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Risk factors for Covid-19 at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency

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Abstract

Covid-19 globally, in Indonesia and the Southwest Papua region is still a major health problem because of its high cases with a Case Fatality Rate of 2-10%. This study aims to determine the risk factors for COVID-19 events at the Dr. Jhon Piet Wanane Regional General Hospital Hospital, Sorong Regency. The type of research is observational with a cross-sectional approach. The population was 5,695 patients with a sample of 772 patients taken by purposive sampling technique. Data were collected using data from the COVID-19 Epidemiology in Hospital investigation form sheet and analyzed using the Chi-Square test, Prevalence Ratio Analysis, and regression binary logistic.The results of the study found that the variables that were not significant and not risk factors with the incidence of COVID-19 at the Dr. Jhon Piet Wanane Regional General Hospital Hospital, Sorong Regency were: Age was obtained with a p-value of 0.105 with a Prevalence Ratio = 240.8; CI 95% (0.67 – 1.029). Gender p-value 0.349 Prevalnce Ratio = 1.076; CI 95% (0.93 – 1.24), the tribe obtained p-value 0.167 and PR = 1.09; CI 95% (0.96-1.237). For variables that are significantly related to the incidence of Covid-19 are contact history p-value 0.002 and PR = 2.438; CI 95% (1.38 – 4.28), vaccination status p-value 0.002 and PR = 2.438; CI 95% (1,386-4,287) and comorbid P -value 0.002 with PR =1,247; CI 95% (1,087-1,431).

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In the multivariate analysis, the most dominant variable related to the incidence of COVID-19 at Dr. Jhon Piet Wanane Hospital, Sorong Regency in 2022 was comorbid variable.

Keywords: COVID-19; Risk Factor; comorbid; Vaccination status; contact history.

1. Introduction

Globally, as of December 2022, there were 651,918,402 cases with a Case Fatality Rate of 10.1%. In Indonesia, as of January 2023, there are 6,720,443 with a CFR of 2.3%. In West Papua Province from March 25, 2020, to January 2, 2023, there were 33,083 confirmed cases, 32,627 people recovered (98.6%), and 396 people died (1.2%) [1,2]. In Sorong Regency, the number of specimens examined was 38,836 specimens, 1,976 confirmed cases, 1,924 recovered patients (97.4%), 37 deaths (0.02%), and 15 active cases as of January 2, 2023 [3]. Meanwhile, at the Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency, the number of COVID-19 patients in 2022 was 405 people, 35 of whom were patients who died (0.07%)[4].According to experts from the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC), there are several risk factors that can cause the Coronavirus to worsen infection in humans, namely: gender, age, previous contact with the suspect or confirmed case, and comorbid conditions [5].People who have traveled from areas with local transmission of COVID-19, people who have traveled from areas infected with COVID-19, and people who have been in close contact with COVID-19-positive patients are the three categories of contact history [5]. Smoking, immune deficiency, HIV/AIDS and other immune system diseases, adiposity, sugar pain, chronic kidney disease, and others among these conditions. Gender is one of the determinants of COVID-19, according to the WHO in mid-2020, 51% of Coronavirus cases occurred in men, while 49% of cases occurred in women. The Chinese government found a 106:100 ratio of Coronavirus infection cases between men and women. The death rate of COVID-19 infection shows a clear difference between these two genders[1,2].Preventive steps that can be taken to reduce the transmission and spread of the Coronavirus, namely that the community is expected to strive for a cleaner and better way of life, for example by maintaining cleanliness, diligently washing hands, and restricting physical distance between humans (Physical Distancing) as recommended by the WHO so that the community is more proactive in the early discovery of COVID-19 by immediately visiting service facilities health assuming that the prognosis of COVID-19 arises [6]. Based on the above facts, researchers are interested in conducting this study.

2. Research Methods

This study is an observational study with a cross sectional design. The study population is all patients who visited the Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency, West Papua in 2022 as many as 5,695 patients. A total of 772 samples were taken by Purposive sampling technique. The data was taken from medical records and analyzed with Chi-Square, Prevalence Ratio Test and Logistic Regression analysis.

3. Research Results

3.1. Analysis Univariate

The results of the research data collection found that the characteristics of the research sample data at the Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency, West Papua in 2022, are as follows:

Table 1: Independent variable distribution

No	Variable	Frequency (n)	Presentage (%)
1	Age		
	Elderly	246	31,8
	Not anxiety	526	68,2
2	Gender		
	Legal Law	382	49,5
	Woman	390	50,5
3	Tribe		
	Papua	246	31,8
	Where Papua	526	68,2
4	Contact History		
	Exist	55	7,1
	None	717	92,9
5	Immunization Status		
	Incomplete	409	52,9
	Complete	363	47,1
6	Comorbidity		
	Exist	400	53
	None	372	47
	Sum	772	100

Source: Primary data, 2024

Based on the table above, it is known that the higher proportion of sample respondents was found in non-elderly characteristics 526 (68.2%), female gender 390 (50.5%), Non-Papuan ethnicity 526 (68.2%), no contact history 717 (92.9%), complete immunization status 409 (52.9%), comorbidities 400 (53%).

3.2.Bivariate Analysis

a. Age with the incidence of Covid-19 at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency

Table 2: Age relationship with Covid-19 incidence at Dr. Jhon Piet Regional General Hospital Wanane Sorong Regency

No	Age	Covid-19 Incident				n	%	*p-value*	RP CI95%
		Positif		Negatif					
		n	%	n	%				
1	Elderly	112	45,5	134	54,5	246	100	0,105	240,8(0,67 -1,029)
2	Non Elderly	274	52,1	252	47,9	526	100		
Total		386	50	386	100	772	100		

Source: Primary Data, 2024

Table 2. shows that in the elderly group there are 112 (45.5%) who are Covid-19 cases, and of the 526 who are non-elderly, there are 273 (52.1%) who are Covid-19. people (24%). The results of *the chi square statistical test* at the significance value of 95% ($\alpha = 0.05$) were obtained *p-value* 0.105 or $p > \alpha$ (0.05), thus the age relationship was not significant with the incidence of Covid-19 at the Dr. Jhon Piet Wanane Regional General Hospital Hospital or value = 240.8; CI95% (0.67 – 1.029) which is interpreted that Elderly, the prevalence ratio is not significant because of the lower and Upper values at CI 95%, including the number 1.

b. Gender with Covid-19 incidence at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency

Table 3: Gender Relationship with Covid-19 Incidence at Dr. Jhon Piet Wanane Regional General Hospital,Sorong Regency

No	Gender	Covid-19 Incident				n	%	*p-value*	RP CI95%
		Positif		Negatif					
		n	%	n	%				
1	Man	19	51,8	18	48,2	382	100	0,349	1,076 (0,93-1,24)
2	Woman	8	48,2	4	51,8	390	100		
		18 8		20 2					
Total		38 6	50	38 6	50	772	100		

Source: Primary Data, 2024

Table 3. It shows that out of 382 man there are 198 (51.8%) who are Covid-19 cases, and out of 390 women there are 188 (48.2%) who are Covid-19. The results of *the chi-square statistical test* at a significance value of 95% ($\alpha = 0.05$) were obtained *with a p-value* of 0.349 or p-value $> \alpha$ (0.05), thus the age relationship was not significant

with the incidence of Covid-19 at the Dr. Jhon Piet Wanane Regional General Hospital. RP 1,076 ; CI 95% (0.93 – 1.24) which is interpreted that the sex, prevalence ratio is not significant because of the lower and upper values at CI 95%, including the number 1.

c. Tribe with COVID-19 incidence at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency.

Table 4: Tribal relationship with COVID-19 incidence at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency

No	Tribe	COVID-19				Sum	%	*p-value*	OR CI95%
		Positif		Negatif					
		n	%	n	%				
1	Non Papua	231	52,3	211	47,7	442	53	0,167	1,095 (0,969-1,237)
2	Papua	155	47	175	53,3	330	47		
Sum		386	50	386	50	772	100		

Source: Primary Data, 2024

Table 4. shows that in the Non-Papuan ethnic group, the incidence of COVID-19 is 231 people (52.3%) higher than that of respondents from the Papuan tribe, which is 155 people (47%). The results of *the chi square* statistical test at the significance value of 95% ($\alpha = 0.05$) were obtained *a p-value* of 0.167 or p-value > α (0.05), thus the tribal relationship was not significant with the incidence of COVID-19 at the Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency. Value of RP = 1.095; CI 95% (0.969-1.237) which is interpreted that the Prevalence Ratio of Tribe is not significant because the lower and upper values include the number 1.

d. Contact History with COVID-19 incidents at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency.

Table 5: Relationship of Contact History with COVID-19 Incidence at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency

No	Contact History	Incident COVID-19				n	%	*p-value*	OR CI95%
		Positif		Negatif					
		n	%	n	%				
1	Yes	39	70,9	16	29,1	55	100	0,002	2,438 (1,38-4,28)
2	No	347	48,4	370	51,6	717	100		
Total		386	50	386	50	772	100		

Source: Primary Data, 2024

Table 5 shows that of the 55 people who have a contact history, 39 people (70.9%) who have Covid-19 or higher than those who do not have a contact history. The results of *the chi square statistical test* at a significance value of 95% ($\alpha = 0.05$) were obtained *with a p-value* of 0.002 or p-value < α (0.05), thus the relationship between the contact history was significant and the incidence of COVID-19 at the Dr. Jhon Piet Wanane Regional General

Hospital, Sorong Regency,.When viewed from the PR value = 2.438; A CI95% (1.38 – 4.28) that is interpreted that someone with a Contact History is 2,438 times at risk of getting COVID-19 compared to someone who has no History.

e. Vaccination Status with COVID-19 incidence at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency.

Table 6: The Relationship between Vaccination Status and COVID-19 Incidence at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency

No	Vaksinasi	Incident COVID-19				n	%	*p-value*	OR CI95%
		Positif		Negatif					
		n	%	n	%				
1	Incomplete	246	60,1	163	39,9	409	100	0,002	2,438 (1,386-4,287)
2	Complete	140	38,6	223	61,4	363	100		
	Total	386	50	386	50	772	100		

Source: Primary Data, 2024

Table 6 shows that in the group of COVID-19 cases in the respondents whose vaccination status is incomplete, there are 246 (60.1%) higher than those with complete immunization status 140 (38.6%). The results of *the chi square* statistical test at a significance value of 95% ($\alpha = 0.05$) were obtained *with a p-value* of 0.002 or $p < \alpha$ (0.05), thus the relationship between vaccination status and the incidence of COVID-19 at Dr. Jhon Piet Wanane Regional General Hospital, Sorong. Regency,When viewed from the RP= 2.438; The CI 95% (1,386-4,287) interpreted that a person with incomplete vaccination status is 2.43 times at risk of contracting COVID-19 compared to someone who is fully vaccinated.

f. Comorbidity with the incidence of COVID-19 at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency.

Table 7: Comorbid relationship with COVID-19 incidence at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency

No	comorbidy	Incinden COVID-19				n	%	*p-value*	OR CI95%
		Positif		Negatif					
		n	%	n	%				
1	exist	222	55,5	178	44,5	400	100	0,002	1,247 (1,087-1,431)
2	None	164	44,1	208	55,9	372	100		
	Total	386	50	386	50	772	100		

Source: Primary Data, 2024

Table 7 shows that out of 400 comorbidities, the incidence of COVID-19 is 222 (55.5%) higher than those with non cmorbid 164 (44,1%). The results of the chi-square statistical test at a significance value of 95% (a = 0.05) were obtained with a p-value of 0.002 or $p < \alpha$ (0.05), thus the relationship between vaccination status and the

incidence of COVID-19 at Dr. Jhon Piet Wanane Regional General Hospital, Sorong Regency.. When viewed from the PR value = 1.247; The CI 95% (1,087-1,431) interpreted that a exist comorbid is 1,247 times at risk of contracting COVID-19 compared to someone who is none comorbid.

3.2. Multivariate Analysis

The results of the bivariate analysis of 6 variables only 5 variables can be included in the multivariate analysis with a *p-value* category of < 0.25.

Table 8: Bivariate Analysis Between Dependent and Independent Variables

No	Variable	*p-value*
1	Age	0,090
2	Tribe	0,146
3	comorbid	0,002
4	Contact History	0,002
5	Vaccination Status	0,000

Source: Primary Data, 2024

Table 8 above the variables Age, ethnicity, comorbidities, contact history, and vaccination status are included in the p-value category < 0.25, so they are included in the multivariate model and tested together with the logistics binary test of the LR forward method. The results of the multivariate analysis obtained a p-value < 0.05 as shown in Table 9 below.

Table 9: Analysis of Multiple Logistic Regression Variables

No	Variable	B	*p-value*	OR	95% C. I. for Exp(B)	
					Lower	Upper
1	Age	0.247	0.128	1.280	0.932	1.757
2	Tribe	-0,248	0,091	0,772	0,573	1,042
3	Comorbid	-0,443	0,003	0,642	0,478	0,862
4	Contact History	-1,075	0,001	0,341	0,183	0,635
5	Vaccination Status	-0,948	0,000	0,388	0,287	0,522

Source: Primary Data, 2024

Table 9 above, there are 3 variables, namely comorbidities, contact history, and vaccination status with a p-value of < 0.05 and an OR value of > 1 which is interpreted that age, education, and occupation are the dominant factors for the incidence of HIV/AIDS and the most dominant factor is age with a p-value of 0.004 and OR 7.0 CI 95% (1.88-26.1). Once the Age and tribe variables have been excluded from the multivariate analysis modeling, it can be seen from Table 10, below:

Table 10: Analysis of Multiple Logistic Regression Variables of the last modeling

No	Variable	B	*p-value*	OR	95% C. I. for Exp(B)	
					Lower	Upper
1	comorbid	0.247	0.003	0.641	0.478	0.860
2	Contact History	-0,248	0,000	0,328	0,176	0,609
3	Vaccination Status	-0,443	0,000	0,394	0,293	0,530

In the final modeling, variables that were significantly related to the incidence of COVID-19 at Dr. Jhon Piet Wanane Hospital, Sorong Regency in 2022 were comorbidities, contact history/exposure, and vaccination status. The model formed was declared feasible because it met the meaning of the model seen from the omnibus test value (p=0.000). Based on Nagelkerke's R Square, a value = 0.099 was obtained, meaning that the independent variables contained in the model can explain the incidence of COVID-19 by 9.9%. The most dominant variable related to the incidence of COVID-19 was comorbidities or comorbidities with OR = 0.64 (95% CI OR 0.478 – 0.860).

4. Discussion

a. Gender Relationship with COVID-19 Incidence

The results of the study found that the gender relationship was not significant in the incidence of Covid-19. The results of this study are the same as the results of a study conducted by Nia Ayuni Putri in West Sumatera which also found that the gender variable was not significant to the incidence of Covid 19 [3]. The results of this study are different from the findings of Reynanda Rinaldi in Bogor in 2021 that there is a cynical relationship between sexual sex and the incidence of COVID-19 and a different thing was also found by Yuni Nirmala in Lampung that there is gender significance with the incidence of Covid-19 [4] [5] Based on a meta-analysis study that links gender to the risk of COVID-19 infection, it is known that men are 28% more at risk of infection compared to women. Comparable to the relationship between sex and mortality which shows that men are more at risk of death by 1.86% compared to women [6]. Liu and his colleagues found that the sex ratio (male to female) was 1.62 which was observed in the 10,948 cases examined. This suggests that men are more susceptible to COVID-19, and both sexes exhibit similar clinical manifestations in their symptoms [7] .According Gemmati, Firstly, SARS-CoV-2 has a strong interaction with the human ACE2 receptor, which plays an essential role in cell entry together with transmembrane serine protease 2 (TMPRSS2); it is interesting to note that the *ACE2* gene lays on the X-chromosome, thus allowing females to be potentially heterozygous and differently assorted compared to men who are definitely homizygous. Secondly, the higher *ACE2* expression rate in females, though controversial, might ascribe them the worst prognosis, in contrast with worldwide epidemiological data. Finally, several genes involved in inflammation are located on the X-chromosome, which also contains high number of immune-related genes responsible for innate and adaptive immune responses to infection. Other genes, out from the RAS-pathway, might directly or indirectly impact on the ACE1/ACE2 balance by influencing its main actors (e.g., *ABO* locus, *SRY, SOX3, ADAM17*). Unexpectedly, the higher levels of ACE2 or ACE1/ACE2 rebalancing might improve the outcome of COVID-19 in both sexes by reducing inflammation, thrombosis, and death. Moreover, X-heterozygous females might also activate a mosaic advantage and show more pronounced sex-

related differences resulting in a sex dimorphism, further favoring them in counteracting the progression of the SARS-CoV-2 infection [13]. The gender variable is one of the descriptive variables that can provide differences in incidence in men and women. Differences in disease incidence by gender can arise due to different anatomical, physiological, and hormonal system forms (Noor, N.N., 2008). The results of the study are not by the existing literature or theory due to the imbalance in the number of samples between the male and female sexes involved in this study. Because based on the data, the number of men who are the research sample is less than women.

b. Age Relationship with COVID-19 Incidence

This study found that age was not significant in the incidence of Covid-19 and age was not a risk factor. The results of the study are the same as the results of Masyita Liana Daud's research that there is no relationship between age and the incidence of covid 19. [14]. The results of this study are different from the findings of Nia Ayuni Putri in West Sumatra that there is a significant relationship between age and the incidence of COVID-19 where the P value is 0.000. [8] Age is one of the most important characteristics of people because Age has a close relationship with exposure. Age also has a relationship with the magnitude of risk for certain diseases and resistance traits in various age groups (Noor, 2008). Age can affect a person who is susceptible to being infected with COVID-19 because it is related to the level of natural immunity, where elderly individuals are more likely to be infected along with a decrease in natural immunity [15]. In addition, elderly individuals have been consuming a lot of medications or taking several types of medications at the same time in comorbid therapy efforts resulting in decreased organ function.15 Recent studies have clarified that patients with the age of >50 years are likely to experience overexpression of ACE2 as a result of decreased immunity, decreased organ function, the presence of comorbidities, and several other causes that increase the risk of death[13].

c. The Relationship between Tribes and the Incidence of COVID-19

The results of this study found that there was no significance between tribes and the incidence of Covid-19. The results of the Chi-Square test obtained a p-value = 0.167 > α 0.05. The results of the statistical test show that RP = 1.095 with a CI of 95% (0.969 – 1.237). Based on the results of the study, it is known that the proportion of COVID-19 cases is 231 (52.3%) higher than that of the Papuan tribe. In general, tribes in Indonesia and Southwest Papua in particular, certainly have different behaviors and cultures, or habits. Some tribes still have customs that are thick with their customs and culture, and some still maintain customary activities and applicable rules, such as the Baduy Tribe in Banten which is more precisely not at all accepting modernization[5]The Pattern of interaction between tribes in the community is different [5]. Likewise, for Papuan and Non-Papuan tribes, Non-Papuan tribes are more likely to be open, and Papuan tribes are more closed, the concept of illness of Papuan tribes is that they declare themselves sick if they cannot be economically active and can only lie down, but if they can still be economically active, then they feel not sick and do not need to go to health services. This is caused by data collection from health services, the number recorded and found to be infected with COVID-19 are Non-Papuan tribes[11].

d. Relationship between Comorbid History and COVID-19 Incidence

The results of the research conducted at Dr. John Piet Wanane, S.H., M.Si Sorong Regency Hospital found that there was a significant relationship between comorbid history and COVID-19 incidence. The results of this study are the same as the results of Kartini's research in Madiun that there is a significant relationship between the history of comorbid diseases and the incidence of Covid-19. According to the theory people exposed to COVID-19 in severe cases will experience Acute Respiratory Distress Syndrome (ARDS), sepsis and septic shock, and multi-organ failure, including kidney failure or acute heart failure resulting in death. Elderly people and people with pre-existing medical conditions such as high blood pressure, heart and lung disorders, diabetes, and cancer are at greater risk of severity[12].According to Kartini in 2020, people with a history of comorbidities/comorbidities tend to be more anxious in dealing with the pandemic, so they are more susceptible to Covid-19 infection [12].

g. Relationship of Contact History or Exposure to COVID-19 Incidence

Based on the results of this study, it was found that there was a significance between contact history and the incidence of Covid-19 and contact history was a risk factor for the occurrence of Covid-19. Based on the 2020 Indonesian Journal of Health Sciences (JIKESI), contact history is one of the risk factors for COVID-19. The study, which was carried out in the Isolation Room of the Sultan Imanuddin Regional General Hospital, Pangkalan Bun, Central Kalimantan, respondents who were treated in June 2020 had more contact history. Respondents in June 2020 had a history of contact traveling to COVID-19-affected areas. In the results of bivariate analysis with the Chi-Square statistical test, the results showed that the p-value was 0.016, where $0.016 < 0.05$ which means that there was a relationship between the variables of contact history and the incidence of COVID-19 in the Isolation Room of the Sultan Imanuddin Regional General Hospital, Pangkalan Bun, Central Kalimantan [13]. According Puspita Aisyiyah These comorbidities affect the prognosis for possible COVID-19 infection and disease severity [21].

h. The Relationship between Vaccination Status and COVID-19

Incidence Vaccines are one of the efforts to deal with COVID-19, including in Indonesia (Indonesian Lung Doctors Association, 2022). Research conducted at Dr. John Piet Wanane, S.H., M.Si. Sorong Regency, Southwest Papua Province in 2022 with a sample of 772 people who suffered from covid and non-covid obtained results, namely that there was a relationship between vaccination status and the incidence of COVID-19. The results of the statistical test showed that RP = 1,509 with a CI of 95% (1,314 – 1,734), meaning that respondents who did not have complete immunization status had a risk of 1,509 times suffering from COVID-19 and was significant because the lower and upper values did not exceed 1. The results of this study are in line with research conducted by Nuraini, T. W (2022) showing that there is a relationship between the status of the first dose of vaccination and the incidence of recurrent COVID-19 p value = 0.023 (OR = 3,605), there is a relationship between the status of the second dose of vaccination and the occurrence of recurrent COVID-19 p value = 0.004 (OR = 2,498). Meanwhile, the third dose vaccination status variable did not find a significant relationship with p-value = 0.554 (OR = 1.224). Based on the results of this study, it show that people who do not have the first and

second doses of vaccination have a greater risk than people who have been vaccinated.

i. Dominant factors related to the incidence of COVID-19

The results of multivariate analysis of 5 variables found that the dominant factor for the incidence of COVID-19 was comorbid. Similar results were found by Liu in 2020 that compared to COVID-19 patients who did not have previous chronic disease, people with comorbidities of diabetes, hypertension, CAD/CVD, or chronic lung disease had a higher risk of developing severe COVID-19 disease, with an OR of 2.61 (95% CI 1.93 to 3.52), 2.84 (95% CI 2.22 to 3.63), 4.18 (95% CI 2.87 to 6.09) and 3.83 (95% CI 2.15 to 6.80) [7]. The results of this study on comorbidities are similar to those found by Landes in 2022 that people with comorbidities are easily infected with COVID-19 and if they suffer from Covid-19 with comorbidities, they will be at risk of death. COVID-19 with comorbidities is the leading cause of death in people who die, compared to the third leading cause of death in people who die without comorbidities [14]. Comorbidities according to Dominik Mertz's research that comorbidities such as chronic lung disease will increase a person's risk of hospitalization and also increase the risk of death. In addition, the relationship between the existence of chronic lung disease causes COVID-19 patients with comorbidities to be admitted to the hospital and admitted to the intensive care unit. Cardiovascular disease significantly increases the risk of death (2.92, 1.76 to 4.86, I2=89%, n=28). Further risk factors found to be associated with a higher risk of death include anemia or hemoglobinopathy, diabetes mellitus, and liver, metabolic, and kidney diseases (table 4) [15].

5. Conclusion

The variables that were not significant and not risk factors for the incidence of COVID-19 at the Dr. Jhon Piet Wanane Regional General Hospital Hospital, Sorong Regency were: Age was obtained with a p-value of 0.105 with a PR value = 240.8; CI95% (0.67 – 1.029). Gender p-value 0.349 PR value = 1.076; CI95% (0.93 – 1.24), the tribe obtained p-value 0.167 and PR = 1.09; CI95% (0.096-1.237). For variables that are significantly related to the incidence of Covid-19 are contact history p-value 0.002 and PR = 2.438; CI 95% (1.38 – 4.28), vaccination status p-value 0.002 and PR = 2.438; CI95% (1,386-4,287) and comorbid P -value 0.002 with PR =2,438; CI95% (1,386-4,287). In the multivariate analysis, the most dominant variable related to the incidence of COVID-19 at Dr. Jhon Piet Wanane Hospital, Sorong Regency in 2022 was comorbid.

6. Recommendations

People who have comorbidities or comorbidities are expected to be more vigilant carry out regular health control and to maintain the body's defense system. Regular exercise that is adapted to comorbid conditions and avoids stress is a simple action that can be done to maintain stamina to stay fit to prevent contracting infectious diseases. When you are sick, for example, flu and cough, use a mask and learn cough etiquette so as not to transmit it to others. Some infectious diseases can be prevented by immunization; Look for information related to immunizations provided free of charge by the government at health centers or other health service facilities.

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