

Determination Analysis of Hospitals in East Java on Readiness in Facing a Pandemic Based on the WHO Rapid Hospital Readiness Checklist

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ABSTRACT

Background: During the COVID-19 pandemic, health service providers, especially hospitals, are expected to be able to optimize all their resources in providing services to patients. Assessment of hospital readiness in dealing with the COVID-19 pandemic is needed to ensure that hospitals continue to maintain and improve the quality of health services and patient safety.

Purpose: The purpose of this study was to analyze the effect of hospital classification, type of service, referral status and accreditation status on hospital readiness in dealing with the COVID-19 pandemic in East Java.

Methods: The design of this study is a quantitative observational analytic type with a cross sectional approach. The population of this study is 385 hospitals in East Java. The sampling technique of probability sampling with a stratified random sampling approach obtained a sample of 129 hospitals. The data analysis used is Dummy Multiple Linear Regression.

Results: The results showed that the classification of the hospital with a p value = 0.001 and the accreditation status with a p = 0.000 had an effect on the readiness of the hospital to face a pandemic. Meanwhile, the type of service with a p value = 0.397 and referral status with a p value = 0.077 did not affect the readiness of the hospital to face a pandemic.

Conclusion: Hospital classification and accreditation status influence hospital readiness to face the COVID-19 pandemic in East Java. Therefore, regular monitoring and evaluation of readiness to face a pandemic is important for all hospitals to carry out through independent assessments. Making efforts to improve each component, especially in class C and D hospitals, as well as collaborating with the Health Service is very necessary to fulfill regulations and implement improved services for both COVID-19 and non-COVID-19 patients.

Keywords: covid-19, hospital readiness, pandemic

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BACKGROUND

At the beginning of 2020, Corona Virus Disease 2019 or better known as COVID-19 became a world health problem. This case began in Wuhan City, Hubei Province, China. This epidemic continues to grow until there are reports of deaths and imports from more than 184 countries around the world (Kementerian Kesehatan, 2020). On January 30, 2020, WHO designated COVID-19 as a Public Health Emergency of International Concern (PHEIC) and declared COVID-19 a pandemic on March 11, 2020 (Kementerian Kesehatan, 2020).

Based on data from the Directorate General of Disease Prevention and Control of the Ministry of Health, the COVID-19 case fatality rate (CFR) in East Java was the highest nationally in 2020, reaching 6.92%. The mortality rate in East Java also exceeds the national mortality rate of 2.98% (Jenderal et al., 2020). Confirmed cases of COVID-19 in East Java until March 24 2022 reached 571,382 people and 31,270 people who died (CFR 5.5%) (Satgas COVID-19 Jawa Timur, 2020).

The COVID-19 pandemic has exposed the reality that health services in Indonesia have many vulnerabilities. Even though they already have a Hospital Disaster Plan and even carry out exercises or simulations, it turns out that hospitals are still unprepared and vulnerable to non-natural events. Changes in the situation where the number of non-COVID-19 patient visits has decreased drastically, while the number of COVID-19 patients has increased, causing hospitals to have to rearrange their resources, so that idle capacity in non-COVID-19 service areas can be utilized to fill deficiencies in COVID-19 patient service areas -19. This whole situation can affect the hospital's ability to provide quality and safe services for patients (PKMK FK UGM, 2021).

For this reason, hospitals need to have a Hospital Disaster Plan and scenarios for placing infectious patients, which become standards and elements in accreditation assessment. The Ministry of Health has adopted a tool in the form of a checklist developed by WHO regarding hospital Readiness in dealing with disasters, including pandemics. However, there is not yet complete data in East Java in identifying hospital readiness for a pandemic based on the WHO Rapid Hospital Readiness Checklist and there are not many studies on hospital readiness in Indonesia that have been widely published.

The majority of research conducted by other countries measuring hospital readiness in dealing with a pandemic was carried out at the Nigerian Hospital based on a public (government) hospital located in a secondary or tertiary health facility in April - October 2020. Measurements were made on the 12 components using the hospital readiness checklist from WHO which added 1 modification component (staff welfare) and the readiness score was classified as adequate (score > 80%), moderate (score 50 - 79.9%) and limited/ unprepared (score < 50%), this concludes that most hospitals in Nigeria are not adequately prepared to respond to the COVID-19 outbreak (Ogoina et al., 2021).

Research in Indonesia, especially the Province of East Java, regarding the influence of determinants on hospital readiness in dealing with a pandemic has not been carried out much. As an effort to prepare hospitals for pandemic conditions, hospitals as referral health services must be able to guarantee access and quality of patient care. Thus, it is important to observe data in a time series so that it can be analyzed in order to better understand the impact of the COVID-19 pandemic on hospital readiness to face a pandemic.

METHODS

This study uses an analytic observational research design with a cross-sectional approach, emphasizing the observation of the independent variables of hospital classification, type of service, referral status and accreditation status while the dependent variable is Readiness in dealing with a pandemic. The independent variable and the dependent variable are assessed one at a time. The research was carried out at the East Java provincial hospital

from July to September 2022. There are 385 hospitals in East Java with a sample of 129 hospitals. Sampling Technique Probability Sampling with Stratification Random Sampling approach.

The procedure for collecting data on pandemic readiness uses a questionnaire using the WHO Rapid Hospital Readiness Checklist which consists of 12 components with 79 statements. The key informants in this study were the Services Department, the Infection Prevention and Control Committee (PPI) and the Pharmaceutical Installation, Laboratory and Triangulation Informants staff, namely the Deputy Director of Services at each hospital. The ethics of this research are informed consent, anonymity, confidentiality. Data is processed in stages: editing, coding, data entry, tabulation, final data checking. Data analysis was performed through univariate analysis and bivariate analysis.

RESULTS

Table 1. Distribution based on the Determinants of Respondents in Hospital Research in East Java in 2022.

No	Variabel	Frequency	Percentage (%)
1	Hospital Classification		
	Class A	2	1,6
	Class B	21	16,3
	Class C	64	49,6
	Class D	42	32,6
	Total	129	100
2	Types of Hospital Services		
	General Hospital	114	88,4
	Special Hospital	15	11,6
	Total	129	100
3	Referral Status		
	Reference	47	36,4
	Non Referral	82	63,6
	Total	129	100
4	Accreditation Status		
	Prime Pass	22	17,1
	Basic level	9	7
	Intermediate Level	17	13,2
	Main Level	19	14,7
	Plenary Level	62	48,1
	Total	129	100

Source: primary data 1 July – 31 September 2022

In table 1, it is known that the classification of hospitals, the majority of respondents were class C hospitals with 64 hospitals (49.6%), while in the type of service, most were from General Hospitals with 114 hospitals (88.4%). Meanwhile, the most referral status was from non-referral COVID-19 hospitals with 82 hospitals (63.6%). And on accreditation status, the majority of hospitals at the plenary level are 62 hospitals (48.1%).

Table 2. Results of Readiness in Facing a Pandemic in Hospital Respondents In East Java in 2022.

Leadership and incident management system (n = 7) n (%)	Coordination and Communication (n = 6) n (%)	Surveillance and Information Management (n = 6) n (%)	Risk Communication and Community Engagement (n = 4) n (%)	Administration, Finance and Business Continuity (n = 8) n (%)	Human Resources (n = 6) n (%)

n (%)						
Classification of RS						
A	Class	7 (100)	6 (100)	6 (100)	4 (100)	8 (100)
						6 (100)
B	Class	6,5 (94)	6 (97)	5,5 (92)	3,8 (96)	7,8 (98)
						5,8 (97)
C	Class	6,4 (92)	5 (91)	5,4 (91)	3,6 (92)	7,4 (93)
						5,5 (92)
D	Class	6 (89)	5 (90)	5,3 (89)	3,4 (89)	6,7 (85)
						4,9 (83)
Total, %, mean ± SD		91 ± 10,7	92 ± 8,9	91 ± 9,9	92 ± 10,3	91 ± 10,1
	Capacity Surge (n = 5) n (%)		Continuity of support services is important (n = 6) n (%)	Patient Clinical Management (n = 4) n (%)	Occupational Health, Mental Health, and Psychosocial Support (n = 5) n (%)	Rapid Identification and Diagnosis (n = 6) n (%)
						Infection Prevention and Control (n = 16) n (%)
Classification of RS						
A	Class	5 (100)	6 (100)	4 (100)	5 (100)	6 (100)
						16 (100)
B	Class	4,8 (96)	5,7 (95)	3,6 (91)	4,2 (85)	5,8 (98)
						15 (96)
C	Class	4,7 (94)	5,5 (93)	3,4 (85)	3,8 (77)	5,6 (93)
						14 (93)
D	Class	4 (81)	5 (85)	3 (77)	3,1 (63)	5,2 (87)
						13,5 (85)
Total, %, mean ± SD		90 ± 12,6	91 ± 9,9	84 ± 13,5	74 ± 18,2	92 ± 10,1
						91 ± 10,1

Source: primary data 1 July – 31 September 2022

Based on the table 2, the results of the assessment of the readiness of hospitals in East Java in facing a pandemic, the majority of the average per component have a good value, namely above $\geq 80\%$ of Class A - Class D Hospitals. Only in the components of occupational health, mental health & psychosocial support and also clinical management components require improvement, especially in class C hospitals by 77% and class D hospitals by 63%.

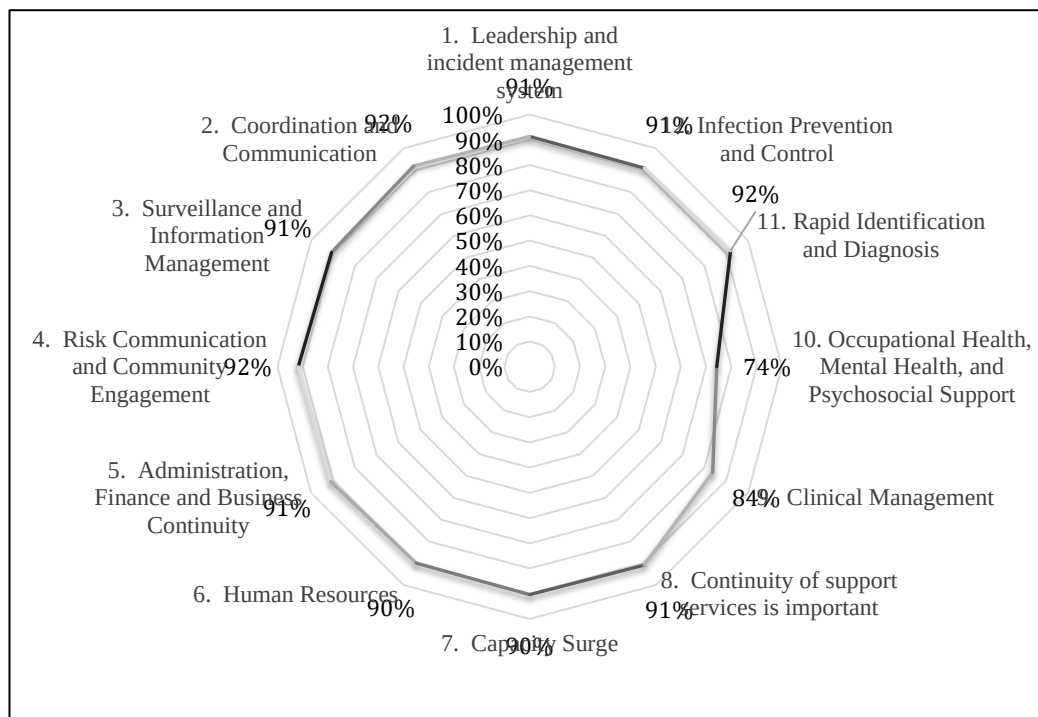


Figure 1. Overview Of Hospital Readiness In East Java 2022 : Key Components

In figure 1, it is known that overall, the readiness of hospitals in East Java in dealing with the pandemic as a whole, the average majority have good scores in each component. Only on the components of occupational health, mental health & psychosocial support (74%) which have less value. This result is low because not all hospitals in East Java provide mental health and psychosocial support services in accordance with the context of society as well as doing feedback and screening of COVID-19 patients.

Table 3. Statistic Test Results

Variable	Unstandardized		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	80.392	1.640		49.027	.000
Class A	11.626	3.291	.232	3.532	.001
Class B	6.703	1.611	.399	4.160	.000
Class C	5.081	1.140	.409	4.457	.000
General Hospital	1.225	1.442	.063	.850	.397
Referral Hospital	1.880	1.053	.146	1.785	.077
Basic level	1.875	1.675	.077	1.120	.265
Intermediate Level	1.582	1.367	.086	1.158	.249
Main Level	2.953	1.420	.169	2.079	.040
Plenary Level	4.877	1.251	.393	3.897	.000

Based on table 3 the results of the analysis of dummy multiple linear regression tests show that the hospital classification variable with a value of $p = 0.001$ and accreditation status with a value of $p = 0.000$ has an effect on hospital readiness to face a pandemic. Meanwhile, the type of service with a p value = 0.397 and referral status with a p value = 0.077 did not affect the readiness of the hospital to face a pandemic.

DISCUSSION

The effect of classification of hospitals in East Java on readiness in facing a pandemic based on the WHO Rapid Hospital Readiness Checklist

Based on the results of the dummy linear regression statistical test, it shows that the variable classification of hospitals in East Java has an effect on readiness to face a pandemic. This can be seen from the beta value of Standardized Coefficients, which is 0.232 and the significant value of the hospital classification variable has a p-value ($0.001 < \alpha = 0.05$), so hospital classification affects readiness in facing a pandemic. Hospital Classification is a grouping of hospital classes based on facilities and service capabilities. Determination of hospital classification is based on 3 (three) main aspects, namely service; Human Resources (HR); equipment; as well as buildings and infrastructure. Hospital buildings and infrastructure as intended must meet building and environmental requirements as well as requirements for the reliability of hospital buildings and infrastructure (PERMENKES, 2010).

According to research (Maryana, 2017) stated that the readiness of human resources, infrastructure together had a positive and significant effect on hospital readiness. In the component for assessing hospital readiness for a pandemic, there is a link with components in determining hospital classification, namely service capability, facilities, human resources and bed capacity. This is in line with research (Pujani et al., 2019) which also states that Structural Readiness (SR): Provision of Health Services, HR, Facilities and Infrastructure has a significant influence on hospital readiness.

In this study, the results of assessing the readiness of class A hospitals for all components reached 100%, followed by class hospitals on average reaching 94.7%, for class C hospitals an average of 90.5% and class D hospitals. by 83.5%. This shows that a class A hospital is the top type of hospital that has complete medical service capabilities. Meanwhile, class B hospitals are also hospitals that are still included in tertiary level health services which prioritize sub-specialist services and become further referrals from class C hospitals. Meanwhile, class C hospitals are advanced referrals at a level above primary health services. and class D hospitals provide basic medical services, which are limited to basic health services, namely general and dental health. This means that the component for assessing hospital readiness for a pandemic is related to service capabilities, facilities, human resources and bed capacity owned by each class of hospital.

The effect of the type of hospital services in East Java on readiness in dealing with a pandemic based on the WHO Rapid Hospital Readiness Checklist

The type of hospital services is a determinant that needs to be considered when looking at hospital readiness in dealing with a pandemic by looking in detail at the health services provided to patients. Determination of the type of hospital services is distinguished based on the type of disease provided services to patients. General hospitals provide health services in all fields and types of diseases, consisting of at least: a. Medical Services; b. Nursing and Midwifery Services; c. Medical Support Services; and D. Non-medical Support Services, while Special Hospitals provide main services in one field or one type of disease based on scientific discipline, age group, organ or type of disease. (PERMENKES, 2014).

Based on the results of this study, it shows that the variable type of hospital services in East Java has no effect on readiness in dealing with a pandemic. This can be seen from the beta value of Standardized Coefficients, which is 0.063 and the significant value of the hospital classification variable has a p-value ($0.397 > \alpha = 0.05$), so the type of hospital service does not affect readiness in dealing with a pandemic.

These results are supported in research (Widani, 2020) who stated that there was no relationship between the type of hospital services and the readiness of nurses to face the new normal during the COVID-19 pandemic. Types of general and special hospitals, during a pandemic optimally prepare services for COVID-19 patients. It was different at the start of the

pandemic, based on direct observations, general hospitals were better prepared than special hospitals. However, when there is a surge in cases and all hospitals are overloaded, special hospitals are encouraged to also prepare pandemic services optimally. For example, the Menur Mental Hospital had to receive an overflow of COVID-19 patients from the General Hospital, which was overloaded during the spike in cases. The results of this analysis show that both general hospitals and special hospitals optimize the readiness of COVID-19 patient services.

The effect of referral status of hospitals in East Java on readiness in facing a pandemic based on the WHO Rapid Hospital Readiness Checklist

Referral hospitals for COVID-19 are regulated in the Decree of the Minister of Health Number HK.01.07/Menkes/275/2020 concerning the establishment of referral hospitals for the management of certain emerging infectious diseases, namely having the following conditions: (1) to carry out management of suspected cases that have the potential for extraordinary outbreaks of Infectious Diseases Certain Emerging, (2) providing quality patient referral and specimen referral services in accordance with standards, (3) increasing the capacity of the resources needed in the context of managing suspected cases that have the potential for extraordinary occurrences of Certain Emerging Infectious Diseases, (4) recording and reporting (Kepdirjen-Yankes, 2020).

Based on the results of the study, it showed that the variable status of hospital referrals in East Java had no effect on Readiness in dealing with a pandemic. This can be seen from the standardized coefficients beta value of 0.146 and the significant value of the hospital classification variable has a p-value (0.077) > the value ($\alpha = 0.05$), meaning that the referral status of hospitals in East Java does not affect readiness in facing a pandemic.

This result is in accordance with the government's decision to also open space for non-referral hospitals that are capable of being able to carry out management and referral health services for patients. (Kepdirjen-Yankes, 2020). Therefore strengthening the health service system, both referral and non-referral hospitals, namely by maintaining the quality of health services, is the right way to anticipate a spike in cases during the COVID-19 pandemic.

The Ministry of Health also gave instructions that hospitals must switch or convert non-COVID-19 rooms into COVID-19 rooms. The reference used is if the COVID-19 BOR figure has reached 80 percent of the rooms provided. At that time, the hospital had to change the room to 40 percent of the isolation area and 25 percent of the ICU room. Thus both referral and non-referral hospitals must be equally ready to provide COVID-19 services. Especially during the spike in cases, there were Ministry of Health regulations for financing COVID-19 patient claims at referral and non-referral hospitals.

The effect of hospital accreditation status in East Java on readiness in facing a pandemic based on the WHO Rapid Hospital Readiness Checklist

Determination of the COVID-19 pandemic is a challenge that must be faced by all health facilities, including hospitals, to continue to maintain the quality of service and patient safety. High quality of service and patient safety is the ultimate goal of providing health services in hospitals. Patient safety must be made a culture by all health workers in the hospital so that it can improve the quality of service (Djasri, 2012).

The importance of accreditation during a pandemic is to improve health services to patients, create a comfortable environment for patients, minimize risks to patients and employees. Therefore hospitals must implement accreditation standards in order to improve patient satisfaction, service quality and patient safety (Saif, 2018).

Based on the results of this study, it shows that the hospital accreditation status variable has a p-value of $< \alpha = 0.05$ with a p-value = 0.000 < ($\alpha = 0.05$), meaning that the accreditation status of hospitals in East Java has an effect on Readiness in dealing with a pandemic based on the WHO Rapid Hospital Readiness Checklist.

The Ministry of Health stated that hospital readiness for a pandemic is closely related to accreditation (Kemenkes, 2020). Accreditation activities can support hospital readiness in dealing with a pandemic as an effort to improve the quality of service quality (Kepdirjen-Yankes, 2020). The standard assessment criteria are actually closely related to the current condition of COVID-19 because they consist of infection prevention, patient safety, employee health and safety, risk management, drug management, sterilization management, laboratory services, waste management, directed communication, and social responsibility. Therefore, health service accreditation standards are related to COVID-19 which shows organizational and patient management and employees related to standards and assessment criteria (Rosyid & Indriani, 2021).

In the accreditation process, hospitals are required to be able to develop and maintain a disaster emergency management program to respond to disasters, both non-natural disasters, natural disasters or others that have the potential to occur in the community. So the components for assessing readiness in dealing with a pandemic are in line with accreditation standards which are a form of hospital efforts to optimize their service capabilities to maintain and improve the quality of health and patient safety services according to accreditation objectives.

Based on the results of this research, it has implications for hospitals in East Java and stakeholders. Theoretically, hospital classification and accreditation status influence a hospital's readiness to face a pandemic. In this case, it makes a significant contribution to hospitals in East Java in facing the pandemic, especially class C and D hospitals to make improvements to the Occupational Health, Mental Health and Psychosocial Support components. Practically, it also provides input to the Health Service in fulfilling policies and implementing improved services for both COVID-19 and non-COVID-19 patients.

CONCLUSION

This research shows that hospital classification and accreditation status influence hospital readiness in facing a pandemic. Meanwhile, the type of hospital service and referral status have no effect on hospital readiness to face the pandemic. The results of measuring the readiness of hospitals in East Java in facing the COVID-19 pandemic overall show good scores for each component of readiness.

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