DETERMINANT OF PREVENTIVE BEHAVIOR COVID-19 AMONG MOTHERS IN OGAN ILIR REGENCY, SOUTH SUMATERA INDONESIA

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ABSTRACT

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by a new coronavirus (SARS-CoV-2) and currently become a great threat and public health consent worldwide, including in Indonesia. COVID-19 infected more than three hundred million people worldwide, causing more than five million deaths. This study aimed to assess the preventive behavior, knowledge, and history of COVID-19. A cross-sectional study was carried out using secondary data of field learning experience students by the Faculty of Public Health, Sriwijaya University in 2021, the population is all mothers who have toddler in Ogan Ilir Regency and the sampling method uses purposive sampling with 1850 mothers as a respondent in Ogan Ilir Regency, South Sumatera, Indonesia. Univariate analyses were used to see the distribution of variable and bivariate analysis conducted using the Chi-Square test with a significance level of 0.05 to see the association of the variable. The result shows that 0.6% of mothers infected with COVID-19 and 0.8% of mothers who had family were positive COVID-19. More than half of respondents, 52.4%, have good preventive behavior, and 48.6% have poor preventive behavior. 53.1% of respondents had good knowledge, and 46.9% had poor knowledge regarding COVID-19. Level of knowledge (P-value 0.001) and underlying health conditions or comorbidities (P-value) were factors related to good preventive behavior. Therefore, effort must be made to increase awareness and improve knowledge related to COVID-19 by health workers.

Keywords: COVID-19, knowledge, preventive behavior

ABSTRAK

Coronavirus Desease 2019 (COVID-19) adalah penyakit infeksius yang disebabkan oleh coronavirus (SARS-CoV-2) dan menjadi masalah kesehatan masyarakat di seluruh dunia, termasuk di Indonesia. COVID-19 menginfeksi lebih dari tiga ratus juta orang di seluruh dunia, menyebabkan lebih dari lima juta kematian. Tujuan dari penelitian ini untuk menganalisis hubungan variabel pengetahuan tentang COVID-19, komorbid, riwayat keluarga menderita COVID-19 dengan prilaku pencegahan COVID-19. Studi potong lintang dilakukan dengan menggunakan data sekunder pengalaman belajar lapangan (PBL) oleh Fakultas Kesehatan Masyarakat Universitas Sriwijaya tahun 2021, populasi adalah seluruh ibu yang memiliki balita di Kabupaten Ogan Ilir dan pemilihan sampel secara purposive sebanyak 1850 ibu di 31 desa yang terletak di 3 kecamatan di Kabupaten Ogan Ilir, Sumatera Selatan, Indonesia. Analisis univariat dilakukan untuk melihat distribusi variabel dan bivariat dilakukan menggunakan *Chi-Square Test* dengan tingkat signifikansi 0.05 untuk melihat nilai asosiasi variabel. Hasil menunjukkan bahwa 0.6% ibu pernah terinfeksi COVID-19 dan 0.8% responden memiliki keluarga yang pernah terinfeksi COVID-19. Sebanyak 52.4% reponden memiliki prilaku pencegahan yang baik dan 48.6% responden memiliki prilaku pencegahan yang buruk. Sebanyak 53.1% responden dengan tingkat pengetauan yang tinggi dan 46.9% memiliki tingkat pengetahuan yang rendah tentang COVID-19. Ada hubungan yang signifikan antara pengetahuan tentang COVID-19 (*P-value* 0.001) dan riwayat komorbid (*P-value* 0.018) dengan prilaku pencegahan COVID-19. Penting untuk meningkatkan kesadaran dan pengetahuan terkait dengan COVID-19 oleh petugas kesehatan.

Kata kunci: COVID-19, pengetahuan, perilaku pencegahan

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Introduction

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by a new coronavirus (SARS-CoV-2) initially reported in Wuhan China and currently become a great threat and public health consent worldwide.[1,2] COVID-19 infected more than three hundred million people worldwide, causing more than five million deaths.[3] Most infected people have mild symptoms of moderate respiratory illness and can recover by being self-isolated without special treatment in the health facility. However, some cases can be severe or serious disease and require treatment. Elderly people with comorbid diseases such as hypertension, heart disease, chronic respiratory disease, diabetes, and cancer are more likely to develop serious illnesses. Anybody can be exposed coronavirus and continue to serious disease or die at any age, including mothers in the district area.[4]

Until January 28 2022, the number of confirmed positive COVID-19 and the number of deaths globally reached 356.955.903 confirmed cases of COVID-19, including 5.610.291 deaths, reported by the World Health Organization (WHO).[3] The population is generally susceptible to COVID-19 ; therefore, it's very important to take preventive measures and control the spread of these cases.[5,6] In Indonesia, COVID-19 cases are increasing again on January 28, 2022, after a few months decreasing in 2021, the are 35.704 (0.8%) active cases and 144.261 (3.3%) deaths. The case increased after a new variant of COVID-19, namely omicron. SARS- CoV-2 has to mutate since its appearance in 2019, currently designated variants of concern (VOCs)+ consist of alpha, beta, gamma, delta and omicron by the WHO label.[7]

The government has implemented a vaccination, including the provider of the first dose of vaccine reaching 183.677.032 and the second dose of 127.164.526, and it has continued until the target is achieved. Currently, the booster has also begun to be implemented in health services.[8] The booster doses can increase neutralizing antibody levels to prevent omicron's variant. However, these doses will work adequately against omicron viral strain.[9] Safe and effective vaccines are a game-changing tool, however we must continue preventive behavior such as wearing masks, washing our hands, ensuring good ventilation indoors, physically and social distancing.[10]

In Indonesia, preventive behavior is called prokes (health protocol). Based on the recommendations of WHO and the Ministry of Health, the community is encouraged to implement these preventive behaviors and take responsibility to prevent COVID-19. However, it is challenging for lower-middle income countries and especially in area districts because of the healthcare system and knowledge regarding COVID-19.[11] Preventive behavior plays an important role in preventing of infectious diseases.[12] The existing literature has shown that knowledge has correlated with preventive behavior.[5] This study aims to analyses the relationship knowledge,

comorbidity, history of COVID-19 with preventive behavior in Ogan Ilir, one of a district in Sumatera Selatan, Indonesia.

Method

This research is a quantitative study with a cross-sectional design. The population is all mothers who have toddler in Ogan Ilir Regency. The sampling method uses purposive sampling with 1850 mothers as a respondent. This study was conducted in 31 villages in 3 sub-districts in Ogan Ilir Regency, South Sumatera, Indonesia.

This study used secondary data of Field Learning Experience Students conducted by the Faculty of Public Health Universitas Sriwijaya year 2021. The instrument used a questionnaire and informed consent to obtain the respondent's agreement. The Field Learning Experience Students collected several variables, including nutritional status, environmental health, maternal and child health and COVID-19. In this study, we only analyzed the COVID-19 variable, including knowledge, preventive behavior, and history of COVID-19 among mothers. This study meets the requirements of the applicable code of ethics with the number 041/UN.FKM/TU.KKE.

SPSS version 24.0 was used for statistical data analysis. The data was cleaned in preparation for analysis. Univariate analysis was conducted to show the description of each variable, and bivariate analysis was conducted using the Chi-Square test with a significance level of 0.05.

Results

The results of the univariate analysis were carried out to see the description of each variable in the table below.

Table 1. History of COVID-19 among Mothers in Ogan Ilir Regency

History of COVID-19	Yes		No	
	N	%	n	%
Have positive COVID-19	12	0.6	1838	99.4
Family members in the house have positive COVID-19	15	0.8	1835	99.2
Have a family who was in contact with a positive COVID-19 in the last two weeks	24	1.3	1826	98.7
Have in the same room or environment with a positive COVID-19 with a distance of 1-2 m and time > 15 minutes	52	2.8	1798	97.2
Have a comorbid disease: diabetes, hypertension, heart disease, stroke, tuberculosis, cancer, or other chronic diseases	75	4.1	1775	95.9
Moderate fever (temperature 38 C) when the study was carried out or had a fever in the last two weeks	111	6.0	1739	94.0
Have respiratory symptoms such as cough/common cold/swallowing pain/difficulty breathing in the last week	282	15.2	1568	84.8

In this study, 0.6% of mothers had been infected with COVID-19 and 0.8% of mothers who had family who were positive COVID-19. Most of the respondents never had close contact with a COVID-19 case. 4.1% of mothers have comorbid diseases such as diabetes, hypertension, heart

disease, stroke, tuberculosis, etc. About 6% of mothers had experienced fever symptoms, and 15.2% experienced cough, common cold or difficulty breathing.

Tabel 2. Knowledge Regarding COVID-19 Among Mothers in Ogan Ilir Regency

Knowledge	Correct		Incorrect	
	N	%	n	%
COVID-19 is a harmless disease and it's just like a common cold	505	27.3	1345	72.7
Coronavirus can survive several hours outside the body	1218	65.8	632	34.2
Coronavirus will not be contagious while talking	571	30.9	1279	69.1
Covid is only transmitted by people who have symptoms	932	50.4	918	49.6
Healthy people do not need to wear masks when leaving the house	395	21.4	1455	78.6
Symptoms of COVID-19 in the elderly are generally more severe than at a young age	1537	83.1	313	16.9
The risk of death of COVID-19 cases is higher in patients with chronic disease	1578	85.3	272	14.7
Children are not included in the group at risk because they are rarely infected with COVID-19	700	37.8	1150	62.2
New normal means to return to habits before the corona outbreak	1182	63.9	668	36.1
Self-isolation for people infected with COVID-19 is not required for asymptomatic	805	43.5	1045	56.5

There are ten questions in the instrument to show knowledge regarding COVID-19 in this study, such as symptoms, virus transmission, the population at risk, prevention, and control. There are seven negative questions, and most of the points answered ware doesn't correct (63.9%) about the new normal during a pandemic. Most of them do not understand the new normal is. The majority have known the importance of wearing a mask (78.6%). On positive questions, most respondents have known about the population at risk of COVID-19 disease, especially those with chronic diseases, but 65.8% of respondents did not know about the virus survival outside the body.

Tabel 3. Preventive Behavior COVID-19 Among Mothers in Ogan Ilir Regency

Preventive Behavior	Never		Seldom		Always	
	n	%	n	%	n	%
Washing hands with soap or using hand sanitiser after handling objects in a public place	32	1.7	425	23.0	1292	75.3
Take bath and change clothes after coming home	91	4.9	388	21.0	1371	74.1
Wearing a mask when in public places (markets, terminals, places of worship, office, etc.)	23	1.2	218	11.8	1609	87.0
Maintain a physical distance of 1 meter from other people when outside the house	136	7.4	622	33.6	1092	59.0
Keep physical distance from the elderly	409	22.1	692	37.4	794	40.5
Attend an event with crowded people	236	12.8	1156	62.5	458	28.8
Used public facilities or go to a public place (public transportation, mall, market, park)	441	23.8	844	45.6	565	30.5

Preventive behaviour was measured by seven questions. The data show that 87.0% of respondents wear a mask in public places such as the market, terminal, office, etc. 28.8% of respondents still attend a social event with crowded people and 30.5% people use public facilities or go to the public place in the pandemic era.

Tabel 4. Preventive Behavior and Level of Knowledge Regarding COVID-19 Among Mothers in Ogan Ilir Regency

Variable	Frequency	Percentage
Preventive Behavior		
Poor	900	48.6
Good	950	52.4
Knowledge regarding COVID-19		
Low	867	46.9
High	983	53.1

Table 4 show that more than half (52.4%) of respondents have good preventive behaviour and 48.6% of respondent have bad preventive behaviour. More than half, 53.1% respondents have high knowledge, and 46.9% have poor knowledge regarding COVID-19.

Tabel 5. Bivariate Analysis Knowledge, Preventive Behavior and History of COVID-19 Among Mothers in Ogan Ilir Regency

Variable	Preventive Behavior		*P-Value*	PR	95% CI
	Poor	Good			
Knowledge regarding COVID-19					
Low	667 (76.9%)	200 (23.1%)	0.001	3.24	2.88-3.65
High	233 (23.7%)	750 (76.3%)			
Have a comorbid disease					
No	853 (48.1%)	922 (51.9%)	0.018	0.76	0.64-0.91
Yes	47 (62.7%)	28 (37.3%)			
The family history of positive COVID-19					
No	893 (48.7%)	942 (51.3%)	1.000	1.04	0.60-1.79
Yes	7 (46.7%)	8 (53.3%)			

The bivariate analysis result shows a significant correlation between knowledge regarding COVID-19 and preventive behaviour (*P-value* 0,001) with PR 3.24 95% CI 2.88-3.65. People with a comorbid disease are significantly correlated with preventive behaviour (*P-value* 0.0018) with PR 0.76 95% CI 0.64-0.91. furthermore, the family history of COVID-19 infection was not significantly associated with preventive behaviour (*P-value* 1.000) with 95% CI 0.60-1.79.

Discussion

COVID-19 has been public health concern globally. To overcome the COVID-19 pandemic, the basic understanding of transmission modality, signs and symptoms, prevention and control measures are essential. [13,14]. This study allowed us to evaluate determinant factors that influenced

the preventive behavior regarding COVID-19 among mothers in Ogan Ilir Regency, South Sumatera. This result was higher than the study in Northern Ghana [15] and Pakistan [16] but lower than the results in Northwestern Ethiopia,[14] Northern Ethiopia,[13] and Iran.[17]

Preventive behavior regarding COVID-19 was influenced by their level of knowledge, family history of COVID-19 infection, and underlying health conditions or comorbidities such as hypertension, diabetes mellitus, heart disease, stroke, pulmonary diseases, and cancer. Based on data in Table 4, more than half (53.1%) of respondents had good knowledge in line with the finding in Ethiopia,[13] and lower than study which conducted in Northwestern Ethiopia[14] and Northern Ghana,[15] Northern Ethiopia,[13] and higher than studies in Iran[17] and Pakistan[16] and Southwest Ethiopia[18] The possible reason for this different result may be due to a change in the study time, process, and method of data collection.[14]

The result study shown that knowledge level is significantly related to good preventive behavior. The higher the knowledge level regarding COVID-19, make them have the possibility to have a positive attitude, good preventive behavior during the pandemic situation[17,19] and the higher number of performing preventive behavior.[20]A similar finding was reported in Ethiopia in which participants who were knew about the transmission and symptoms of COVID-19 had better behavior prevention.[13] Another study conducted among professional health workers in Ethiopia noted that using peers as a source of information is associated with good preventive behavior.[14] This finding could be due to reliable information by a medical professional, trust in the national government, and information from newspapers and magazines.[21] which significantly improves the general population's knowledge regarding COVID-19 to enhance their attitude and practice regarding COVID-19.[17] In contrast with the study conducted among university students in Pakistan[16] and Afrika[22] revealed that increasing knowledge was not in line with increasing good preventive behavior, this could to due to limited access to digital health information resources, vulnerable populations such as inadequate or poor-literate, geriatric and rural populations would be more likely to have poor knowledge.[16] Therefore, to increase awareness and improve knowledge related to COVID-19, health regulators should enhance people's knowledge by using adequate information approaches, like digital, paper, social media, phone messages, etc.

Based on Table.1, 12 (0.6%) mothers tested positive for COVID-19 and 15 (0.8%) family members who live with mothers who have been declared positive COVID-19. Confirmation of COVID-19 was determined through real-time RT-PCR examination. Another examination that supports the diagnosis of COVID-19 is a chest CT scan which shows a ground-glass opacification with or without abnormal consolidation. Another test that can be done to determine the immunological response of COVID-19 patients is serology based on antibody detection against IgG, IgM or both in whole blood, serum or plasma. Serological tests can detect active or past infection by detecting antibodies to Sars-CoV-2.[23]

Moreover, it was found that 111 (6%) respondents had a fever (temperature $\geq$ 38ºC) or had a fever in the last two weeks when the study was conducted, and 282 (15.2%) respondents said they had experienced respiratory symptoms such as cough/runny nose/painful swallowing/difficulty breathing in the last two weeks which is one of the symptoms of COVID-19. Usually, the symptoms experienced by COVID-19 cases are moderate and appear gradually. Some cases have asymptomatic and still look healthy. The most common symptoms of COVID-19 are fever, fatigue, and a dry cough. Some cases may experience aches and pains, nasal congestion, runny nose, headache, conjunctivitis, sore throat, diarrhea, loss of smell or skin rash.

Moreover, people at risk of contracting this disease are in close contact with COVID-19 patients, including those who care for COVID-19 patients.[24] From the results of the research, it was found that 24 (1.3%) respondents had members who had direct contact with positive COVID-19 patients in the last two weeks, 52 (2.8%) of respondents had been in the same room or environment as positive COVID-19 patients with a distance of 1-2 meters and time > 15 minutes. COVID-19 can infect almost any age, but recent data show that the elderly and individuals with comorbid diseases have a higher risk of experiencing worse complications and even death from COVID-19. Based on research by Levani et al. (2021), it was stated that patients with inherited diseases had an increase in the Angiotensin Converting-Enzyme 2 (ACE 2) receptor, which binds and makes SARS-CoV enter the host cell [25]. The results showed that 75 (4.1%) respondents had a history of comorbid diseases like diabetes, hypertension, heart disease, stroke, cancer, and other chronic diseases. The researcher has analyzed the deaths of COVID-19 cases based on age and history of comorbidities. Research on comorbid types showed that kidney disease had a 13.7 times greater risk of death than patients without kidney disease. The risk was nine times greater in people with comorbid heart disease than those without heart disease. Diabetes mellitus has a risk of death 8.3 times greater, hypertension six times greater, and immune disease has a risk six times greater than those who do not have it. Individuals with more than one comorbid disease have a 6.5 times higher risk of dying when infected with COVID-19. Patients who have two comorbid conditions have a 15 times higher risk of dying when infected with COVID-19 than those who do not have comorbid conditions. Then those who have more or the same as three comorbid diseases have a 29 times higher risk of dying when infected with COVID-19 .[26]

Furthermore, multiple comorbidities are associated with the severity of COVID-19 disease progression. People of any underlying medical conditions, like diabetes; hypertension; lung, liver, and kidney disease; cancer patients on chemotherapy; smokers; transplant recipients; and patients taking steroids, are not only at the high risk of getting COVID-19 but also at an increased risk of death if they become ill.[27] It is possible to prevent comorbid diseases by changing clean and healthy living behavior, such as maintaining healthy food by limiting the consumption of food ingredients that trigger disease such as sugar, salt and excessive fat, avoiding fast food, increasing fruit and

vegetables, maintaining ideal body weight and perform regular physical activity according to the ability of the body. Periodic health checks are also highly recommended for individuals suffering from comorbid diseases. People with a history of comorbidities and who had close contact with COVID-19 patients would have good preventive behavior, as reported in the research of Kumbeni et al. (2021), which stated that women who had a chronic disease were more likely to have a good COVID-19 preventive behavior compared to those who haven't a chronic disease.[28]

The result of this study shows that the family history of COVID-19 didn't have a significant relationship with preventive behavior, but the cross-section data (Table 5) show the percentage of good preventive behavior was higher in mothers who had a family history of positive COVID-19 compared to those who did not. In contrast, this study finding showed that respondents with comorbid history had a probability of having less COVID-19 prevention behaviors. This could happen because people with comorbid history were not having sufficient knowledge regarding COVID-19. It was found that most (54.7%) respondents who had comorbidities had poor knowledge, which would influence respondents not to do good preventive behavior. There are still many respondents who think that COVID-19 is a harmless disease (27.3%), only people who transmit COVID-19 have symptoms (50.4%), and there are still respondents who answered incorrectly on the statement of knowledge of the patient's risk of death. From these results we can see the importance of education about preventing COVID-19 in the community, especially those with comorbidities.

Conclusion

More than half of respondents had reported good preventive behavior regarding COVID-19. Level of knowledge and underlying health conditions or comorbidities were factors related to good preventive behavior, while family history of COVID-19 infection was not related. Therefore, to increase awareness and improve knowledge related to COVID-19, health regulators should enhance people's knowledge by using multiple communication approaches, digital, paper, social media, phone messages, etc. Health promotion can be adapted to the social and cultural characteristics of the community.

Conflict of Interest

This study's author(s) had confirmed no conflict of interest regarding this study and publication.

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