3=Neutral, 4=Disagree, and 5=Strongly Disagree. Validity and reliability testing were used to ensure the appropriate instrument in this study. The Cronbach alpha was 0.83, which indicated a reliable instrument.

The level of acceptance of technology questionnaire was used to measure the level of acceptance of technology among healthcare workers on telemedicine innovation. The likert scale such as 1=Strongly Agree, 2=Agree, 3=Neutral, 4=Disagree, and 5=Strongly Disagree. Validity and reliability testing were used to ensure the appropriate instrument in this study. The Cronbach alpha was 0.86, which indicated a reliable instrument.

### Data Analysis

Descriptive analysis in this study used the three-box method technique to obtain the tendency of respondents' answers to each variable. Data analysis in this study was carried out using multiple regression analysis. Multiple regression analysis is used to predict the condition (rise and fall) of the dependent variable if two or more independent variables as predictors are manipulated (the value is increased or decreased). Therefore, a multiple regression analysis will be carried out if the number of independent variables is at least two. The multiple regression formula is as follows.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

## Results

### Characteristic of respondents

Table 1 shows the characteristic of respondents. The results found that more than

half of the respondents were women (56.82%). The average age among respondents is between 18 to more than 41 years old. About 34% of them graduated with a diploma. Almost half respondents have been the length of work less than three years.

**Table 1. Characteristic of respondents**

Variables	F	%
<b>Gender</b>		
Man	14	
Woman	106	
<b>Age</b>		
> 30 years	30	26.14
31 - 40 years	43	28.41
41 - 50 years	33	27.27
> 50 years	14	18.18
<b>Last education</b>		
High school or equivalent	17	19.32
Diploma	30	34.09
Bachelor	19	21.59
Postgraduate	22	25.00
<b>Length of Work at Siloam Hospital</b>		
<3 years	36	40.91
36 years old	19	21.59
Six years - 12 years	20	22.73
> 12 years	13	14.77

### Correlation between innovation attributes with acceptance level of technology

Tabel 2 discussed the correlation between innovation attributes with acceptance level of technology. The result found that five attributes of innovation have positive correlation with acceptance level of technology. The compatibility of technology has a strong correlation with acceptance level of technology with  $r=0.8$ . While the weakness correlation from complexity with  $r=0.41$ .

**Table 2. Correlation between innovation attributes with acceptance level of technology**

Attributes of technology	r
Relative advantage	0.77**
Compatibility	0.8**
Complexity	-0.5**
Trialability	0.76**
Observability	0.65**

### The effect of technologycal attributes on acceptance level of technology simultaneously

The regression testing showed the technological attributes was significantly effect on level of technology simultaneously with  $F = 64.61$ ,  $p < 0.001$ . The attributes of technology could predict the level of technological acceptance with formula below:

$$\begin{aligned} \text{Level of} & -2.91 + 0.5 (\text{Compatibility}) \\ \text{acceptance on} & + 0.26 (\text{Triability}) + 0.16 \\ \text{technology=} & (\text{Observability}) \end{aligned}$$

**Table 3. The effect of technological attributes on acceptance level of technology simultaneously**

Attributes of technology	F	B	r
Regression	64.61**		
Constant		-2.91	-1.56
Relative advantage		-0.01	-0.1
Compatibility		0.5	3.75***
Complexity		0.06	0.94
Triability		0.26	2.82**
Observability		0.16	2.02*

Note: \*\*\* $<0.001$ ; \*\* $<0.05$

## Discussion

The results found that there was a relative advantage was significantly effect on acceptance level of technology among employees at Medistra Hospital. This finding was consistent with a study explained that the existence of relative advantages makes it easier for users to accept new technology, especially when these advantages can be felt by users (7). This finding is also in line with a meta-analysis study which states that the main predictor factor that influences user acceptance is perceived usefulness by users (8). This means, the more potential users feel the use or benefits of technology, the more likely they are to use the technology.

The results of the regression test show the effect of compatibility on the level of technology acceptance. This finding is in line with a study reported that an innovation needs to be considered consistent with existing values, past experiences and potential needs (9). In this study, telemedicine was considered to be compatible with the process

of treating patients face-to-face so that it is easily accepted by users.

This finding was consistent with a previous which states that telemedicine users are able to assess their abilities and feel that telemedicine is compatible with their values and goals in treating patients (10). Another study shows that the application of social network-based telemedicine applications using cloud computing technology needs to be developed through the use of telemedicine as needed (11). Innovation can be more easily adapted if the innovation is in accordance with the values and background of potential users

There is an effect of trial (traibility) on the level of acceptance of technology. This finding is in line with a study mentioned that triability is make more easily accepted on innovation by users (12). A study also described technology acceptance model (TAM) applications shows that socialization self-efficacy affects perceived ease of use and usefulness of technology, perceived ease of use of technology affects perceived usefulness and attitudes towards technology use, perceived usefulness influences attitudes (13-14).

A concept showed the positive correlation between observability dimension with the level of acceptance of technology. This finding is in line with a study showed use of telemedicine for employees to accept the development of this technology (15).

## Conclusions

There is an influence of innovation attribute factors simultaneously on the level of acceptance of technology among employees at Medistra Hospital. The application of the innovation diffusion theory in this study proves that the innovation diffusion theory still has an influence on the role of acceptance of an innovation at this time

## Implication

Hospital researchers and management can determine the level of innovation acceptance of telemedicine services in Medistra Hospitals and can use the research

data as a basis for improvement and evaluation for hospital development. Input and suggestions for improvement for Hospital Management by looking at the innovation attribute factors that play a role in the acceptance rate of Innovation so that in the future the application of telemedicine in hospitals can be increasingly accepted by employees, telemedicine needs to have things that are superior compared to the previous method

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