

## Implementatiton of Evaluation Registration Outpatient Computerized Hospital Using a Web-based Technology Accepted Model System

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### Abstract

The Information of health system is combination of devices and procedures used for manage information cycle from data collection to providing feedback infomation, for support the implementation of appropriate actions in planning, implementation and monitoring of health system performance. Outpatient registration is the main service received at an outpatient registration. Technologi Accepted Model System created using the PHP programming language and mysql database. The WEB-based Technology Acceptance Model (TAM) is in the form of all evaluation models that can determine the readiness of officers to accept a system. Application of the Web-based Technology Accepted Model System in Evaluating officer acceptance of the computerized Outpatient Registration information system at a hospital in Boyolali, Central Java, Indonesia. The Technology Accepted Model in this study used 5 variables where the results of the implementation of the Technology Accepted Model System showed that the analysis of customer satisfaction with outpatient application systems on the Perceived ease of use dimension obtained satisfied results of (64.8%), on the Perceived usefulness dimension the results obtained satisfied by (63.3%), on the Attitude toward using dimension obtained satisfactory results of (64%), on the Behavioral intention to use dimension obtained appropriate results of (69%), on the Perceived service availability dimension obtained very satisfied results as large as (69,3%). Conclusions from the dimensions of Perceived ease of use, Perceived usefulness, Attitude toward using. Behavioral intention to use, and Perceived service availability indicate that officers are satisfied with the Outpatient Registration Application System at Hospitals.

Keywords: Outpatient Registration Information System, TAM, Evaluation.

### 1. INTRODUCTION

The development of science and technology is currently growing rapidly spreading to all corners of the world. For example, the use of technology equipped with information application programs will produce accurate data. quickly and precisely that can improve services to patients in health services.

Health service facilities provided for the community, starting from registration until processing data, hope to be able to provide services in an appropriate, effectiv, and efficient. The existence of appropriate, effective and efficient information will make it easier for a health facility to provide the right service according to the patient's condition. From the results of observations, in order to speed up the service process in the health sector, several health service facilities such as hospitals have started to adopt a manual system to a computerized system.

Hospital is a health service institution that organizes full individual health services that provide inpatient services outpatient care, and emergency care [1][4][6][9]. The transition from a manual to a computerized system has several obstacles. One of them is the user's confidence and willingness to use a computer system[3][5].

The Technology Acceptance Model (TAM) is a model that is considered the most intense in explaining how individuals accept a system [2][8]. Individuals here can be hospital staff who deal with hospital information systems every day. Hospitals are health facilities that must be ready 24 hours. The use of hospital information systems is expected to help the performance of officers in hospital management and serving patients.

Application of the Web-based Technology Accepted Model System in Evaluating officer acceptance of the computerized Outpatient Registration information system at a Hospital in Boyolali, Central Java, Indonesia the hospital already has standard facilities and services as a Type D General Hospital General Hospital which will continue to grow in the future. Outpatient registration can be done through the Online Hospital. And this relates to the ability of officers to use the system, because the system will help the user's performance if the user is easy and has a desire to use the hospital management information system[7][10][11].

The purpose of this study is the Application of the Web-based Technology Accepted Model System in evaluating employee acceptance of the Outpatient Registration information system so that it can be used as material for consideration in developing hospital information systems in the future[7]. As material for consideration and evaluation of the Hospital in developing an integrated information system and knowing the readiness of officers to use the system

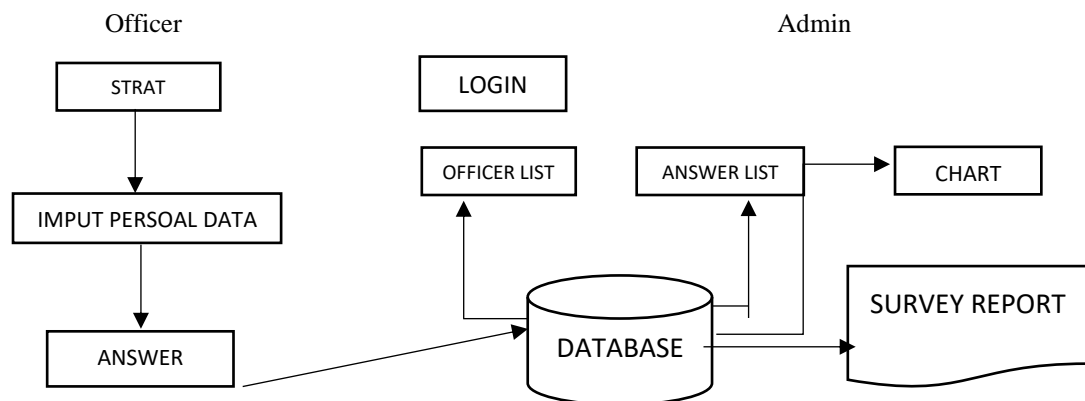
## II. RESEARCH METOD

This method used in this research is descriptive, namely research conducted with the main objective of making an description or describe a situation objectively. Descriptive research is used to make research on the stages of a condition and the implementation of a program in the present. then the results are used to develop plans to improve the program [3].

Built system :

### 1. Developed Flowchart

The flowchart that will be developed in the Implementation of Hospital Outpatient Registration Evaluation with the Web-Based Accepted Model Technology System[2].



**FIGURES 1.** Flowchart Implementation of Hospital Outpatient Registration Evaluation with the Web-Based Technology Accepted Model System [2].

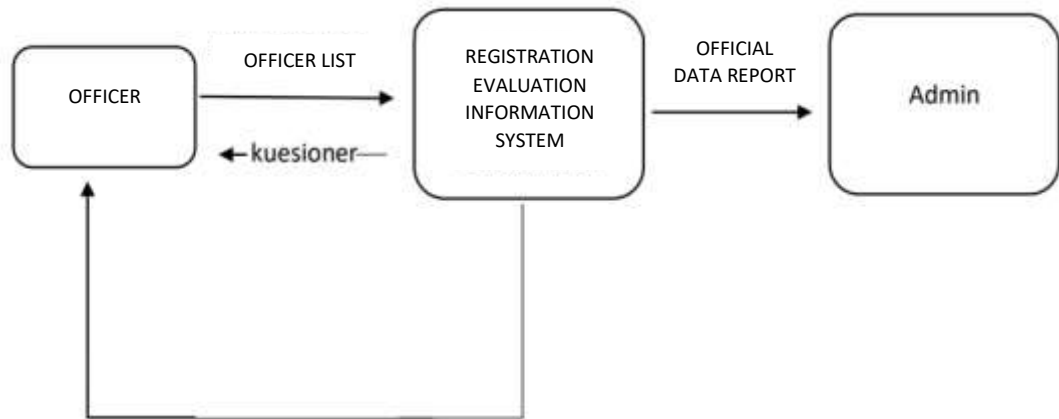
Starting from the officer login then displaying the page, the dashboard which has several menus, which contains officer data processing, question data processing and report data processing. After processing the data for the 5 questions the officer can also manage reports that display the results of the respondents' answers in the form of statistics. Then it can also print the report if not then exit but if it does then print display. after that it worked and exited then done.

### 2. System Design

The system design consists of Data Flow Diagrams (DFD), database designs, input designs, maintenance designs and screen dialog designs.

#### a. Context Diagrams

Context diagram on the outpatient registration evaluation information system for officers.

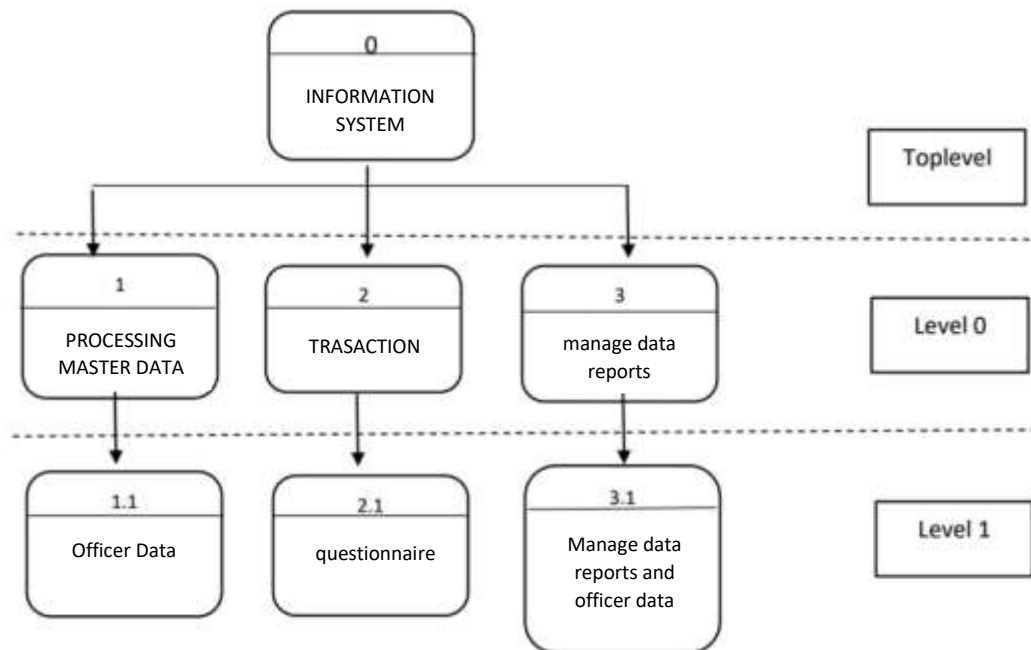


**FIGURES 2.** Context diagram on the outpatient registration evaluation information system for officers

The data flow from Admission dept outpatient providing officer data, and then send to database Outpatient Registration Evaluation Information System for Officers. In the data flow, officers provide officer data, then channeled to the Outpatient Registration Evaluation Information database, officers are returned to the flow to provide questionnaires. After all the data is obtained then the data report results appear to the User.

b. Trier Diagrams

A tiered chart on the outpatient registration evaluation information system for officers

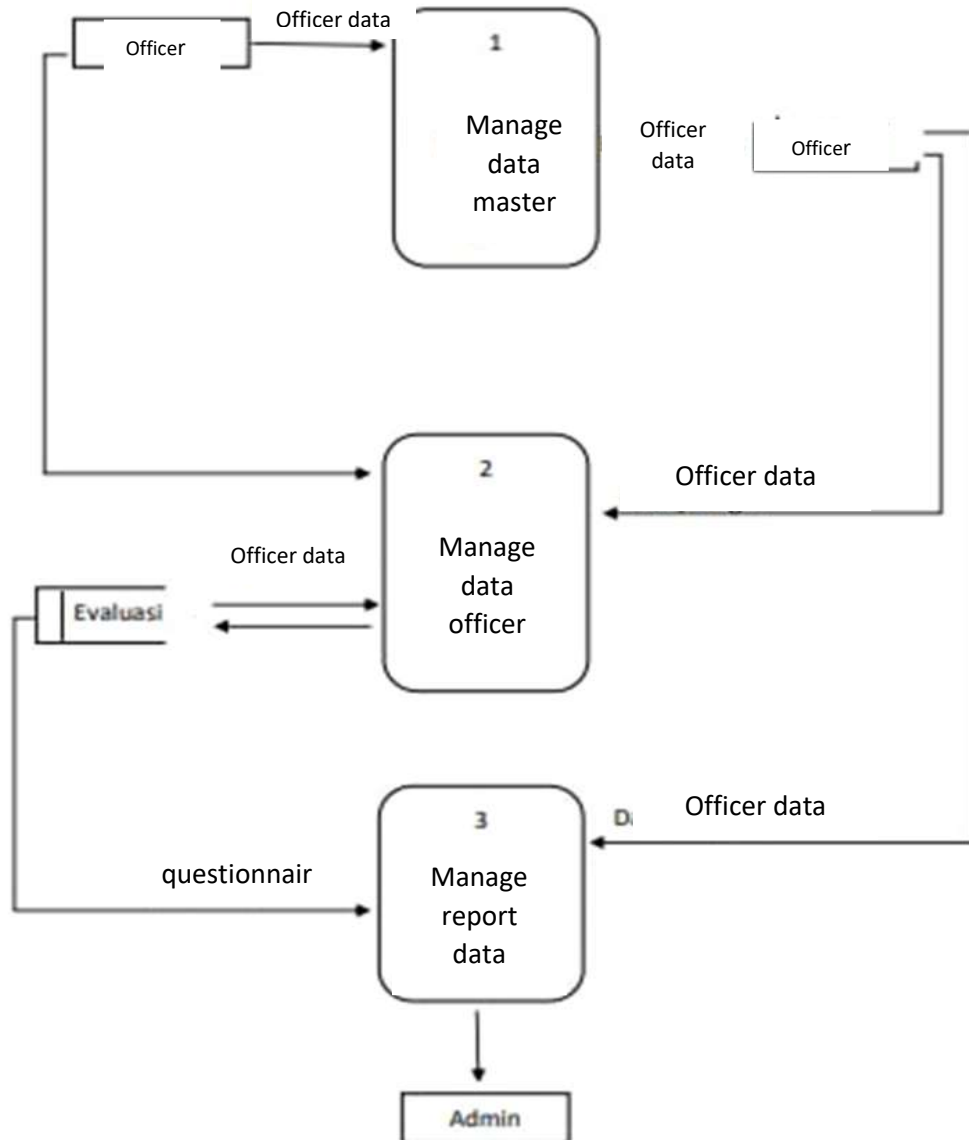


**FIGURES 3.** Tiered Diagram of Outpatient Registration Evaluation Information System for Officers

From the Information System database evaluating outpatient registration, officers produced 3 processed data, namely processing master data, processing questionnaire data, processing data

reports. From processing master data, the data processed is officer data. from processing questionnaire data that is processed is questionnaire data, and processing report data that is processed is all data that has been inputted.

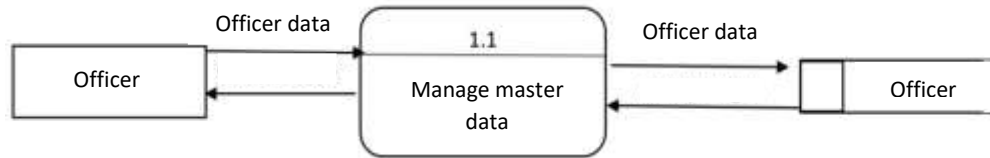
- c. Data Flow Diagram (DFD) level 0  
 Data Flow Diagram (DFD) level 0 processing data



**FIGURES 4.** DFD level 0

There are two users, namely the officer user and the Admission dept outpatient user. User officers send officer data and obtain questionnaires. For Admission dept outpatient users, they get officer data which will be processed into master data then to the questionnaire data. In the evaluation recording data, input is sent in the form of officer data and questionnaires to be processed into report data, after all the data has been collected, the report data results will be output to the Admin User..

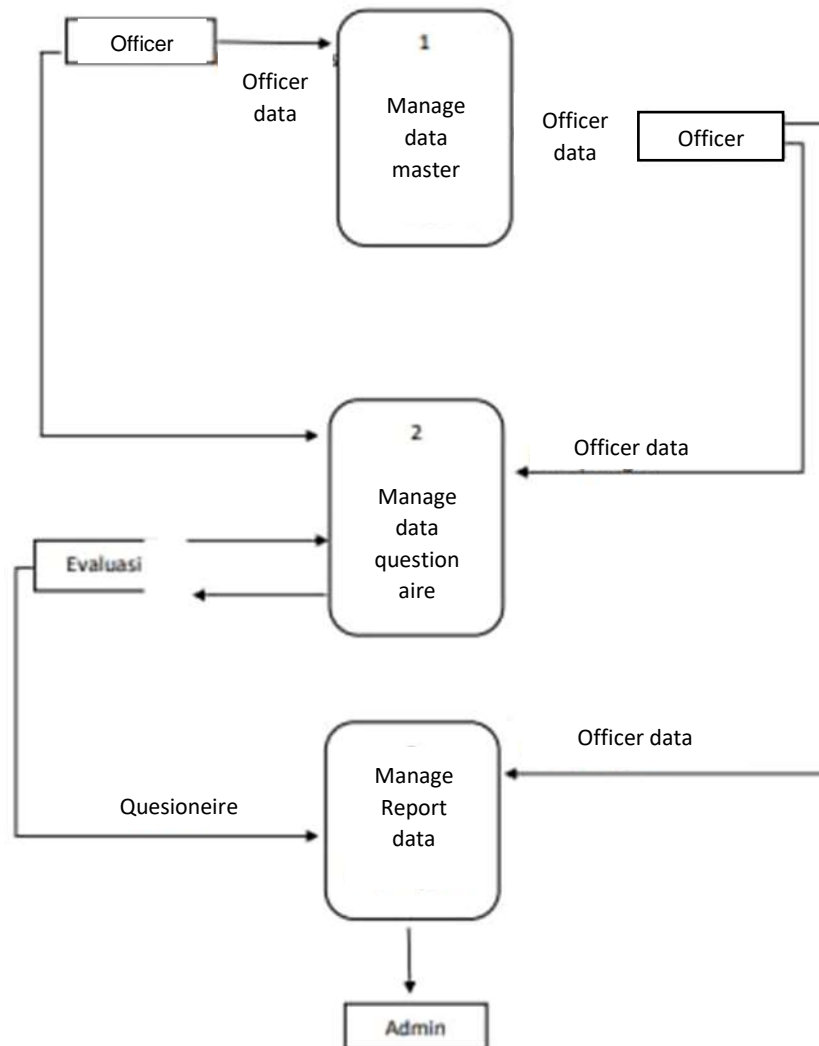
d. DFD level 1 Processing Data Master



**FIGURES 5.** DFD level 1 Processing Data Master

There are two users, namely the Admission dept outpatient user and the officer user. The Admission dept outpatient user gets the form of officer data which is processed first by the master data and will be returned to the final results of the Admission dept outpatient user. While the officer user inputs questionnaire data which will be processed into each data master and then returned to the final result of the officer user.

e. Data Flow Diagram (DFD) Level 1 evaluation record

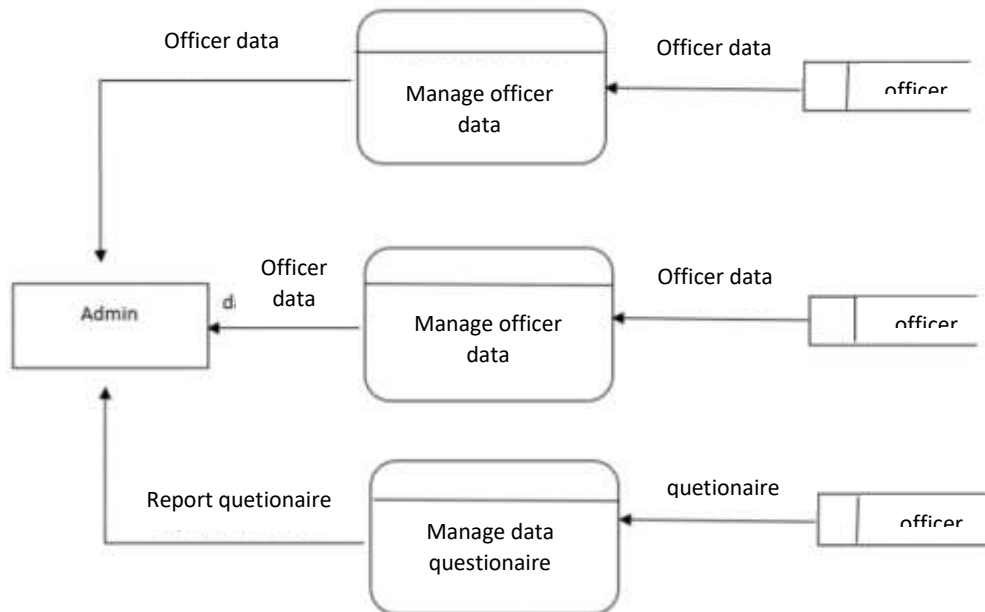


**FIGURES 6.** DFD Level 1 evaluation record

The operation of evaluation disability data has two users, namely the Admission dept outpatient user and the officer user. For Admission dept outpatient users, they will send

officer data which will be entered into the evaluation disability data processing along with input from master data such as officer data, and will be sent to the evaluation disability data which will be entered into the evaluation disability data processing through questionnaire data. User officers send records of their data which will be entered into the processing of Evaluation disability data along with master data such as officer data and will be sent to the results of the questionnaire.

- f. DFD Level 1 Pelaporan  
Data Flow Diagram (DFD) level 1 officer data report processing reports



FIGURES 7. DFD level 1 Report

All report data are obtained from master data and disability data. The master data that has been entered is like officer data. From the master data will be processed by the report results per data which will be included in the final user results. Disabled data that has been inputted such as officer data and questionnaire data will be processed by reports per data which will be included in the final results of the.

### III. RESULT AND DISCUSSION

Technology Acceptance Model (TAM) is model that is considered the most appropriate in explaining how individuals receive a system [2]. Refers to research Yunita Wisda Tumarta Arif 2020 in Making a Technology Acceptance Model (TAM) System with 5 variables, among others :

1. Perceived ease of use  
Defined a technology is defined as a measure in which a person believes that a computer can be easily understood and used.
2. Perceived usefulness  
Defined as a measure where the use of a technology that is believed to bring benefits to those who use it.
3. Attitude toward using  
Conceptually as an attitude towards the use of a system in the form of acceptance or resistance as an impact when someone uses a technology in his work.
4. Behavioral intention to use

Behavioral intention to use Is a form of attitude or behavior that tends to continue to use a technology

5. Perceived service availability

Perceived service availability Is the user's perception that the system used is considered capable of providing connections and on time.

From these 5 variables, 25 questions were then made, where 5 questions were for each variable. The interface display of the Implementation of Hospital Outpatient Registration Evaluation with the Web-Based Accepted Model Technology System is shown below :

**KEMUDAHAN SISTEM YANG DI RASAKAN**

Akan mudah bagi saya untuk mempelajari aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI?  
 Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Menurut saya dengan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI akan terasa mudah untuk memberikan informasi terkait data pasien ?  
 Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Sejauh ini, saya mengerti bagaimana cara menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI yang ada?  
 Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Mudah bagi saya untuk menjadi terampil dalam menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI dengan cepat ?  
 Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Menurut saya aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI yang ada mudah untuk digunakan ?  
 Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

**MANFAAT YANG DI GUNAKAN**

Saya rasa dengan menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI dapat menyelesaikan

FIGURES 8. Form Questionnaire Variabel Perceived Ease of Use

**MANFAAT YANG DI GUNAKAN**

Saya rasa dengan menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI dapat menyelesaikan pekerjaan saya dengan cepat ?  
 Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Saya yakin dengan menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI kinerja saya akan semakin meningkat ?  
 Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI menurut saya akan dapat meningkatkan produktivitas pekerjaan saya ?  
 Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Saya percaya bahwa menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI dalam pekerjaan sehari hari berguna bagi saya?  
 Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI menurut saya dapat meningkatkan efektivitas pekerjaan saya ?  
 Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

FIGURES 9. Appearance Form Questionnaire For Variabel Perceived Usefulness

Menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI menurut saya dapat meningkatkan efektivitas pekerjaan saya ?

Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

### SIKAP TERHADAP PENGGUNA

Saya setuju bahwa aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI yang ada mudah diakses ?

Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Saya lebih nyaman menerapkan sistem manual daripada aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI?

Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Saya yakin orang yang menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI memiliki prestise(wibawa) yang baik daripada mereka yang masih menerapkan sistem manual ?

Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

### NIAT MENGGUNAKAN

Saya berniat menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI untuk pekerjaan saya selanjutnya di rumah sakit ?

Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

FIGURES 10. Form Questionnaire Variabel Attitude Toward Using

### NIAT MENGGUNAKAN

Saya berniat menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI untuk pekerjaan saya selanjutnya di rumah sakit ?

Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Saya memperkirakan bahwa saya akan menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI untuk pekerjaan saya di waktu yang akan datang?

Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Saya berencana akan menggunakan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI untuk pekerjaan saya di waktu yang akan datang ?

Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

### LAYANAN YANG DI RASAKAN

Dengan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI memungkinkan laporan rumah sakit selesai tepat waktu dibandingkan manual ?

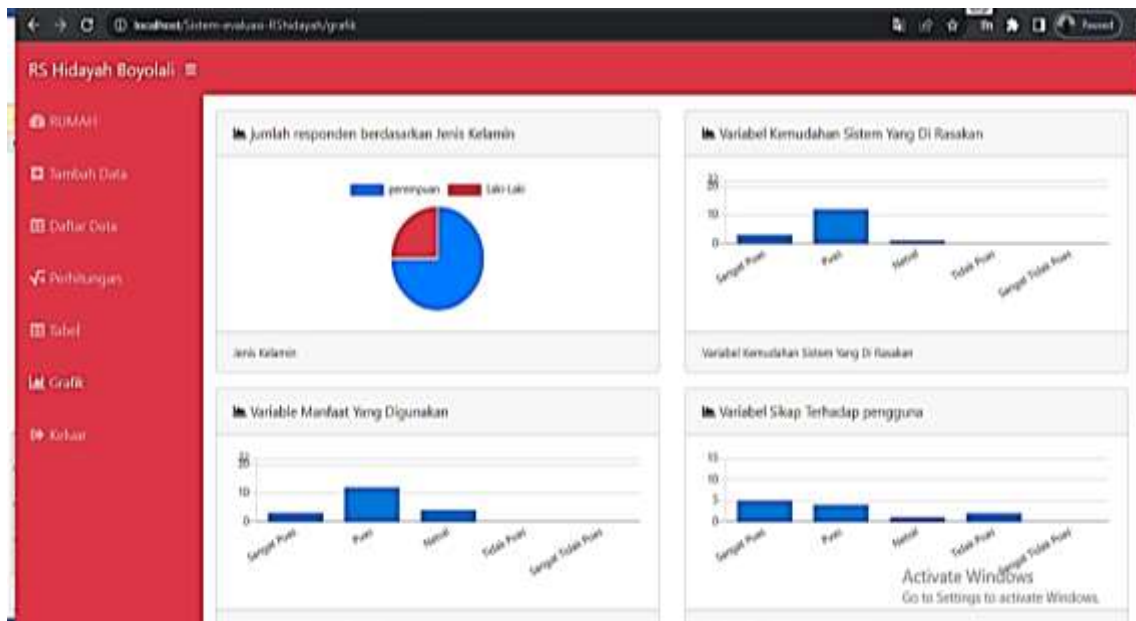
Sangat puas  Puas  Netral  Tidak puas  Sangat tidak puas

Penerapan penggunaan aplikasi pendaftaran rawat jalan RS HIDAYAH BOYOLALI dapat mempercepat penyelesaian pekerjaan dan meningkatkan kualitas hasil pekerjaan ?

FIGURES 11. Form Behavioral Intention to Use dan Perceived Service Availability

Hospital staff will fill in 25 questions in the Web-Based Technology Model Accepted System which will then get the final results as follows :





FIGURES 12. Graphic Forms



FIGURES 13. Graphic Forms

Results from the Implementation of Computerized Hospital Outpatient Registration Evaluation with Web-Based Technology Accepted Model System Outpatient staff at the hospital stated that they were satisfied with the outpatient application system in terms of the 5 dimensions of Perceived ease of use obtained a satisfied result of (64.8%), on the Perceived usefulness dimension obtained a satisfied result of (63.3%), on the Attitude toward ting dimension, the result is very high (64%), on the Behavioral intention to use dimension, the result is satisfied (69%), on the Perceived service availability dimension, the result is positive (69.3%) ).

#### A. Validity Test

In measuring the level of satisfaction of officers with the Web-Based Technology Accepted Model System, researchers asked 25 questions that referred to the level of patient satisfaction. Data collection was carried out on 4 respondent Officers for Outpatient Services at Hospitals in 2022. Validity

measurement from the Implementation of Outpatient Registration Registration Outpatient Computerized Hospital Using a Web-based Technology Accepted Model System as follows:

- 1) highest score ( $y$ ) :  $5 \times 100 = 500$
  - 2) lowest score ( $x$ ) :  $1 \times 100 = 100$   
Interval Formula :  $100/5 = 20$
  - 3) Index 0%-19,99% = STP (Sangat Tidak Puas)  
Index 20%-39,99% = TP (Tidak Puas)  
Index 40%-59,99% = CP (Cukup Puas)  
Index 60%-79,99% = P (Puas)  
Index 80%-100% = SP (Sangat Puas)
- a. *Perceived ease of use*  
Outpatient Satisfaction Based on Perceived Dimensions of ease of use as follows :  
Index Formula :  $(\text{score})/y \times 100\%$

The average level of outpatient satisfaction is based on the reliability aspect

$$\begin{aligned} &= (68\%+64\%+64\%+64\%+64\%)/5 \times 100\% \\ &= 324/5 \times 100\% \\ &= 64,8\% \end{aligned}$$

Based on the results of the calculation, it was found that the satisfaction level of officers from the Perceived ease of use aspect was 64.8% which included the satisfaction criterion.

- b. *Perceived usefulness*  
Satisfaction of Outpatient Officers Based on the Dimensions of Perceived Usefulness as follows:  
Index Formula :  $(\text{total score})/y \times 100\%$

The average level of satisfaction of outpatients based on the Responsiveness aspect

$$\begin{aligned} &= (64\%+68\%+64\%+60\%+60\%)/5 \times 100\% \\ &= 15/5 \times 100\% \\ &= 63,3\% \end{aligned}$$

Based on the calculation results, it was found that the level of officer satisfaction from the Perceived usefulness aspect was 63.3% which included the satisfaction criterion.

- c. *Attitude toward using*  
Satisfaction of Outpatient Officers Based on the Attitude toward Using Dimensions as follows:  
Index Formuls:  $(\text{total score})/y \times 100\%$

The average level of outpatient satisfaction is based on the Assurance aspect

$$\begin{aligned} &= (72\%+60\%+60\%)/5 \times 100\% \\ &= 10/5 \times 100\% \\ &= 64\% \end{aligned}$$

Based on the calculation results, it was found that the level of patient satisfaction from the Attitude toward using aspect was 64% which included the satisfaction criterion.

- d. Behavioral intention to us  
Satisfaction of outpatients based on the dimensions of Behavioral intention to use is as follows:  
Indeks Formula :  $(\text{total score})/y \times 100\%$

The average level of outpatient satisfaction is based on the Behavioral intention to use aspect

$$\begin{aligned} &= (68\%+68\%+72\%)/5 \times 100\% \\ &= 208/5 \times 100\% \\ &= 69\% \end{aligned}$$

Based on the calculation results, it was found that the level of patient satisfaction from the Behavioral intention to use aspect was 69% which included the satisfaction criterion.

e. *Perceived service availability*

Satisfaction of outpatients based on the dimensions of Perceived service availability is as follows:

Indeks Formula:  $(\text{total score})/y \times 100\%$

The average level of outpatient satisfaction based on the aspect of Perceived service availability

$$= (72\%+68\%+68\%)/5 \times 100\%$$

$$= 208/5 \times 100\%$$

$$= 69\%$$

Based on the calculation results, the result is that the level of patient satisfaction from the aspect of Perceived service availability is 69.3% which includes the criteria of satisfaction.

#### **IV. CONCLUSION**

Implementatiton of Evaluation Registration Outpatient Computerized Hospital Using a Web-based Technology Accepted Model System with 5 variabel Perceived ease of use dimension obtained satisfaction results of (64.8%), on the Perceived usefulness dimension obtained satisfied results of (63.3%), on the Attitude to use dimension obtained very large results of (64%), on the Behavioral intention to use dimension using the results obtained satisfied by (69%), on the dimensions of Perceived service availability obtained satisfied results of (69.3%). It is concluded that hospital staff are satisfied in using computerized outpatient registration at the hospital.

#### **REFERENCES**

- [1] Permenkes RI (2014) tentang Rekam Medis
- [2] Arif, Y. W. T., & Listyorini, P. I. (2020). Technology Acceptance Model (TAM) Dan Theory Of Planned Behavior (TPB) dalam keyakinan dan perilaku penggunaan sistem Informasi Manajemen Rumah Sakit. *JURNAL TEKNOLOGI INFORMASI DAN KOMUNIKASI*, 11(2), 36-45.
- [3] Notoatmodjo (2018). Metodologi Penelitian Kesehatan. Jakarta : PT Rhineka Cipta.
- [4] Depkes RI, 2006 Tentang Rekam Medis
- [5] Hatta, Gemala R. 2013. *Pedoman Manajemen Informasi Kesehatan Disarana Pelayanan Kesehatan*. Jakarta : UI-Press.
- [6] Perpres RI No. 77 tahun 2015 tentang Pedoman Organisasi Rumah Sakit
- [7] Putra, D. S. H., & Siswanto, M. (2016). Pengaruh Kualitas Sistem, Kualitas Informasi dan Kualitas Layanan Terhadap Kepuasan Pengguna Sistem Informasi Manajemen Rumah Sakit Daerah Kalisat Kabupaten Jember. Prosiding, Undang Undang Kesehatan Nomor 23 tahun 1992 pasal 63 tentang Pengembangan Sistem Informasi
- [8] Putra, D. M., & Vadriasmis, D. (2020). Analisis Penerapan Sistem Informasi Manajemen Rumah Sakit (SIMRS) Di TPPRJ Menggunakan Metode UTAUT DI RS TK. III DR. Reksodiwiryo Padang. *Administration & Health Information of Journal*, 1(1), 55-67.
- [9] Undang Undang Kesehatan No 44 tahun 2009 tentang Rumah Sakit
- [10] Yakub, 2012. Pengantar Sistem Informasi. Yogyakarta: Graha Ilmu
- [11] Yorensna, R. R. A., Rosyida, F. N., & Fithri, I. Pengaruh Metode Survei Kepuasan Berbasis Web Terhadap Cakupan Reponden Survei Kepuasan Pasien Di Unit Rawat Inap Rumah Sakit Bhayangkara Tk. Iii Wahyu Tutuko Bojonegoro.