

# The Relationship of Characteristic Individual with The Severity of Covid-19 at Dr. H. Moh Anwar Sumenep Hospital

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## ABSTRACT

Most of the confirmed Covid-19 patients at the Dr. H. Moh Anwar who has severe symptoms has comorbidities such as hypertension and diabetes mellitus.. The study aims to know the relation of individual characteristics in a confirmed Covid-19 patient at Dr. H. Moh Anwar sumenep hospital with the severity of Covid-19. The study is an analytic quantitative approach designed to cross sectional with a secondary data source of patient Covid-19 medical records. This study sample is based on the calculations of the slovin formula found 97 of the total population with the simple random sampling taken. The data analysis used is a univariate and bivariate analysis using the chi square test for the distribution of frequency and cross tabulation. The result of the study showed that 55,7% of patients suffered extreme severity. Patients who are at greater risk for age characteristic severity > 45 years (61,5%; OR = 4,945; P = 0,000), male gender (55,3%; OR = 2,403; P = 0,035), there is comorbide (66,0%; OR = 7,182 P = 0,000), diabetic (78,3%; OR = 7,056; P = 7,056), hypertensive (97,7%; OR = 18, 219; P = 0,000). The conclusion from this study suggests that there is a link between characteristics of the individual in a confirmed patient Covid-19 at Dr. H. Moh Anwar with the severity of Covid-19. The recommended suggestion is to look at the greater risk of Covid-19 severity, which people hope to care more, be aware of their own health by obediently obeying the Covid-19 control protocol.

Keywords: individual characteristic, severity of covid-19

## 1. INTRODUCTION

Coronavirus Disease (Covid-19) is currently a serious world problem with the number of cases increasing every day, attacking everyone regardless of age or gender and has been categorized as a global pandemic[1]. Until June 6, 2021, the number of cases of Covid-19 infection in the world has increased, so that 172,267,352 cases have been confirmed and 3,710,760 deaths have been confirmed[2].

Indonesia ranks 1st in Southeast Asia with 1,850,206 confirmed cases and 51,449 deaths with a Case Fatality Rate (CFR) of 2,8%, this value is higher than the world's Case Fatality Rate (CFR) with a value of 2,2% [2].

Like Indonesia, which has a CFR value that exceeds the world, namely East Java 7,31%, with 156,050 confirmed positive Covid-19 patients, 142,713 patients declared cured and 11,494 patients declared dead[3].

Sumenep Regency is a Regency in East Java and has been affected by Covid-19. Based on data updated on June 6, 2021, it shows that Sumenep Regency has 1,765 confirmed cases of Covid-19 and 1,643 recovered cases and 108 cases of death[3]. Hospital Dr. H. Moh Anwar is a Sumenep general hospital that is a reference by the local government to treat Covid-19 patients. The monthly data in the RSUD Moh. Anwar, that the Moh. Anwar has Covid-19 inpatients starting from



July 2020 as many as 86 people, August 63, September 83, October 98, November 91 and December 143 with cases with mild symptoms 2,6%, moderate 33,8% and severe 63,6 % of the total.

Based on previous research in several countries such as America, Europe and Asia said that of the many factors host (individual characteristics) that are strongly related to the severity of Covid-19 are age, gender and comorbidities. The results of a meta-analysis that combined several study designs showed that male gender, old age, hypertension, diabetes were comorbidities that were associated with the severity and prognostic end point of Covid-19[4].

Based on the background of the problem above, it is necessary to conduct research on "The Relationship of Individual Characteristics with the Severity of Covid-19 at Dr. Hospital. H. Moh Anwar" which aims to determine the relationship between individual characteristics and the severity of Covid-19 at Dr. H. Moh Anwar Sumenep hospital.

## 2. METHODS

This research is a type of analytical research with a quantitative approach with a cross sectional research design. This research is located in RSUD Dr. H. Moh Anwar Sumenep. The population in this study were all confirmed Covid-19 patients at the Dr. H. Moh Anwar Sumenep in the period November to December 2020. The sample in this study calculated using the Slovin formula is 97 samples from the total and taken by simple random sampling with the inclusion category, namely having a medical record with individual data availability and severity. Complete Covid-19 and exclusion categories, namely in this study are Covid-19 patients who are pregnant.

The variables in this study are independent

variables consisting of age, gender and comorbidities. Age criteria were categorized into two groups, namely age > 45 years and ≤ 45 years and were taken according to the hospital medical record form, gender criteria were categorized with male and female taken according to the hospital medical record form, comorbid criteria were categorized by the presence of comorbid and no comorbidities were taken according to the medical record form at the hospital, in this study the type of comorbidity taken was in accordance with the type of comorbid that most dominated, namely hypertension with diagnosed and undiagnosed criteria for hypertension and diabetes mellitus with diagnosed and undiagnosed criteria for diabetes mellitus in secondary data from the medical records of confirmed Covid-19 patients in hospitals, and the dependent variable is the severity of Covid-19 which is categorized as moderate and severe according to KMK No. HK. 01.07- MENKES-446-2020 said that the criteria for hospitalized patients in confirmed Covid-19 patients were moderate and severe/critical symptoms.

Data analysis in this study used univariate analysis which aims to describe the characteristics of each variable in this study, namely individual characteristics (age, gender, comorbid) and the severity of Covid-19. and the bivariate analysis in this study aimed to determine the relationship between individual characteristics and the severity of Covid-19 patients at Dr. RSUD. H. Moh Anwar Sumenep for the period from November to December 2020. The statistical test used is the Chi square test.

## 3. RESULTS AND DISCUSSIONS

Description of Individual Characteristics of Covid-19 Confirmed Patients at RSUD Dr. H. Moh Anwar Sumenep

Based on the data that has been collected, the description of individual characteristics



(age, gender and comorbid) and the severity of Covid-19 is arranged in the form of a frequency and percentage table as follows:

Table 1. Age Frequency Distribution in Confirmed Covid-19 Patients in Hospital Dr. H Moh Anwar Sumenep

No.	Category Age	Frequency (n)	Percentage (%)
1.	> 45 years	52	53,6
2.	≤ 45 years	45	46,4
Total		97	100,0

Source: Secondary Data, 2020.

Based on Table 1. shows most of the patients confirmed Covid -19 at Dr. Hospital. H. Moh Anwar came from the category of age > 45 years by 53,6% (55 patients). In this study the age category was taken according to the age of the patient contained in the secondary medical record data.

Table 2. Distribution of Gender Frequency in Covid-19 Confirmed Patients at Dr. Hospital. H Moh Anwar Sumenep

No.	Gender	Frequency (n)	Percentage (%)
1.	Male	47	48,5
2.	Female	50	51,5
Total		97	100,0

Source: Secondary Data, 2020.

Based on Table 2. shows confirmed Covid-19 patients at RSUD Dr. H. Moh Anwar is slightly more female, 51,5%.

Table 3. Distribution of Comorbid Frequency in Covid-19 Confirmed Patients at RSUD Dr. H Moh Anwar Sumenep

No.	Comorbid	Frequency (n)	Percentage (%)
1.	Comorbid	50	51,5
2.	No comorbid	47	48,5
Total		97	100,0

Source: Secondary Data, 2020.

Based on Table 3. shows most of the comorbid categories in confirmed patients Covid-19 has comorbidities of 51,5% (50 patients).

Table 4. Frequency Distribution of Diabetes Mellitus in Confirmed Covid-19 Patients at Dr. Hospital. H Moh Anwar Sumenep

No.	Diabetes Mellitus	Frequency (n)	Percentage (%)
1.	Yes	23	23,7
2.	No	74	76,3
Total		97	100,0

Source: Secondary Data, 2020.

Based on Table 4. shows most categories of diabetes mellitus confirmed patients with Covid-19 from non-diabetes mellitus, namely 76,3% (74 patients). In this study, the type of comorbid diabetes was taken because the comorbid most dominates in the secondary data in the medical records of patients confirmed Covid-19 at RSUD Dr.H. Moh Anwar Sumenep.

Table 5. Distribution of Hypertension Frequency in Covid-19 Confirmed Patients at RSUD Dr. H Moh Anwar Sumenep

No.	Hypertension	Frequency (n)	Percentage (%)
1.	Yes	12	12,4
2.	No	85	87,6
Total		97	100,0

Source: Secondary Data, 2020.

Based on Table 5. Shows that most of the hypertension categories of patients confirmed Covid-19 from non-hypertensive, namely

87,6% (85 patients). In this study, the type of comorbid hypertension was taken because hypertension is the most dominant type of comorbid found in the secondary data in the medical records of confirmed Covid-19 patients at RSUD Dr. H. Moh Anwar Sumenep.

Table 6. Distribution of Severity Frequency in Covid-19 Confirmed Patients at RSUD Dr. H Moh Anwar Sumenep

No.	Severity	Frequency (n)	Percentage (%)
1.	Severe	43	44,3
2.	Moderate	54	55,7
Total		97	100,0

Source: Secondary Data, 2020.

Based on Table 6. shows that most of the severity categories of patients confirmed Covid-19 from moderate severity by

55,7% (54 patients). Based on KMK No. HK. 01.07-MENKES-446-2020 said that the criteria for inpatients in confirmed Covid-19 patients are moderate and severe/critical symptoms.

The Relationship between Individual Characteristics and the Severity of Covid-19 at Dr. Hospital. H. Moh Anwar Sumenep

Based on Table 7. Tabulasi cross severity of age with values obtained P value of 0000 when compared with  $\alpha = 0,05$ , P value less than  $\alpha$  age ( $P < \alpha$ ) is  $0,000 < 0,05$  which means  $H_0$  rejected and  $H_a$  accepted that indicates that there is a relationship age with the severity of Covid-19 in patients with confirmed COVID-19. The OR (Odds Ratio) value of 4.945 indicates that patients with

Table 7. Cross-tabulation of the Relationship between Age and Severity of Covid-19

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No.	Age	The severity				Total		P	OR
		Severe		Moderate		N	%		
		n	%	n	%				
1.	> 45 years	32	61,5	20	38,5	52	100,0	0,000	4,945
2.	45 years	11	24,4	34	75,6	45	100,0		
Total		43	44,3	54	55,7	97	100,0		

Source: Secondary Data, 2020.

Table 8. Cross-tabulation of the Relationship between Sex and the Severity of Covid-19

No.	Gender	The severity				Total		P	OR
		Severe		Moderate		N	%		
		n	%	N	%				
1.	Male	26	55,3	21	44,7	71	100,0	0,035	2,403
2.	Female	17	34,0	33	66,0	26	100,0		
Total		43	44,3	54	55,7	97	100,0		

Source: Secondary Data, 2020.



confirmed Covid-19 age > 45 years are at risk of experiencing severe severity 4,945 times greater than those in the age group ≤ 45 years in patients with confirmed Covid19 at RSUD Dr. H. Moh Anwar Sumenep.

The results of this study indicate that the severe severity of Covid-19 in patients who were confirmed to be Covid-19 at the Dr. H. Moh Anwar mostly occurs at the age of > 45 years (44 years to 77 years) where the age category is a classification of middle age elderly and young elderly, which means that currently age > 45 years with comorbid diseases can experience a serious risk Covid-19 weight is 5 times.

This is because the average confirmed Covid-19 patient at the Dr. H. Moh Anwar at that age already had co-morbidities where the co-morbidities were related to the severity of Covid-19. This result is not in line with previous studies which said that age has a risk with the severity of the incidence of Covid-19 occurring in elderly people, namely individuals aged 60 years[5].

Based on Table 8. Tabulasi cross male gender with the severity of the obtained values P value equal to 0.035. When compared with  $\alpha = 0,05$ , the gender P value is smaller than ( $P < \alpha$ ) which is  $0,035 < 0.05$ , which means  $H_0$  is rejected and  $H_a$  is accepted, which shows that there is a sex relationship with the se-

verity of Covid-19 in patients with confirmed COVID-19. The OR (Odds Ratio) value of 2,403 indicates that male confirmed Covid-19 patients are at risk of experiencing severity 2,403 times greater than female patients with confirmed Covid-19.

The results of this study indicate that the severe severity of Covid-19 in patients who were confirmed to be Covid-19 at the Dr. H. Moh Anwar Sumenep mostly occurs in male patients than female patients with the risk of experiencing severe severity of 3 times. This is because most of the male patients were confirmed to be Covid-19 at the Dr. H. Moh Anwar experienced a decrease in his immunological condition and was diagnosed with severe symptoms.

This result is in line with the research of Wenham et al, who said that gender was proven to be a risk factor for mortality in Covid-19 patients where men died more than women. This is due to the fundamental differences in the immunological systems of men and women, differences in lifestyle and smoking prevalence[6].

Based on Table 9. Tabulasi cross severity of comorbid with Covid-19 obtained value of P value equal to 0,035 when compared with  $\alpha = 0,05$ , P value of comorbid smaller than  $\alpha$  ( $P < \alpha$ ) is  $0,000 < 0.05$  which means  $H_0$  rejected and  $H_a$  accepted that indicates that There

Table 9. Cross-tabulation of Comorbid Relationships with Covid-19 Severity

No.	of comorbid	The severity				Total		P	OR
		Severe		Moderate		N	%		
		N	%	n	%				
1.	There comorbid	33	66,0	17	34,0	50	100,0	0,000	7,182
2.	No comorbidities	10	21,3	37	78,7	47	100,0		
Total		43	44,3	54	55,7	97	100,0		

Source: Secondary Data, 2020

is a comorbid relationship with the severity of Covid-19 in patients with confirmed COVID-19. The OR (Odds Ratio) value of 7.182 indicates that confirmed Covid-19 patients with comorbidities have a greater risk of severe severity 7,182 times compared to no comorbidities in patients with confirmed Covid-19.

The results of this study indicate that patients who have confirmed COVID-19 and experience severe severity of Covid-19 are mostly patients with comorbidities. This is because on average, patients who are confirmed to have Covid-19 and have one comorbid or comorbid disease such as hypertension, diabetes mellitus, kidney failure and liver disorders are diagnosed with severe symptoms and experience poor conditions and complications occur.

This result is in line with the Center for

Disease Control and Prevention (CDD) report which previously stated that 94% of deaths occurred in patients infected with the Covid-19 virus, followed by a number of comorbidities or congenital health conditions (comorbid). While the rest, about 6% of deaths are caused by the SARS-CoV-2 virus. The CDC also lists several comorbidities that underlie patient deaths such as influenza and pneumonia, respiratory failure, hypertension, diabetes, vascular dementia, heart failure and kidney failure[7].

Based on Table 10. Tabulasi cross severity of diabetes mellitus with Covid-19 gained value P value of 0000 when compared with  $\alpha = 0,05$ , P value diabetes mellitus is smaller than  $\alpha$  ( $P < \alpha$ ) is  $0,000 < 0,05$  which means  $H_0$  rejected and  $H_a$  accepted that showed that there was a relationship between dia-

Table 10. Cross-tabulation of the Relationship between Diabetes Mellitus and the Severity of Covid-19

No.	Diabetes Mellitus	The severity				Total		P	OR
		Severe		Moderate		N	%		
		N	%	n	%				
1.	Yes	18	78,3	5	21,7	23	100,0	0.000	7,056
2.	No	25	33,8	49	66,2	74	100,0		
Total		43	44,3	54	55,7	97	100,0		

Source: Secondary Data, 2020.

Table 11. Cross-tabulation of Hypertension Relationship with Covid-19 Severity

No.	Hypertension	The severity				Total		P	OR
		Severe		Moderate		N	%		
		n	%	n	%				
1.	Yes	11	91,7	1	8,3	12	100,0	0,000	18,219
2.	No	32	37,6	53	62,4	85	100,0		
Total		43	44,3	41	55,7	97	100,0		

Source: Secondary Data, 2020.



betes mellitus and the severity of Covid-19 in patients with confirmed Covid-19. The OR (Odds Ratio) value of 7,056 indicates that confirmed Covid-19 patients with diabetes mellitus are at greater risk of experiencing severe severity, 7,056 times greater than those without diabetes mellitus in confirmed Covid-19 patients.

The results of this study indicate that diabetes mellitus is a comorbidity that often occurs in patients who are confirmed to be Covid-19 at Dr. H. Moh Anwar Sumenep and experienced severe severity of Covid-19 compared to experiencing moderate severity. The risk of experiencing severe COVID-19 severity is 7 times where this value is a greater value when compared to the OR value in the previous study, which was 3 times. This is because the confirmed Covid-19 patient with diabetes mellitus at the Dr. H. Moh Anwar was diagnosed with severe symptoms and had hyperglycemia.

These results are in line with the meta-analysis research conducted by Wu et al., which stated that diabetes mellitus increased the severity of Covid-19 by 2,58 times and diabetes mellitus increased the mortality of Covid-19 patients by 2,59 times compared to those without comorbid diabetes mellitus[8]. Diabetes can increase the severity of Covid-19 infection and even increase the risk of death caused by the lengthening of time it takes to clear the virus from the body. The prolongation can occur due to the cessation of the activity of the enzyme Dipeptidyl Peptidase IV (DPP4) by the use of anti diabetic drugs[9].

Based on Table 11. Tabulasi cross hypertension with severity Covid-19 obtained value of P value equal to 0,000. When compared with  $\alpha = 0,05$ , the P value of diabetes mellitus is smaller than  $\alpha$  ( $P < \alpha$ ) is  $0,00 < 0,05$ , which means  $H_0$  is rejected and  $H_a$  is accepted,

which indicates that there is a relationship between hypertension and the severity of Covid-19 in confirmed Covid-19 patients. The OR (Odds Ratio) value of 18,219 indicates that confirmed Covid-19 patients with comorbid hypertension are 18,219 times more at risk of severe severity compared to non-hypertensive patients with confirmed Covid-19.

The results of this study indicate that hypertension is the most dangerous comorbid in patients with confirmed Covid-19 at RSUD Dr. H. Moh Anwar Sumenep. The position of hypertension as a dangerous disease in patients is evidenced by the OR value of 18 times where this value is a greater value when compared to the OR value in the previous study which was 2,5 times. This is because patients who have confirmed Covid-19 and have comorbid hypertension are mostly  $> 45$  years old and diagnosed with severe symptoms and complications.

These results are in line with research systematic and meta-analysis of several studies which say that the severity and mortality of Covid-19 is influenced by several comorbid diseases, one of which is hypertension, where individuals who have comorbid hypertension can aggravate Covid-19 infection 2,5 times. especially in individuals who have advanced age[10].

#### 4. CONCLUSIONS

Based on the description of the results and discussion in this study, it can be concluded that the characteristics of confirmed patients with Covid-19 at Dr. RSUD. H Moh Anwar Sumenep with the most severity of Covid-19 based on age was having age  $> 45$  years with a percentage of 53,6% and based on gender it was female with a percentage of 51,5%, based on comorbidity there was a comorbid 51,5% based on diabetes mellitus is not diabetes 76,3% based on hyperten-



sion is not hypertension with a percentage of 87,6% and based on severity is moderate severity with a percentage of 55,7%.

The existence of a relationship between age and the severity of Covid-19 in patients with confirmed Covid-19, namely those aged > 45 years, having a risk of experiencing the severity of Covid-19 by 5 times. The existence of a sex relationship with the severity of Covid-19, namely patients with male gender have a risk of experiencing severe Covid-19 severity 3 times. The existence of a comorbid relationship with the severity of Covid-19 in patients with confirmed Covid-19, namely patients with comorbidities have a risk of experiencing severe severity of Covid-19 by 7 times.

There is a relationship between diabetes mellitus and the severity of Covid-19 in patients with confirmed Covid-19, namely patients with diabetes mellitus have a risk of experiencing severe severity of Covid-19 by 7 times. There is a relationship between hypertension and the severity of Covid-19 in patients with confirmed Covid-19, namely patients with hypertension have an 18 times risk of experiencing severe Covid-19 severity.

For hospitals, this research is expected to be a learning information to be able to make improvements in the availability of Covid-19 services such as bed reserves, ventilators for patients with severe symptoms and human resources seeing the number of Covid-19 cases experiencing severity in hospitals.

For people who see the risk of severe severity of Covid-19 caused by age > 45 years and have a history of comorbidities, it is hoped that the community will be more concerned and aware of their own health condition by obeying the Covid-19 control protocol and for those who already have a history of comorbidities, it is better to continue routinely.

take medication to control the condition of the body so that it is always in a stable condition. For further research, looking at the many severity factors of Covid-19 caused by other than the characteristics that exist in this study, it is hoped that more research will be carried out to study the characteristics of Covid-19 related to severity, such as the condition of pregnancy in women

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