

# **Analysis of the Effect of Health Promotion and Personal Hygiene on Covid 19 through Physical Distancing in Central Mamuju Regency**

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## **Abstract**

The increasing number of Covid-19 cases and death rates and the spread across regions and countries indicate that the feed has been extraordinary and has impacted political, economic, social, cultural defense and security aspects, and Indonesia's people's welfare. Referring to the available evidence, Covid-19 is transmitted through close contact and droplet splashes, not through air transmission. The most effective preventive measures in the community: hand hygiene; Avoid touching eyes, nose, and mouth; applying cough etiquette; wearing a mask; maintain a distance (at least 1 meter). The research objective of this study was to analyze the effect of health promotion and personal hygiene on the incidence of Covid-19 through physical distancing in the Central Mamuju Regency. Quantitative research methods with analytical survey methods are used as a research method. Data collection through questionnaire distribution was carried out in Central Mamuju District. The sample was determined by a sampling technique using the Slovin formula, which was then sorted according to the inclusion and exclusion criteria. The model that was successfully collected came from 137 respondents. The analysis used in this research is path analysis. Based on the results of the study, it was found that 1) health promotion did not affect physical distancing; 2) personal hygiene has a positive and significant effect on physical distancing; and 3) Health promotion, personal hygiene, and physical distancing did not have a substantial impact on the incidence of Covid-19 in Central Mamuju District. Health promotion and personal hygiene have a negative but insignificant effect on the incidence of Covid-19 through physical distancing in Central Mamuju Regency.

## **Keywords**

Covid-19, Health Promotion, Personal Hygiene, and Physical Distancing.

## **1. Introduction**

Coronavirus Disease-19 (COVID-19) is a disease that has only emerged in the 21st century, and raises concerns in public health, and is referred to as emerging infectious disease (EIDs). In addition to causing death in humans in large numbers, it also has a significant social and economic impact on countries worldwide. Chairul Iksan Burhanuddin (2020) stated that culture and health could also affect the economy. The effect of the spread of the coronavirus on the world economy is proof.

It takes a robust public health system to cope with the extraordinary events (KLB) of EIDs. On the contrary, the system can be significantly disrupted by the KLB itself. It is essential to strengthening preparedness, risk assessment, surveillants, laboratory facilities, risk communication, and response capacity in the region. It started with pneumonia, which is not known to have caused it, in Wuhan, on December 31, 2019. Later, it was identified as a new type of coronavirus and named Coronavirus disease under the name Covid-19. Furthermore, it is reported that there have been deaths and the importation of cases outside China. Covid-19 by who is designated as a Public Health Emergency of International Concern (PHEIC) or Public Health Emergency That Is Troubling the World (KKMMD), and officially called Coronavirus Disease (Covid-19). The determination of Covid-19 by WHO as a pandemic was carried out on March 11, 2020.

On February 4, 2020, the Minister of Health designated Covid-19 as a disease that can cause outbreaks and countermeasures. On March 31, 2020, the President of the Republic of Indonesia selected Covid-19 as a disease that causes public health emergencies. He established public health emergency coronavirus Disease 2019 (Covid-19) in Indonesia to carry out-countermeasures.

The increase in Covid-19 cases is happening quite quickly, and there has been a spread between countries. By March 2021, globally, the total confirmed claims have exceeded the figure of 116 million people. More than 2.5 million cases died, with a CFR of 2.2 %. In Indonesia, confirmed cases had exceeded 1.3 million patients. More than 37 thousand cases died with a CFR of 2.7 %. In Central Mamuju Regency, when this study began (June 20, 2020), the number of patients confirmed positive for COVID-19 was 38 people, with 1 case dying. In addition, there were 434 people without symptoms (OTG), 304 people in monitoring (ODP), and two circumstances of death. Patients under surveillance (PDP) as many as 14 people, and there is 1 case died. The number of cases continues to grow and, until March 2021, has exceeded 368 people. Referring to the existing evidence, Covid-19 is transmitted through close contact and droplet splashing, not through air transmission. In close connection with Covid-19 patients, people are the most at risk of infection, including those who provide treatment to Covid-19 patients.

What should be the key to implementation in health services and community services is preventive and mitigation measures. The best way to prevent and slow down transmission is accurate information about the Covid-19 virus, the diseases it causes, and how it is transmitted. Some preventive measures that are considered the most effective in the community: (1) often wash hands or wear alcohol-based hand rub and do not touch the face, especially the eyes, nose, and mouth; (2) apply the ethics of coughing (covering the mouth when coughing using the inner arm) ; The Covid-19 virus is spread mainly through droplet splashes of saliva or fluid from the nose when an infected person coughs or sneezes; (3) Use a medical mask and self-isolate until cured if you have respiratory symptoms despite mild symptoms, such as cough, fever, headache. And wash your hands after discarding the mask; (4) Keep a distance from others of at least 1 meter (3 feet). When a person coughs, sneezes or talks, they will sprinkle tiny liquid droplets through the nose and mouth that are likely to contain the virus. If we are close, droplets can be inhaled, including if that splashes the sufferer of Covid-19; (5) avoiding play. People in the crowd are more easily in contact with people affected by Covid-19 and have difficulty maintaining 1 meter (3 feet). (6) If necessary, leave the house and use a mask not to infect others. (7) If fever, cough, and shortness of breath, seek medical help by calling if possible and follow the instructions of the local health officer. Authorities have a lot of updated information on sites in your area. Telephone communication will make it easier to obtain information related to health services. (8) Keep your last information up to date through a trusted source, such as who or an authorized local health officer. Authorized health workers are the best place to get advice and information.

## **2. Literature Review**

By WHO, a new virus is named Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), and the disease is called Coronavirus disease 2019 (Covid-19). The disease can infect anyone, both in immunocompromised patients and in normal populations, depending on the number of viruses present. If the exposure to the virus at one time is significant, even though the body's immune system is functioning normally, it will still be able to cause disease. The

disease can be progressively faster and more severe in weakened immunity, such as the elderly, pregnant women, and other conditions. Immunity is formed against the virus after infection is weak so that re-infection can arise.

Symptoms caused by Covid-19 infection can be mild, moderate, or severe. Fever accompanied by cough and tightness is the main clinical symptom. Other symptoms that can accompany are tightness, fatigue, muscle pain, gastrointestinal symptoms such as diarrhea, and other respiratory symptoms. Tightness arises within one week in 50% of patients. Rapid and progressive worsening occurs in severe cases, such as acute respiratory failure syndrome, septic shock, difficult-to-correct metabolic acidosis, and bleeding or impaired blood clotting function within a few days. There were also cases with mild symptoms and even without fever. Adults and older children are the leading groups infected. Clinical symptoms can be mild such as common cold and pharyngitis. It can also be severe such as SARS or MERS. Some strains cause diarrhea symptoms in adults. The primary source of transmission today so that the spread becomes more aggressive is the spread from a human to a human being. Transmission occurs from patients with symptoms through droplets that come out when coughing or sneezing. It has also been researched that SARS-CoV-2 can be viable on aerosols (produced through a nebulizer) for at least 3 hours.

Most patients have a good prognosis, with a small percentage in critical condition even dying. Many factors influence the prognosis of Covid-19. The presence of patients who have recovered and then re-infected (re-infection) is still controversial. But found patients returned positive RT-PCR 5-13 days after harmful twice in a row and were discharged from the hospital. Chances are there are two due to re-infection or false-negative results on RT-PCR when repatriated.

Recommendations for Covid-19 patients are not currently available, including antivirals or vaccines. Symptomatic therapy and oxygen are procedures that can be performed. Mechanical ventilation can be performed on patients with respiratory failure.

Health promotion is an effort to change behavior and environment that can facilitate behavior change (Susilowati, 2016) stated that health promotion is healthy behavior and improves beneficial living ability In the Ottawa Charter (1986), health promotion is an effort so that the community has the will and ability to maintain and improve its health. By WHO: "the process of empowering people (individuals and communities) allows them to control health determinants to improve their health." Furthermore, Green and Kreuter that "health promotion is a combination of educational, policy (political), regulatory, and organizational efforts to support activities and living conditions that benefit the health of individuals, groups, or communities." The Ministry of Health formulated it as "An effort to improve the community's ability in controlling health factors through learning from, by, for and with the community (Green and Kreuter, 2005). They can help themselves, as well as develop community-sourced activities, following local socio-cultural and supported by public policies that are health-minded."

In health promotion, behavioral intervention efforts reduce negative behaviors that impact health, inhibiting the improvement of negative behaviors that affect health, encouraging the advancement of positive behaviors for health, and maintaining positive behaviors for health.

Health promotion has a target with a scope consisting of the environment, behavior, health services, and genetic factors or population factors. Therefore, behavior and its roots and environment that affect behavior are the main scopes of health promotion goals. According to Green's theory chart, three factors that determine health behavior Predisposing factor, enabling element, Reinforcing element.

Personal hygiene is originally Greek, private means individual, and hygiene means healthy. According to Kasiati and Rosmalawati, personal hygiene is an act of a person to maintain his hygiene and health to obtain well-being, both physical and psychic (Kasiati and Rosmalawati, 2016). Personal hygiene keeps our bodies, teeth, hair, clothes, and genital area clean (Legesse and Ambelu, 2004). Entjang explains personal hygiene as an effort made by a person to maintain his health and raise his health (Entjang, 2001).

An improved health degree is one of the goals of a person who applies personal hygiene. In addition, it is the need for comfort and beauty. Another goal is the prevention of diseases on yourself and others. And finally, is to increase confidence. According to Hassan, everyone can do their hygiene, but some have better abilities than others. The family is strongly influenced by the culture, community environment, and norms in the family (Hassan, 2012).

Personal hygiene of each person is influenced by the following factors: (a) Health condition; (b) Culture; (c) Socio-economic conditions; (d) Level of education; (d) Physical or mental disabilities; (e) Social practices; (f) Body image; and (g) Personal choices.

Physically distancing means keeping a distance from each other and limiting outdoor activities. When outdoors, that means being at least 2 meters (or 6 feet) away from others where possible (Public Health Ontario,2020). Physical distancing means making changes in daily routine to minimize close contact with others (center for disease control;2020).

Social distancing also called physical distancing, which is better known as distance keeping during society, is a series of actions aimed at preventing disease transmission by maintaining physical distance between people and reducing the number of people who contact each other (Wikipedia, 2020). Social restrictions are expected to reduce the likelihood of healthy people's contact with infected people to minimize disease transmission and mortality rates. The term "physical restriction" is recommended for use by the World Health Organization (WHO) rather than "social restriction." This is in line with the fact that physical distance can prevent transmission, while social relationships can still occur with the help of technology.

Social distancing is one of the community mitigations measures that can be recommended during the influenza pandemic. Social distancing can reduce virus transmission through physical distancing or declining meeting frequency in social community density settings, such as schools or workplaces. Ahmed et al. (2018) concluded that social distancing in non-healthcare workplaces could reduce transmission of the virus.

The main transmission of SARS-CoV-2 is the spread from person to person. The information comes from patients who are symptomatic through droplets released when the sufferer coughs or sneezes. Data is also possible by aerosols produced through the action of a nebulizer and can survive in the air for at least 3 hours. The existing evidence confirms that the transmission of Covid-19 occurs through close contact and droplets and not by air. Post-transmission, the virus enters and multiplies itself in the upper airway according to its life cycle, then spreads into the lower airway.

The incubation period, which is the beginning of the disease course, is about 3-14 days with an average of 5 days. The patient has not shown symptoms at this time. Furthermore, the spread of the virus is through the bloodstream, primarily to tissues that express ACE2, in this case, including the lungs, gastrointestinal tract, and heart. In this phase generally appears mild symptoms. After 4-7 days of the appearance of symptoms, a second attack occurs. In this second attack, the patient still shows fever symptoms; tightness begins to appear, lung damage worsens. Laboratory results showed an increase in inflammatory marker cells and began to occur hypercoagulation. If not resolved, it will go to the next phase where the inflammatory process becomes more uncontrolled, cytokine storms appear and result in ARDS, sepsis, and other complications.

SARS-CoV-2 mainly infects cells in the airways lining the alveoli. Both viruses and people have a role to play in SARS-CoV infection. The cytopathic effects of the virus also determine the severity of the disease to defeat the immune response. Immune response, if not adequate, will cause viral replication and tissue damage. Suppose excessive can also result in tissue damage (Susilo et al., 2020).

### **3. Methods**

Quantitative research with analytical survey method, with Cross-sectional study approach. Data collection with questionnaires or questionnaires. The research was conducted in Central Mamuju Regency, population-related data obtained from surveillance data of Central Mamuju District Health Office. This research was conducted from August 2020 to September 2020 (Figure 1).

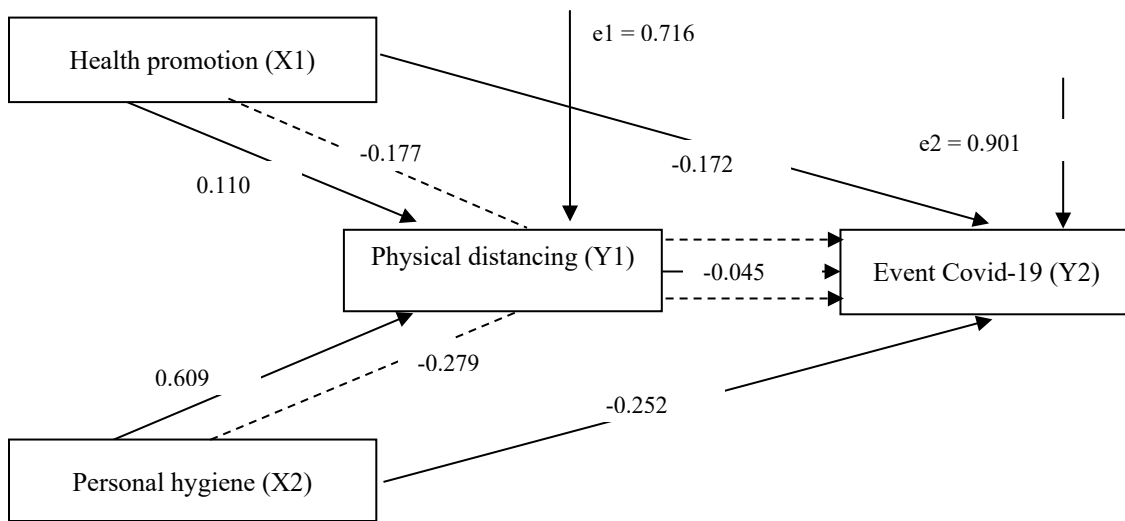


Figure 1. Analysis Path

#### 4. Results

Overall, the effect of variable cause and impact of health promotion (X1) and personal hygiene (X2) on Covid-19 (Y2) through physical distancing (Y1) is illustrated through the following structural models:

Direct influence, indirect influence, and real influence can be seen in the following Table 1:

Table 1. Summary of Influence Results

Variable Influence	Coefficient Line	Coefficient Value	Significant	t-value (t-table =1,656)	Hypothesis
Direct influence of health promotion (X1) on physical distancing (Y1) Insignificant positives	X1--> Y1	0.110	0.270	1,108	Unproven
Direct influence of personal hygiene (X2) on physical distancing (Y1) Positive and significant	X2--> Y1	0.609	0.000	6,113	evident
Direct effect of health promotion (X1) on Covid-19 (Y2) Negatives are insignificant	X1--> Y2	- 0.172	0.177	-1.356	Unproven
Direct influence of personal hygiene (X2) on Covid-19 (Y2) Negatives are insignificant	X2--> Y2	- 0.252	0.079	- 1.769	Unproven

Variable Influence	Coefficient Line	Coefficient Value	Significant	t-value (t-table =1,656)	Hypothesis
Direct influence of physical distancing (Y1) on Covid-19 (Y2) Negatives are insignificant	Y1--> Y2	- 0. 045	0.680	- 0.413	Unproven
The indirect effect of health promotion (X1) on Covid-19 (Y2) through physical distancing (Y1) Negatives are insignificant	X1--> Y1-> Y2	- 0.177		- 0.163	Unproven
Indirect influence of personal hygiene (X2) on Covid-19 (Y2) through physical distancing (Y1) Negatives are insignificant	X2--> Y1-> Y2	- 0. 279		- 0.230	Unproven
The total effect of health promotion (X1) on Covid-19 (Y2)	X1--> Y2	(- 0. 172) + (- 0. 279) = - 0. 451			
The total influence of personal hygiene (X2) on Covid-19 (Y2)	X2--> Y2	(- 0.252) + (- 0. 177) = - 0.429			
The effect of total physical distancing (Y1) on Covid-19 (Y2)	Y1--> Y2	- 0. 045			
e1	-	0.716			
e2	-	0.901			

The direct effect of health promotion on physical distancing; The beta coefficient of health promotion influence (X1) on physical distancing (Y1) by 0. 110 with a significance value of 0. Two hundred seventy or above 0.05 with a t value of 1.108 more minor than the t-table value (1,656). Beta coefficients show that health promotion (X1) on physical distancing (Y1) is positive. This means that health promotion (X1) has a positive but insignificant effect on physical distancing (Y1). Thus hypothesis 1, which states health promotion has a positive and significant impact on physical distancing in Central Mamuju Regency, is not entirely accepted.

The direct influence of personal hygiene on physical distancing; The beta coefficient of personal hygiene (X2) influence on physical distancing (Y1) of 0. Six hundred nine with a significance value of 0.000 or below 0.05 with a t value of 6.113, more significant than the t-table value (1,656). Beta coefficients show that personal hygiene (X2) on physical distancing (Y1) is positive. This means that personal hygiene (X2) has a positive and significant effect on physical distancing (Y1). Thus hypothesis 2 states that Personal hygiene has a positive and significant impact on physical distancing in Central Mamuju Regency, accepted.

The direct influence of health promotion on the health of Covid-19; The beta coefficient of health promotion influence (X1) on Covid-19 (Y2) is incidence amounting to -0.172 with a significance value of 0. One hundred seventy-seven or above 0.05, while the value t-count variable health promotion is -1356, smaller than the t-table value (1656). Beta coefficient shows that health promotion (X1) on Covid-19 (Y2) is unfavorable. This means that health promotion (X1) has a negative but insignificant impact on the Covid-19 (Y2) effect. Thus hypothesis 3, which states health promotion has a negative and significant impact on the incidence of Covid-19 in Central Mamuju Regency, is not entirely accepted.

The direct influence of personal hygiene on the Covid-19; Beta coefficient of personal hygiene (X2) influence on Covid-19 (Y2) awareness by -0. 252 with a significance value of 0.079 or above 0.05, while the t value of the personal hygiene variable t-count is -1,769, smaller than the t-table value (1,656). Beta coefficient shows the influence of personal hygiene (X2) uncover-19 (Y2) indignity is negative. This means that personal hygiene (X2) has a negative

but insignificant effect on the Covid-19 (Y2) level. Thus hypothesis 4 states that Personal hygiene has a negative and significant impact on the incidence of Covid-19 in Central Mamuju Regency is not entirely accepted.

The direct influence of physical distancing on Covid-19; The beta coefficient of physical distancing (Y1) influences Covid-19 (Y2) by -0.045 with a significance value of 0. Six hundred eighty or above 0.05, and the t-value of the physical distancing variable count is -0.413, and smaller than the t-table value (1,656). Beta coefficient shows that physical distancing (Y1) on Covid-19 (Y2) is negative. This means that physical distancing (Y1) has a negative but insignificant effect on the Covid-19 (Y2) effect, thus hypothesized that physical distancing has a negative and significant impact on the incidence of Covid-19 in Central Mamuju Regency is not entirely accepted.

The indirect effect of health promotion on Covid-19 through physical distancing; The significant indirect influence of health promotion on the Covid-19 is through physical distancing is assessed by the Sobel test. From the results of the Sobel test, obtained the value of t-count to the indirect effect of health promotion (X1) against the Covid-19 (Y2) through physical distancing (Y1) of -0.163, meaning the value is smaller than the t-table value of 1,656.

The great value of the indirect influence of health promotion (X1) on the health promotion coefficient (X1) on physical distancing (Y1) is the multiplication of the beta value of the health promotion coefficient (X1) to physical distancing (Y1). It is 0.110 with a beta value of physical distancing coefficient (Y1) against the occurrence of Covid-19 (Y2), which is -0.045, plus / summed up by the beta value of the health promotion coefficient (X1) against the occurrence of Covid-19 (Y2) namely -0.172, mathematically formulated, i.e.  $(0.110 \times -0.045) + (-0.172) = -0.177$ . Thus, the great value of indirect health promotion (X1) against the occurrence of Covid-19 (Y2) through physical distancing (Y1) is -0.177.

## **5. Discussion**

### **5.1. The Effect of Health Promotion on Physical Distancing**

Health promotion has a positive but insignificant effect on physical distancing. Increased health promotion will increase the application of physical distancing insignificantly if other factors are considered constant. Syadidurrahmah stated no knowledge relationship about Covid-19 with physical distancing behavior (Syadidurrahmah et al. 2020). Nowadays, there is a lot of information so that people have enough knowledge about Covid-19. But the existence of other factors, such as economic factors resulting in physical distancing as a preventive measure, is still very lacking. Layalia Azka Rahmatina and Meira Erawati stated that there had been an increase in handwashing and masking behavior while traveling and keeping distance from others (Rahmatina, 2020). There has been no change (Kurniawan et al. 2020) concluded that keeping distance is considered essential and effective in suppressing the spread of Covid-19, but it is not easy to implement. Health promotion through social distancing from social media and television broadcasts can increase respondents' knowledge about the importance and effectiveness of distance keeping. Still, it cannot have a significant influence on its implementation. Siti Fatimah stated that there is no difference between PHBS practice and the provision of health promotion interventions. Behavior changes take a long time (Fatimah, 2012).

In contrast to Green, behavior has to do with attitude and knowledge. Similarly, Dian noted that health promotion measures become very strategic so that the community is obedient in carrying out health protocols (Ayubi, 2020). Health promotion goals include individuals, groups, and communities, and policymakers from the main level to the neighbors. Good health literacy related to Covid-19 is critical. The implementation of strict health protocol policies will force the public to comply (Elder et al. 2014) concluded that health communication campaigns that combine mass media and other communication channels with the distribution of relevant health products that are free/cheap effectively develop healthy behaviors. Health promotion in health communication campaigns covering mass media and distribution of relevant products has been used to reduce mortality and morbidity through behavioral changes. This intervention is defined as two main components that reflect two principles of social marketing: 1) Promotion of behavior change through various communication channels, one of which is mass media. 2) Distribution of free/cheap products that facilitate the acceptance and habituation of healthy behaviors maintain the cessation of risky behaviors or protection against behaviors related to disease or injury.

### **5.2. The Influence of Personal Hygiene on Physical Distancing**

Personal hygiene has a positive and significant effect on physical distancing. Improved individual hygiene behavior will be followed by improving physical distancing behavior if other factors that affect are considered constant. People

or communities who previously had and practiced good personal hygiene behavior habits will be able to carry out health behaviors that are new habits that are physically distancing well as well.

Junaidin stated that personal hygiene correlates with a physical distancing policy that contains healthy lifestyle measures, which is an effort by the government to prevent and terminate the Covid-19 virus breeding chain (Basri, 2020). Hasan stated that one thing that affects behavior is a habit, where patterns of behavior are obtained through repetition throughout one's life (Mustafa, 2011). Yaslina and Yuliana both concluded that attitudes were significantly related to the application of PHBS (Yaslina et al. 2018). People who have a good attitude towards health will also apply good health behaviors as well. So, people who have an excellent personal hygiene attitude will use physical distancing behavior as good healthy behavior to prevent the spread of Covid-19 transmission or maintain emotional health so as not to be exposed to coronavirus, which is the cause of Covid-19 disease.

### **5.3. The Effect of Health Promotion on Covid-19 Events**

Health promotion has a negative but insignificant effect on the occurrence of Covid-19. Increased health promotion efforts will impact decreasing the incidence of Covid-19 (with little numbers), assuming constant other factors. Riskiyana Sukandhi (Putra, 2020) stated that simultaneous communication efforts at the same time resulted in too many messages that came out that are random (impulsive) and capricious precisely caused noise with the result of receiving messages so disturbed and understanding and behavior changes so hindered. About the relationship between health promotion and the incidence of disease, (Hilda Irianty et al. 2020) states that the incidence of gastritis disease has no significant association with health promotion.

A different statement by Audric (Albertus, 2020) that education and health promotion efforts can suppress the spread of Covid-19. The most important thing is promoting health on preventing Covid-19, how it is transmitted, and the severity of the disease. Similarly, (Rizkiyana Sukandhi Putra 2020), that the role of health promotion with a community-based approach in prevention efforts is enormous. Rapid health promotion action is needed to anticipate the rapid spread of Covid-19. About the influence of health promotion on the incidence of disease transmission, different results were also delivered by (Cintawati and Hardiana, 2017). They stated that health promotion has a positive effect on the prevention of scabies disease. Similarly, according to Aprista (Ristyawati, 2020), health promotion in the form of pressure (enforcement) with the implementation of PSBB can suppress the negative impact of the transmission of Covid-19.

### **5.4. The Influence of Personal Hygiene on Covid-19 Events**

Personal hygiene has a negative but insignificant effect on the occurrence of Covid-19. This means that the increasing application of personal hygiene will decrease the incidence of Covid-19 (insignificantly) if other factors are constant. (Evrilda Andani Putri et al. 2018) concluded that pulmonary TB incidence is not related to phlegm removal behavior. Similarly, (Dewi Herawati, 2018) concluded that the density of occupancy and the application of cough ethics are not associated with the existence of suspected Pulmonary Tuberculosis. Pulmonary tuberculosis, like Covid-19 disease, is an infectious disease transmitted through droplets when people cough, sneeze and converse nearby. Desmawati et al. (2015) concluded that the occurrence of scabies is not influenced by personal hygiene and environmental sanitation.

A different statement by Marni Br Karo (2020) that the spread of Covid-19 can be prevented with this strategy. Similarly, in the Who and UNICEF Provisional Guidelines (2020), one of the most important ways to prevent the transmission of Covid-19 is to wash your hands as often as possible. Similarly, (Lucia Evi Indriarini's, 2018) statement that the application of hand hygiene has been shown to lower infection rates. Ibn Azis (2020) stated that cough ethics aims to prevent the spread of disease through droplets and for the comfort of people around so that the application of cough ethics can prevent the spread of Covid-19 (Retno Purwandari et al. 2013) stated that the incidence of diarrhea is related to hand washing. The incidence of diarrhea will decrease if the behavior of handwashing increases. Meanwhile, (Siti Sundari et al. 2014), that mothers who do not cover their nose and mouth when coughing are unhealthy behavior with the highest risk for the occurrence of ISPA pneumonia in toddlers.

### **5.5. The Effect of Physical Distancing on Covid-19 Events**

Physical distancing has a negative but insignificant effect on the Covid-19. The increase in the application of physical distancing will decrease the incidence of Covid-19 (insignificantly) if other factors are constant. Arena Nariswari and Shevinna Putti (Anggraeni, 2020) stated that masks, the application of distance keeping, and routine hand washing are less effective in preventing Covid-19 with current conditions. Droplets containing the virus can be transmitted within



a few meters or in the air for more than 15 minutes, allowing contamination of people nearby (Posma Sariguna Johnson Kennedy et al. 2020) concluded that the benefits of implementing lockdown would decrease over time. At the same time, Christopher I. Jarvis et al. (2020) stated that physical distancing could not immediately reduce contact and decrease cases within a few weeks due to the slowdown in infection delays, turnover of disease symptoms, and hospital treatment, as well as a slowdown in reported events (Zeshan Qureshi et al. 2020) concluded that SARS-CoV-2 could be located and stable in droplets of varying sizes so that it can move at more than 2 meters so that the physical distancing step of keeping a distance of 1-meter results in an increased risk if not taken alongside other measures.

In contrast to the statement of Ramadhan, that the implementation of social distancing is entirely able to level the curve of the rate of spread of the Covid-19 virus (Ramadhan, 2020). Similarly, Sabine L. van Elsland and Ryan (O'Hare, 2020) stated that the Covid-19 virus would cause 7 billion people to be infected with a death toll of 40 million this year if left unchecked. Social distancing with a 40% decrease in social contact and a 60 percent reduction in social contact with the elderly population will decrease the 50% chance of such. Similarly, Singgih Tri stated that social separation patterns in Indonesia could be effective in handling Covid-19 because it suits the social-cultural and economic conditions of Indonesian society (Sulistiyono, 2020). Arief Kresna and Juni Ahyar stated that the government's policy of implementing physical distancing and social distancing could prevent the spread of Covid-19 virus infection in the community (Kresna, 2020). Meanwhile, Nuzulul K.N et al. (2020). Furthermore, David Cababaro Bueno (2020) noted that physical distancing measures in the form of positive patient isolation, contact tracing, quarantine of exposed people, school and work from home, and a combination of such measures could be used as a strategy that successfully minimizes transmission. Similarly, Hamid, that physical distancing in the form of public concern, case tracking, and isolation of 40% of positive patients reduced 90% of the burden of Covid-19 in Iran in June (Sharifi, 2020).

#### **5.6. The Effect of Health Promotion on Covid-19 Events through Physical Distancing**

Health promotion has a negative but insignificant effect on the occurrence of Covid-19 through physical distancing. This is seen in the indirect influence of health promotion through physical distancing but is not significant to the Covid-19. Aleksandra Zajac states that no matter how hard the efforts to keep a distance, there is no perfect single coronavirus protection method, as there are advantages and disadvantages to each intervention (Zajac, 2020). In contrast to the statement of Jesica Moudy and Rizma Adelia, that the behavior of community prevention efforts can be improved by providing specific, valid, and precise knowledge about Covid-19 infection (Syakurah, 2020). Similarly, Mohamad stated that in tackling Covid-19, everyone could contribute and play an active role through education activities, empowerment and law enforcement, implementation of PSBB policies Yoto (2020).

Because in essence preventing and maintaining themselves in the context of outbreak disasters is the same as looking after others/communities and countries. Similarly, T Dwi concluded a significant relationship between school health business facilities and infrastructure with healthy living behavior Utomo (2013). Ika Purnamasari and Anisa Ell concluded that knowledge is meaningfully related to people's behavior about Covid-19 (Raharyani, 2020). Aquarini concluded that physical distancing compliance is influenced by government policies to provide solutions to problems caused, such as direct cash allowances, and the leeway to continue running businesses with strict health protocols to prevent the spread of COVID-19 (Aquarini, 2020). Annaas Budi Setyawan and Ramdhany Ismahmudi stated that health promotion could reduce the incidence of hypertension through changes in PHBS behavior and attitudes and consumption patterns (Setyawan, 2018). Meanwhile, Wiranti concluded that gender, level of education, knowledge, and philosophy are meaningfully related to Depok community compliance with the implementation of PSBB (Wiranti et al. 2020).

#### **5.7. The Influence of Personal Hygiene on Covid-19 Events through Physical Distancing**

Personal hygiene has a negative but insignificant effect on Covid-19 through physical distancing. This is seen in the results of analysis of indirect personal hygiene influence lines through physical distancing but is not significant to Covid-19. Fomite transmission is possible with consistent findings of environmental contamination around infected cases and because this transmission can occur in other types of coronaviruses and other respiratory viruses. In contrast to Ardini S Raksanagara and Ahyani, who concluded that diarrheal diseases, dengue fever, and larvae-free figures have a relationship with clean and healthy living in the household setting (Raksanagara, 2015). A decrease will follow the increase in the value of clean and healthy living behavior laid out by households in the incidence of diarrheal diseases, dengue fever, and larvae-free figures.

## 6. Conclusion

Health promotion and personal hygiene have a negative but insignificant effect on the health of Covid-19 through physical distancing in Central Mamuju Regency. Health promotion has a positive but insignificant impact on physical distancing, while personal hygiene has a positive and significant effect on physical distancing. Health promotion, personal hygiene, and physical distancing negatively but insignificantly affect the Covid-19 incident in Central Mamuju Regency. This has implications for the theory on how Covid-19 is transmitted, which has been believed by scientists. The opinion that transmission is mainly through contact with droplet intermediaries and airborne transmission only when there is an aerosol action. It is necessary to review it with the thought of the possibility of direct communication through the air even without the effort of aerosols. It also implies different preventive measures than before. If direct transmission by air, then keep the recommended distance of at least 1 meter changed to a minimum of 2 meters, and the use of cloth masks is no longer recommended.

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