



## Community Satisfaction on The Utilization of E-health Information System in Surabaya City

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### Abstrak

E-health is an online patient registration tool at the Primary Health Centre in Surabaya City. Monitoring the level of community satisfaction is needed to ensure that e-health continues to function properly. This study aims to determine the level of community satisfaction on the utilization of e-health information systems in Surabaya City and what factors influence it. The design of this research is associative with a quantitative approach. Data was collected using a questionnaire online with an accidental sampling technique on 385 respondents. Data analysis is using statistical descriptive and multiple linear regression tests. The results of this study indicate that most users are very satisfied with the e-health information system. Age ( $p=0.018$ ), gender ( $p=0.000$ ), and sources of information ( $p=0.000$ ) influenced community satisfaction on the utilization of e-health information systems. Based on these results, it is necessary for the government to maintain the quality of e-health and make e-health as a pilot for other cities or regions in Indonesia.

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## INTRODUCTION

Healthiness is one of the important aspects for humans to be able to work or do activities productively. Health is included in one of the basic human needs in addition to the needs of clothing, food, and housing. Currently, the health sector has an important role in the welfare of society. Along with the times, human routines cannot be separated from the existence of information and communication technology (ICT), as well as health services. Utilization of technology is considered capable of providing benefits in increasing the effectiveness and efficiency of health services. One form of technology in the health sector in Surabaya City is an e-health information system or also known as e-health.

World Health Organization (2006) defines e-health simply as the use of information and communication technology for health, while according to the Decree of the Minister of Health of the Republic of Indonesia Number 192 of 2012, e-health is a form of utilizing information and communication technology in the health sector that has the main goal is to improve health services (Kementerian Kesehatan Republik Indonesia, 2012). E-health is an information and communication technology-based service that is connected to all supporting functional components in the health sector (Sambuaga et al., 2017). Functionally, E-health is an internet-based patient registration tool that serves to reduce the number of queues physically at the Primary Health Center in Surabaya City (Putra, 2019). In addition to all Primary Health Centers in Surabaya, e-health can also be used for referral patient registration online at Bhakti Dharma Husada and dr. Soewandhie Hospital. E-health can be accessed by gadgets or computers using the internet network on the website [www.ehealth.surabaya.go.id](http://www.ehealth.surabaya.go.id) and the “WargaKu Surabaya” application which can be downloaded on playstore and appstore.

E-health is often referred to as telemedicine, m-health, or others that have different functions in each region. Some countries that have adopted the concept of e-health are

America, England, Australia, Ireland, and Scandinavia (Trotter, 2001). In these countries, the majority of functions of e-health focus on clinical diagnosis and management (World Health Organization, 2010). In Indonesia, several cities that have implemented e-health are the cities of Padang, Manado, and Surabaya (Wibowo et al., 2020). The cities of Jakarta and Semarang are also implementing e-health. The functions of e-health in Indonesia vary, namely for online registration, online consultation, online health education, health service information, and internal coordination tools (Widiyastuti, 2008).

A good information system is one that can provide benefits and satisfaction to its users. User satisfaction is a form of feeling that arises as a result of the product or service obtained after comparing it with what is expected (Syafriana et al., 2020). In other words, user satisfaction is the result of a comparison between expectations and the reality of the product or service received. Meanwhile, according to Arnaya (2020) user satisfaction is a manifestation of the level of feeling that arises as a feedback response from the product or health service obtained. In general, satisfaction will be directly proportional to quality. The better the quality, the better the level of community satisfaction. Quality can be perceived as good and satisfying for the community when the product or service received is in accordance with or exceeding what is expected, and vice versa (Faturahmah & Raharjo, 2017). This is because quality is the main determinant of the level of satisfaction (Mernawati & Zainafree, 2016)

In a satisfaction study of 1700 patients in Tuscany, Italy, it was stated that 48.35% of patients at the Tuscany Regional Hospital were very satisfied and 4.29% were very satisfied with all services including e-health (De Rosi & Barsanti, 2016). Meanwhile, research on satisfaction mobile e-health on 100 respondents in the city of Surabaya shows that the majority of people are satisfied with mobile e-health although there is still a gap between reality (3.10) and expectations (3.56) which is 0.46 (Azzahrah et al., 2020). This study only measures the level of

satisfaction of e-health users who use the application e-health mobile or which has now changed its name to "WargaKu Surabaya".

This research was conducted knowing that research on e-health community satisfaction in Surabaya City is still very minimal. The purpose of this study was to determine the level of satisfaction of the people of Surabaya on the use of e-health information systems and also the effect of respondent characteristics on community satisfaction. This research can also be used as a reference for the Surabaya City Government to maintain the quality of e-health for sustainable use.

**METODE**

This research is an associative research with a quantitative approach, which is intended to determine how one variable influences other variables. The sample size studied was 385 respondents with a population of all e-health users in Surabaya City obtained using the Lemeshow formula. The following is a result of a calculation using the Lemeshow formula:

$$n = \frac{Z^2 p(1-p)N}{d^2(N-1) + Z^2 p(1-p)}$$

$$n = \frac{1,96^2 \cdot 0,5(1-0,5) \cdot 8.964.949}{0,05^2 (8.964.949 - 1) + 1,96^2 \cdot 0,5(1-0,5)}$$

$$n = \frac{8.609.937.02}{22,413,33}$$

$$n = 384,14$$

Information:

- n = Number of samples
- N = Number of population
- Z = Normal distribution of values at level significance 95% (1.96)
- P = 50% Proportion
- d = Degree of accuracy of sample size estimation 5%

Based on the results of calculations using the Lemeshow formula, then sampling was carried out using accidental sampling technique, namely all people who accidentally met the researcher and matched to inclusion criteria have the right to be respondents in this study. The respondent's criteria are e-health users Surabaya

City who have used e-health at least once. Data collection was carried out using a questionnaire instrument which was distributed online through the google form media platform. First of all, respondents were given Consent Prior to Explanation and informed consent (IC) sheets before filling out the questionnaire to briefly explain the details of the study. Respondents also have the right to refuse to fill out the questionnaire, because this research is voluntary or without coercion. Data processing is carried out using the SPSS 20 application with descriptive statistical tests to determine the level of community satisfaction and multiple linear regressions to determine what factors influence people's satisfaction on e-health information system with  $\alpha \leq 0.05$ . The results of the analysis of the descriptive statistical test are categorized into four categories with a minimum value of 1 and a maximum of 4 as shown in Table 1.

**Table 1.** Category of Research Results

Value	Interval	Category
1	1.00 – 1.75	Very Dissatisfied
2	1.76 - 2,50	Dissatisfied
3	2.51 – 3.25	Satisfied
4	3.26 – 4.00	Very Satisfied

This research has passed the ethical test on March 31, 2021 by the Health Research Ethics Licensing Commission FKG Universitas Airlangga with an ethical test number of 140/HRECC.FODM/III/2021.

**RESULTS AND DISCUSSIONS**

Research data obtained as many as 385 respondents who filled out the questionnaire have met the criteria in this study. The characteristics of the respondents listed in the questionnaire are age, gender, occupation, last education, and the first source of information about e-health. The data on the characteristics of the respondents are presented in Table 2.

**Table 2.** Data Result of Respondents Characteristics in the E-Health Satisfaction Survey

Characteristics Respondents	of f	Percentage (%)
<b>Age</b>		
15 - 25	317	82.34
26 - 45	46	11.95
46 - 65	19	4.94
> 66	3	0.78
<b>Gender</b>		
Male	96	24.94
Female	289	75.06
<b>Occupation</b>		
Civil Servant	12	3.12
Private Employee	62	16.10
Self-employee	17	4.42
TNI/POLRI	1	0.26
Housewife	13	3.38
Student/College Student	268	69.61
Not Working/Retired	12	3.12
<b>Level of Education</b>		
JHS/equivalent	10	2.60
SHS/equivalent	239	62.08
College	136	35.32
<b>Source of E-Health Information</b>		
Friend/Family	78	20.26
Health Officer	59	15.32
Internet	242	62.86
Others	6	1.56

Source: Primary Data, 2021

Based on **Table 2**, it can be seen that the majority of respondents who use e-health in Surabaya are aged 15-25 years, which is 82.34%, while the majority of respondents are female by 75.06%. Respondents with the last education of SHS/equivalent were the respondents who filled out the most questionnaires, namely 62.08%. Respondents who dominate this study are students/college student, namely 69.61%. The first source of information that respondents know about e-health is through the internet, which is 62.86%. This means that information about e-health has spread widely on the internet.

### Age and Gender

The majority of e-health users who fill out satisfaction questionnaires are aged 15-25 years and are female, it is possible that the majority of e-health users in the City of Surabaya are of that age and gender. Based on the Surabaya City Health Profile in 2019, it is stated that the largest population composition is the age group of 20 - 24 years, while the largest population composition based on gender is female (Dinas Kesehatan Kota Surabaya, 2019).

### Occupation

The majority of e-health users who fill out satisfaction questionnaires have occupations as students/college students. This is supported by the research of Suwartika et al. (2014) which states that students are susceptible to disease, especially psychological disorders such as stress and also indigestion. In addition, students are more likely to use technology more in helping their daily activities (Utama, 2015). So, it is in line with the result that most students may use e-health as a technology to get their healthcare services.

### Level of Education

The level of education affects a person's use of technology (Nur, 2014). The majority of e-health users who filled out satisfaction questionnaires had their last education SHS/equivalent and at the second level were universities. These results are directly proportional to the majority of the age of e-health

users, namely 15-25 years, at which age the users are in school/college or have completed one/both.

**The First Source of Information about E-Health**

In this case, the source of information in question is the source of information for the first time users get to know e-health. Based on the results of the study, the majority of e-health users who filled out satisfaction questionnaires recognized e-health for the first time through the internet. This is because the internet is a medium that is able to quickly disseminate information throughout the network, especially social media (Masril & Lubis, 2020).

Based on **Table 2**, the results of this study can be used as a reference to find out how the distribution of e-health user groups is based on the characteristics of the respondents. So that it can be seen which groups use more and less e-health as a form of utilizing information and communication technology in the health sector.

**Table 3.** Results of E-Health User Satisfaction in Surabaya City

Ind.	Value	f	%	Info.
US1 Makes work easier	- 1	2	0.52	Very Satisfied
	2	18	4.68	
	3	151	39.22	
	4	214	55.58	
Total		385	100.00	
US2 Time saving	- 1	3	0.78	Very Satisfied
	2	20	5.19	
	3	128	33.25	
	4	234	60.78	
Total		385	100.00	
	1	6	1.56	Very Satisfied
	2	23	5.97	

US3	-	3	175	45.45	
Minimiz e error		4	181	47.01	
Total			385	100.00	
US4 Ease of use	-	1	2	0.52	Very Satisfied
		2	9	2.34	
		3	124	32.21	
		4	250	64.94	
Total			385	100.00	
US5 Easily canceled	-	1	109	28.31	Satisfied
		2	119	30.91	
		3	127	32.99	
		4	30	7.79	
Total			385	100.00	

Source: Primary Data, 2021

Based on **Table 3**, it can be seen that the level of satisfaction of the people of Surabaya City with the information system e-health is at a very satisfactory level. This is because the level of satisfaction of each indicator shows very satisfactory results, namely US1 of 55.58%, US2 of 60.78%, US3 of 47.01%, and US4 of 64.94%. However, the US5 indicator is at a satisfaction level of 30.91%. The question on the US5 indicator is a negative question so that the value of the respondent's answer needs to be reversed.

The e-health information system as a form of innovation by the Surabaya City Government in the health sector is a superior program that has succeeded in being included in the top 25 categories of public service innovation at the national level in 2015 (Setianto, 2016). This is directly proportional to the results of research which shows that the people of Surabaya City are very satisfied with the utilization of e-health information systems. However, a system will not work perfectly from the first time it is created. At

the beginning of the formation, users complained about obstacles when accessing e-health which caused its implementation to be less than optimal. Most of the problems stem from the software and hardware used by users, which at that time was e-kios, such as the monitor screen could not be touched, the printer could not be used until the e-kios application could not be used at all (Agastya & Fanida, 2016).

Previously, research on community satisfaction or in this case e-health users was conducted by Azzahrah et al. (2020). In their research entitled “*Analisis Kepuasan Pengguna Mobile E-health berdasarkan Metode End User Computing Satisfaction*” it is stated that application users' mobile e-health is satisfied with the application, although there is still a gap between expectations and reality. In contrast to previous research, this study was conducted on all users e-health without exception, either through the website or application on a smartphone which is also called mobile e-health or currently known as "WargaKu Surabaya".

The results of this study can be used as a reference to determine the level of satisfaction of the people of Surabaya City towards the product using this technology e-health. Almost the entire community users of Surabaya City tend to be very satisfied with e-health. This is supported by the statement that e-health has proven to the people of Surabaya City as an internet-based information system in the health sector that is able to provide benefits to its users since it was first launched, so that it can be used for a long time.

**Table 4.** Multiple Linear Regression Test Results

	User Satisfaction	
	T value	P value
Age	-2.382	0.018
Gender	-1,134	0.257
Occupation	0.735	0.463
Level of Education	14.490	0.000

The First Source of E-Health Information 6328 0,000

Source: Primary Data, 2021

H1 is accepted if it has a value  $p > 0.05$ . Based on **Table 4**, it can be seen that age, level of education, and the first source of information about e-health affect the satisfaction of e-health users. Meanwhile, gender and occupation have no effect on user satisfaction e-health because the  $p$  value  $> 0.05$ .

**Table 5.** Coefficient of Determination

R	R Square	Adjusted R Square	Std. Error of The Estimate
0.843	0.710	0.706	0.31525

Source: Primary Data, 2021

Based on **Table 5**, it can be seen that the level of closeness of the relationship between the dependent variable and the independent variable is very strong ( $R = 0.843$ ). The value of  $R$  is the value of the multiple correlation coefficient. If the value of  $R$  is getting closer to -1 or 1 then the relationship between variables is getting stronger. The level of diversity of the independent variables is 71%, which means that the entire diversity of the independent variables can explain the diversity of the dependent variable.

User satisfaction is an overall evaluation of the user's experience when using an information system and the potential impact that comes from the information system (Ayuardini et al., 2019). User satisfaction can influence how users' attitudes toward an information system either accept to use it in the future or refuse (Doll et al., 2004). In addition, users generally give a subjective assessment that the information system is feasible or not to be reused (Prayoga & Sensuse, 2012). User satisfaction can be influenced by internal and external factors.

Based on the research, there is a strong relationship between age, gender, occupation, last education, first source of information about

e-health, and user satisfaction ( $R=84,3\%$ ). Age has an effect on user satisfaction ( $p=0.018 < 0.05$ ). This is in line with research conducted by Anjani & Wirawati (2018). The results of their study showed that age has an effect to user satisfaction, the p value was  $0.007 < 0.05$ . The difference with this study is that their research is not an e-health information system but an accounting information system.

Gender has no effect on user satisfaction ( $p=0.257 < 0.05$ ) because the significance value is higher than alpha. Suryati et al. (2017) also explained that there was no effect of gender on user satisfaction. Gender has an influence on the view of the health services provided. Women see appearances in detail, while men do not heed them (Gunarsa, 2008). In addition to gender, work also has no effect on user satisfaction ( $p=0.463 < 0.05$ ). According to Rahman (2006), people who work tend to have higher expectations than people who do not work for health services.

The last education or education level has an effect on user satisfaction ( $p = 0.00 < 0.05$ ). This is in line with research conducted by Anjani & Wirawati (2018) and Suryati et al. (2017). Their results showed that the significance value was smaller than alpha. According to Carl (1974), those with higher education think more critically, are more informative, and expect more so they tend to be dissatisfied with services that are less in line with their expectations, while those with low education tend to be more accepting and understanding what has been given to them.

Sources of information when they first heard information about e-health also had an effect on user satisfaction ( $p = 0.00 < 0.05$ ). Based on **Table 2**, most of the users first learned about e-health from the internet, which means the internet is the best source of information among others. Setiawan & Ismurjanti (2018) explained that the internet is an essential and user-friendly source of information. Everything that is "user-friendly" tends to be used by the community continuously, such as e-health information systems.

Based on the results of this study, it can also be used as a reference to provide education

and information related to e-health according to community groups who are easy to receive information and what information media can convey well, such as groups of people who are younger and have a high level of education tend to be able to receive information more easily, and internet information media will be easier to convey information to be accepted by people who want to use e-health.

## CONCLUSION

E-health is a product of the Surabaya City Government that is able to satisfy its users. Most users are very satisfied with the information system e-health because it makes work easier, saves time, minimizes errors, and is easy to use. Age, gender, and sources of information have an effect on community satisfaction, while occupation and the last level of education have no effect. Based on the results of this study the government needs to maintain and make e-health a pilot for other cities or regions in Indonesia, considering that e-health already has very satisfactory quality.

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