

## Contextual Effect of Community Health Center on Patient Satisfaction of Health Care Service in Ngawi, East Java

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### ABSTRACT

**Background:** Perceived patient satisfaction is an important component of health care quality. This study aimed to determine the effect of age, education, income, health financing, quality of health care service, and the contextual effect of community health center on patient satisfaction.

**Subjects and Method:** This was a cross-sectional study conducted in 25 community health centers in Ngawi, East Java, from October to November 2018. A sample of 200 patients was selected by stratified random sampling. The dependent variable was patient satisfaction. The independent variables were age, education, income, health insurance, and quality of health care service. The data were collected by questionnaire and analyzed by a multilevel logistic regression.

**Results:** Age  $\geq 35$  years ( $b = 0.99$ ; 95% CI= 0.17 to 1.81;  $p < 0.019$ ) and good quality of health care service ( $b = 1.68$ ; 95% CI= 0.78 to 2.59;  $p < 0.001$ ) increased patient satisfaction. Education  $\geq$  senior high school ( $b = -1.59$ ; 95% CI= -2.49 to -0.68;  $p < 0.001$ ), income  $\geq$  Rp 1,569,832 ( $b = -1.32$ ; 95% CI= -2.25 to -0.38;  $p < 0.006$ ), and membership of national health insurance ( $b = -1.55$ ; 95% CI= -2.47 to -0.63;  $p < 0.001$ ) decreased patient satisfaction. Community health center had contextual effect on patient satisfaction with ICC= 13.03%.

**Conclusion:** Age  $\geq 35$  years and good quality of health care service increase patient satisfaction. Education  $\geq$  senior high school, high income, and membership in national health insurance decrease patient satisfaction. Community health center has contextual effect on patient satisfaction.

**Keywords:** patient satisfaction, community health center, multilevel analysis

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### BACKGROUND

Primary health care has undergone several changes in the past few decades and system improvements to improve its service capacity to be more effective, qualified, similar and safe. In order to realize Universal Health Coverage in 2019, the government carries out a variety of strengthening health services at both first-level health facilities and reference levels (Naili, 2016).

Public Health Centers or Puskesmas are health service facilities that carry out public health efforts and first-rate individual health efforts, with more emphasis on promotive and preventive efforts, to achieve

the highest degree of public health in their working area (Ministry of Health, 2014).

As health care providers, PHC must ensure that services are of high quality, efficient, acceptable and equal to consumers. A competitive environment and the patient's perception of the quality of health services are important factors when choosing a health center. Improving living standards must be balanced by providing standards higher than the quality of services to users of health services (Gunawan, 2011).

Efforts to improve the quality of service and patient safety in primary health care facilities, are through the implementa-

tion of quality improvement initiatives. One of them is through external assessment mechanisms such as accreditation (O'Beirne et al., 2013).

Ngawi Regency is one of the regencies in East Java Province which has 25 health centers, namely 5 health centers with the main accreditation status, 9 health centers with middle accreditation status, 4 health centers with major accreditation status, and 7 non-accredited health centers. Recognition is based on the results of external assessments that show the quality in providing health services and information in accordance with the needs and conditions of patients at the Puskesmas (District Health Office of Ngawi District, 2018).

Patient satisfaction is an important component to be taken into account in evaluating the quality and results of health services in developed and developing countries, including Indonesia. Patient satisfaction is achieved when the patient's perception of health services received has a positive, satisfying, and in accordance with what is expected (Joshi et al., 2013). Assessment of the level of patient satisfaction can have an impact on the development of the health system, increase the fulfillment of service needs, continuity of services, and ultimately will provide better health outcomes (Mohamed et al., 2015).

Patient satisfaction will establish trust in health facilities and will have a positive impact on patient behavior. Patient satisfaction is influenced by various factors, including the patient's socio-demographic status, type of payment used by the patient, and service quality (Risnandi et al., 2015; Kelarijani et al., 2014).

The importance of the level of patient satisfaction in achieving optimal health services needs to consider micro and macro levels, which take into account the factors of the health center. The purpose of this

study is to analyze the effect of age, education level, patient income, type of financing, and service quality on patient satisfaction by taking into account the health center as a contextual factor.

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## SUBJECTS AND METHOD

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### 1. Study Design

The was an analytic observational study with a cross-sectional design. The study was conducted in 25 community health centers in Ngawi, East Java, from October to November 2018.

### 2. Population and Sample

The target population in this study were all outpatients at Ngawi community health centers. The source population was outpatients who visited Ngawi community health center. A sample of 200 out-patients was selected by stratified random sampling.

### 3. Study Variables

The dependent variable was patient satisfaction. The independent variables were age, education, income, type of health financing, and quality health service.

### 4. Operational Definition of Variables

Age was defined as length of time (year) from birth to the data collection. The measurement scale was continuous and transformed into dichotomous, coded 0 for <35 years and 1 for ≥35 years.

Education was defined as the highest formal education attained by study subjects. The measurement scale was categorical, coded 0 for <senior high school and 1 for ≥senior high school.

Patient income was defined as the amount of income each month the family receives in the form of honorarium, rent, including subsidies, or benefit. The measurement scale was continuous and transformed into dichotomous, coded 0 for <Rp 1,569,832 and 1 for ≥Rp 1,569,832.

Health financing was defined as a method of paying off health care costs that

have been obtained by patients. The measurement scale was categorical, coded 0 for not being member of national health insurance and 1 for membership in national health insurance.

Health quality service was defined as a measure of the extent to which a service can meet the needs of patients. Five dimensions of quality health service were responsiveness, reliability, assurance, empathy, and tangible. The measurement scale was continuous and transformed into dichotomous, coded 0 for poor and 1 for good.

Patient satisfaction was defined as the patient's assessment that arises from the health services that are obtained after the patient compares it with what he expected. The measurement scale was continuous and transformed into dichotomous, coded 0 for low satisfaction and 1 for high satisfaction.

### 5. Study Instruments

The data were collected by questionnaire. The instrument reliability test was carried out on 20 patients who visited Ngawi community health centers. Reliability test was measured by total item correlation with  $r$  value  $\geq 0.20$ , and alpha Cronbach  $\geq 0.60$ . These results indicate that the questionnaire was reliable.

### 6. Data Analysis

Univariate analysis was done to determine sample characteristics by frequency and percentage. Bivariate analysis was carried out by Chi-square. Multivariate analysis was conducted by a multilevel logistic regression run on Stata 13.

### 7. Research Ethics

Research ethics of this study was obtained from Research Ethics Committee, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Central Java, Indonesia with numbers: 311/UN27.6/KEPK/2018.

## RESULTS

### 1. Sample characteristics

Table 1 showed sample characteristics. Table 1 explained that as many as 109 out-patients (54.5%) were at age  $\geq 35$  years old. As many as 134 out-patients (67.0%) had education level <senior high school. As many as 116 out-patients (58.0%) had income  $\geq$  Rp 1,569,832.

**Table 1. Sample characteristics**

Characteristics	n	%
<b>Age</b>		
<35 years	91	45.5
$\geq 35$ years	109	54.5
<b>Education Level</b>		
<senior high school	134	67.0
$\geq$ senior high school	66	33.0
<b>Income</b>		
<Rp 1,569,832	84	42.0
$\geq$ Rp 1,569,832	116	58.0

### 2. Bivariate Analysis

Table 2 showed the results of bivariate analysis. Table 2 showed that age  $\geq 35$  years (OR= 3.67; 95% CI= 2.04 to 6.62;  $p < 0.001$ ) and good health service quality (OR = 3.41; 95% CI= 1.86 to 6.23;  $p < 0.001$ ) increased patient satisfaction.

Education  $\geq$ senior high school (OR= 0.09; 95% CI= 0.47 to 0.19;  $p < 0.001$ ), high income (OR = 0.014; 95% CI, 0.07 to 0.28;  $p < 0.001$ ) and membership in health insurance (OR = 0.11; 95% CI, 0.05 to 0.22;  $p < 0.001$ ) decrease patient satisfaction.

### 3. Multilevel Analysis

Table 3 showed the results of multilevel analysis. Table 3 showed that patients aged  $\geq 35$  years old had a logodds of satisfaction on health service 0.99 unit higher than aged <35 years old ( $b = 0.99$ ; 95% CI= 0.17 to 1.81;  $p < 0.019$ ). There was a relationship between educational level and patients' satisfaction.

**Table 2. The Result of Bivariate Analysis of Factors that Affect Patients' Satisfaction by Using Chi-Square**

Variables Group	Patients Satisfaction				Total		OR	CI (95%)		p
	Low		High					Lower Limit	Upper Limit	
	n	%	n	%	n	%				
<b>Age</b>										
<35 years old	55	39.6	36	51.4	91	100.0	3.67	2.04	6.62	<0.001
≥35 years old	32	47.4	77	61.6	109	100.0				
<b>Educational Level</b>										
<HS	35	26.1	99	73.9	134	100.0	0.09	0.47	0.19	<0.001
≥HS	52	78.8	14	21.2	66	100.0				
<b>Income</b>										
<Rp. 1,569,832,-	16	19.0	68	81.0	84	100.0	0.014	0.07	0.28	<0.001
≥Rp. 1,569,832,-	71	61.2	45	38.8	116	100.0				
<b>Type of Financing</b>										
Regular	15	17.0	73	83.0	88	100.0	0.11	0.05	0.22	<0.001
HI	72	64.3	40	35.7	112	100.0				
<b>The Quality of Services</b>										
Poor	45	62.5	27	37.5	72	100.0	3.41	1.86	6.23	<0.001
Good	42	32.8	86	67.2	128	100.0				

**Table 3. The results of multilevel analysis**

Independent Variables	b	95% CI		p
		Lower Limit	Upper Limit	
<b>Fixed Effect</b>				
Age ≥35 years old	0.99	0.17	1.81	<0.019
Educational ≥senior high school	-1.59	-2.49	-0.68	<0.001
Income ≥Rp 1,569,832	-1.32	-2.25	-0.38	<0.006
Membership in health insurance	-1.55	-2.47	-0.63	<0.001
Good quality of health service	1.68	0.78	2.59	<0.001
<b>Random Effect</b>				
Community health center				
Var (constant)	0.49	0.06	3.67	
N observation	200			
LR test vs. Logistic Regression: chibar2 (01) = 1.81				
p= 0.089				
Intraclass Correlation (ICC)		13.03%		

Patients with education ≥senior high school had a logodds of satisfaction 1.59 units lower than patient with <senior high school (b = -1.59; 95% CI= -2.49 to -0.68; p<0.001). There was a relationship between income and patient satisfaction. Patient with income ≥Rp 1,569,832 had a logodds of satisfaction on health services by 1.32 lower

than patient with income <Rp 1,569,832 (b= -1.32; 95% CI= -2.25 to -0.38; p <0.006). There was a relationship between health financing and patient satisfaction. Patients who had health insurance had a logodds of satisfaction on health service by 1.55 lower than patient without health financing (b= -1.55; 95% CI= -2.47 to -0.63;

$p < 0.001$ ). There was a relationship between quality service and patient satisfaction. Good quality health service increased logodds patients satisfaction by 1.68 higher than poor quality health service ( $b = 1.68$ ; 95% CI= 0.78 to 2.59;  $p < 0.001$ ).

Community health center had a contextual effect on patient satisfaction with ICC= 13.03%.

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## DISCUSSION

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### 1. The effect of age on patient satisfaction

The result of this study showed that there was a significant relationship between age and patient's satisfaction. Patients aged  $\geq 35$  years old were 0.99 time more likely to have high level of satisfaction than patients aged  $< 35$  years old.

The result of this study was supported by a study done by Olumodeji et al. (2015), which stated that there was a significant relationship between age and patient satisfaction. Patients aged 35 years old and over assumed that the service provider was able to provide quality services and fulfill patients' needs so that it influenced the high level of satisfaction.

A study done by Sanchez-Piedra et al. (2014) also stated that there was a significant relationship between age and patient's satisfaction. The older the age of the patient, the higher the satisfaction on health services. Patients who were older did not demand much and have lower expectations so they tend to feel satisfied with the services provided.

### 2. The effect of education on patient satisfaction

The result of this study showed that there was a significant effect of educational level on patient's satisfaction. Highly-educated patients have lower satisfaction compared to patients with low educational levels.

The result of this study was in line with a study done by Risnandi et al. (2015) and Mohamed et al (2015) which stated that there was a significant effect of educational level on patient's satisfaction. Patients with a high level of education would understand more about health and tend to have high expectations for health services. Unlike someone with a low level of education, she/he tend to be more receptive and satisfied with the services provided because they did not know what they needed.

A study done by Kelarijani et al (2014) also showed that highly-educated patients tend to have low satisfaction to health services. The level of satisfaction of people with higher education would decrease when they expectations were not fulfilled.

### 3. The effect of income on patient satisfaction

The result of this study showed that there was a significant effect of income on patient satisfaction. The higher income, the lower satisfaction of health service.

The result of this study was in line with a study done by Akbar et al. (2017) and Kelarijani et al. (2014) which stated that patients with high income tend to have low levels of satisfaction.

Income was one of the factors that influenced the perception. High income would affect expectations and greater demands on health services needed because of financial capacity. In contrary, people with low income tend to accept minimal health services without more demands and expectations (Mohamed et al, 2015). Therefore, income would eventually determine perceived satisfaction to the health services.

### 4. The effect of type of financing on patient satisfaction

The result of this study showed that there was a significant effect of type of financing on patient's satisfaction. Patients who use health insurance had a lower level of satis-

faction compared to patients who use a type of general financing (fee for service).

A study of Budi (2010) and Utami et al. (2017) showed that differences in financing systems affected differences in the quality of health services that have an impact on the differences in patient's satisfaction. Patients with health insurance got poor quality of health services compared to non-health insurance patients (Imelda et al., 2015).

The result of this study was in line with a study by Shi et al. (2015) which stated that there was a meaningful difference between the use of health insurance and patient satisfaction. Patients who used regional health insurance have lower levels of satisfaction compared to regular patients who did not use health insurance.

#### **5. The effect of quality health service on patient satisfaction**

The result of this study showed that there was a significant effect of quality of services on patient satisfaction. The better the quality of health services received, the higher the level of patient satisfaction. Patients who got good quality of services have 5.37 times higher satisfaction compared to patients who got poor quality of services.

The result of this study was supported by a study by Andriani (2017) and Eninur-khayatun et al. (2017) which stated that there was a relationship between quality of health service and patient satisfaction. Good service quality affected the level of satisfaction. A study by Elleuch (2014) in Japan, also showed that the quality of health services affected the level of satisfaction in its aspects, namely technical and interpersonal aspects.

A study by Juwita et al. (2017) stated that there was a relationship between the quality of health services and patient satisfaction in all dimensions. The dimensions of the quality of health services consisting

of tangible, reliability, responsiveness, assurance, and empathy which affected patient's satisfaction. Service quality was the proper value of the service unit, the better the patient's perception of the dimensions of service quality, the higher the level of patient's satisfaction (Al-damen, 2017).

#### **6. The effect of community health center on patient satisfaction**

The results of multilevel analysis showed that the score of ICC = 13.03%, the indicator showed that variations in the characteristics of each health center have a contextual influence on variations of patient's satisfaction.

The result of this study was in line with a study by Adhikary et al. (2018) in Bangladesh which showed that there was a significant difference in the average level of patient satisfaction at each level of the health service agency. Health service institutions with good quality, including in terms of cleanliness of facilities, safeguarding the privacy, skills and attitudes of service providers, the timeliness of services affected high patients' satisfaction.

A study by Pullicino et al. (2016), in 70 primary health service providers in Malta explained that variations in primary health care providers affected the variations in patient health behavior, this showed the role of service quality in implementing standard operating procedures and service standards at each health service provider. Eventually, the quality of service affected patient's satisfaction (ICC= 13%).

Another study that supported the results of this study was conducted by Mirshanti et al. (2017) and Widayati et al. (2017), which showed that the status of accreditation of health centers affected patient satisfaction. The higher the level of accreditation status of the health center, the better the quality of service, and ultimately

it would increase patient's satisfaction. In this study, 72% of health centers were accredited with variations in their accreditation status, and 28% of health centers were not accredited. Health centers with quality services according to accreditation standards tend to increase patient satisfaction. Community Health Centers have their own characteristics in the scope of work area, potential resources, and quality of health services. These characteristics can affect patient's satisfaction with the service that they received (Goetz et al., 2015).

Based on the result of this study, it was necessary to optimize the monitoring of service quality on a regular basis, and improve the quality of service for each health service provider agency, as well as cross-sectoral cooperation to achieve optimal public health degrees.

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