



## DETERMINANT OF PERSONAL HYGIENE BEHAVIOR OF ONLINE MOTORBIKE TAXI DRIVERS IN COVID 19 PREVENTION IN SEMARANG CENTRAL JAVA

Sekar Putranti Widantari<sup>a\*</sup> ; Nur Endah Wahyuningsih<sup>b</sup> ; Nikie Astorina Yunita Dewanti<sup>c</sup>

<sup>a,b,c</sup> Faculty of Public Health ; Diponegoro University ; 1269 Prof. Soedarto ; Semarang 50275 ; Indonesia

### Abstract

Online motorcycle taxi drivers are at risk of contracting COVID-19 because they have a high frequency of contact with other people and objects that have the possibility of SARS-CoV 2 on their surface. This study aims to determine the determinants of personal hygiene in online motorcycle taxi drivers in an effort to prevent COVID-19 in the city of Semarang, which is an analytical observational study using a cross-sectional approach. The sample in this study were 385 drivers who were in the online motorcycle taxi driver communities on Facebook and Twitter. The sampling technique uses a snowball, and the research instrument is a questionnaire distributed via google forms. Data analysis using Chi-Square Test. 89.4% of online motorcycle taxi drivers are male, 76.1% have low levels of education, 58.7% have low-income levels, 32.2% have poor knowledge, 46.2% have poor attitudes, 48.3% had poor family support, 26.2% had poor peer support, 45.2% had poor information accessibility, and 47% had poor personal hygiene behavior. There is a relationship between knowledge (p-value <0.001) attitude (p-value < 0.001 ) and family support (p-value < 0.001 ) with personal hygiene behavior. Knowledge becomes the most influential determinant of personal hygiene behavior. Providing an educational menu in the driver application can help to increase knowledge.

**Keywords:** *online motorbike taxi drivers; personal hygiene; COVID-19*

### 1. Introduction

At the end of 2019, mysterious pneumonia was discovered in Wuhan, China. It is suspected that the disease originated at an animal market in Wuhan. Within one month, the disease has spread to various countries. Then, it is named 2019 novel corona-virus (2019-nCoV). But in February 2020, the World Health Organization changed it to COVID-19, which was caused by the SARS-CoV 2 virus (Susilo et al., 2020). COVID-19 has attacked almost all countries in the world, including Indonesia (World Health Organization, 2020). The first case of COVID-19 in Indonesia occurred on March 2, 2020. COVID-19 has infected two Indonesian citizens (WNI) who are known to have a history of contact with Japanese citizens who first suffered

from the disease.

COVID-19 cases in Indonesia continue to increase. It was recorded that on November 29, 2020, there were 6,267 confirmed cases. This is also the highest increase in confirmed cases per day since the emergence of COVID-19 in Indonesia. Almost all provinces have COVID-19 cases. The number of COVID-19 cases is dominated by provinces in Java Island such as DKI Jakarta, East Java, West Java, and Central Java. The four provinces have the highest COVID-19 cases among other provinces. Several cities in Central Java have also become red zones for COVID-19, one of which is Semarang City. (Gugus Tugas Percepatan Penanganan COVID-19, 2020).

Semarang City, which is the capital of Central Java, has many referral hospitals for COVID-19. This has resulted in many migrant patients from outside the city being referred to a

\*) Corresponding Author (Sekar Putranti Widantari)  
E-mail: [swidantari@gmail.com](mailto:swidantari@gmail.com)

hospital in Semarang City. This increases the risk of transmission. In addition, the highest number of COVID-19 sufferers is in the productive period, namely 20-54 years (Pemerintah Kota Semarang, 2020).

As a form of efforts to prevent COVID-19, the Semarang City Government has implemented community activity restrictions. This limitation of community activities aims to reduce community activities that involve large numbers of people. Restrictions on community activities affect all sectors, including the informal sector.

Online motorbike taxi driver is one of the informal sector workers affected by restrictions on community activities imposed in the city of Semarang. Even though there are restrictions on transporting passengers, online motorbike taxi drivers are still allowed to deliver food, goods or daily necessities needed by customers.

*Online* motorcycle taxi drivers have a big risk of contracting COVID-19. This is because the frequency meets more people, and often comes into contact with items that may have SARS-CoV 2 on their surface due to job demands that require them to accept goods from shops, restaurants, or customers and deliver the goods to the customer or recipient. In addition, as a job that requires working outdoors and is not limited by time, it increases the likelihood of *online* motorcycle taxi drivers getting COVID-19.

As one of the RNA viruses coated with protein and fat, SARS-CoV 2 is very easy to stick everywhere (Susilo et al., 2020). Research conducted by Ong et al. in 2020 at a hospital said that SARS-CoV 2 has proven to adhere to surfaces such as tables, windows, chairs, doors, door handles, washbasins, and toilets (Lai, Tang, Fung, & Li, 2020).

SARS-CoV 2 lasts longer on plastic and stainless steel surfaces than on copper and cardboard surfaces. In plastic, the virus can last for 72 hours, and on stainless steel, the virus can last for 48 hours. Whereas on the copper surface, SARS-CoV 2 can only last for 4 hours. Then on the cardboard surface, SARS-CoV 2 can last for 24 hours (Massachusetts Medical Society, 2020). For this reason, correct prevention of COVID-19 is needed in drivers, because if drivers do not comply with health protocols, it can increase the likelihood of drivers getting COVID-19.

In an effort to prevent COVID-19, a person is required to carry out personal hygiene properly. Personal hygiene that was carried out during COVID-19 was washing

hands with running water and soap, using a mask, maintaining distance, and practicing cough etiquette. In addition, it is important to wash and change clothes after traveling from outside. Washing hands with soap and water are believed to remove and break down hydrophobic compounds such as fats or oils in the virus (Susilo et al., 2020). Performing personal hygiene properly can reduce disease transmission and reduce risk between 6% and 44% (Chen et al., 2020).

The researcher intends to examine the determinants of personal hygiene behavior in online motorbike taxi drivers to prevent COVID-19 in Semarang City, Central Java, from the data and problems obtained.

## 2. Method

This study was an analytic observational study using a cross-sectional study design. Sampling used is snowball sampling technique conducted for one month, and the population is all online motorcycle taxi drivers in the city of Semarang. Data collection is carried out through Google forms, which are distributed to online motorbike taxi driver communities on Facebook and Twitter. Researchers distribute the forms through the admin, and then the admin will post them on social media with the result of 385 respondents obtained.

The criteria in selecting the sample were that online motorbike taxi drivers must be in good health, actively working, and in the city of Semarang area, which is marked by filling in the work area of the driver on the forms. The categorization is divided into two, namely good and poor, and is done by looking at the median value of each variable because the data obtained is not a normal distribution. Univariate analysis was carried out to see the frequency distribution of the independent variables, namely knowledge, attitudes, family support, friend support, information accessibility and the dependent variable, such as personal hygiene behavior. The statistical test used to see the relationship between the independent and dependent variables in this study is the Chi-Square test.

## 3. Result and Discussion

This study's sample amounted to 385 respondents consisting of 89.4% male online motorcycle taxi drivers, 76.1% had a low level of education, and 58.7% had a low-income level (Table 1).

**Table 1.** Interesting Answers from Questions Asked to Online Motorbike Taxi

Questions	Frequency	%
1. Respondents did not know that when coughing or sneezing when not wearing a mask, it should not be covered with palms.	141	36.6
2. Respondents did not know that COVID-19 was caused by a virus.	138	35.8
3. Respondents agreed that washing hands with running water alone is sufficient to remove bacteria or viruses on the hands.	98	25.5
4. Respondents were always reminded by their families to wash their hands using soap and running water.	164	42.6
5. Respondents were always provided with proper hand washing facilities by their family.	197	51.2
6. Respondents were rarely reminded by friends/colleagues to wash their hands properly using running water and soap.	179	46.5
7. Respondents rarely find out information about COVID-19.	109	28.3

**Table 2.** Online motorbike taxi drivers characteristics

Variables	Frequency	%
Knowledge		
Poor	124	32.2
Good	261	67.8
Attitude		
Poor	178	46.2
Good	207	53.8
Family Support		
Poor	186	48.3
Good	199	51.7
Peer Support		
Poor	101	26.2
Good	284	73.8
Information Accessibility		
Poor	174	45.2
Good	211	54.8
Personal Hygiene Behavior		
Poor	181	47
Good	204	53

It can be seen that 32.2% of respondents have poor knowledge, 46.2% have poor attitudes, 48.3% have poor family support, 26.2% have poor peer support, 45.2% have poor accessibility of information, and 47% have poor personal hygiene behavior (Table 2).

The bivariate test results with the Chi-Square test to see the relationship between knowledge, attitudes, family support, peer support, and information accessibility with personal hygiene behavior can be seen in Table 3. The results of a search for comparative literature to support this research show that so far, there has been no previous research that has discussed personal hygiene behavior in online motorbike taxi drivers, especially in efforts to prevent COVID-19. Therefore, in this study, researchers compared previous studies with similar topics such as prevention behavior in COVID-19, SARS, MERS, and personal hygiene behavior in general by looking at the variables used. The researcher tries to compare the variables used in this study.

Table 3 shows a significant relationship between the variable knowledge and personal hygiene behavior (*p-value* <0.001) with a confidence interval of 4.57 (95% CI 3.64-5.76) which indicates that respondents with poor knowledge have a 4.57 times greater chance of having poor personal hygiene behavior. This shows that the better a person's knowledge, the better the resulting personal hygiene behavior. This is consistent with Lawrence Green's theory which states that knowledge is a predisposing factor in the formation of health behavior. Knowledge is also a form of closed behavior because it can not be observed directly (Notoatmodjo, 2012).

Someone who has knowledge about COVID-19, such as prevention methods, symptoms that appear, and transmission methods, will certainly carry out good personal hygiene. When someone does not have sufficient knowledge, there is a greater possibility to ignore health behavior, especially in this study, personal hygiene COVID-19, so this proves that knowledge can influence someone to behave well (Notoatmodjo, 2012).

Research conducted in South Korea on nursing students regarding factors that influence preventive behavior against MERS (Middle East Respiratory Syndrome), which consists of washing hands with soap, distance keeping, disinfection, and cough ethics, states that knowledge is related to MERS preventive behavior (*p-value* <0.005) because in the case of MERS that occurred in Saudi Arabia it caused a high number of deaths thus increasing public interest in understanding how to take appropriate precautions both at the community level and at the individual level (Choi & Kim, 2016).

**Table 3.** Determinants of Personal Hygiene Behavior in Online Motorbike Taxi Drivers in Semarang.

Variables	Personal Hygiene Behavior						<i>p-value</i>	PR (CI 95%)
	Poor		Good		Total			
	f	%	f	%	f	%		
Knowledge								
Poor	124	100	0	0	124	100	<0.001*	4.57 (3.64-5.76)
Good	57	21.8	204	78.2	261	100		
Attitude								
Poor	178	100	0	0	178	100	<0.001*	69 (22.43-212.18)
Good	3	1.4	204	98.6	207	100		
Family Support								
Poor	181	97.3	5	2.7	186	100	<0.001*	0.027 (0.011-0.064)
Good	0	0	199	100	199	100		
Peer Support								
Poor	46	45.5	55	54.5	101	100	0.731	0.923 (0.58-1.45)
Good	135	47.5	149	52.5	284	100		
Information Accessibility								
Poor	85	48.9	89	51.1	174	100	0.513	1.144 (0.76-1.71)
Good	96	45.5	115	54.5	211	100		

**Table 4.** Knowledge Relationship with Attitude and Family Support in Online Motorbike Taxi Driver in Semarang.

Variables	Knowledge						<i>p-value</i>	PR (CI 95%)
	Poor		Good		Total			
	f	%	f	%	f	%		
Attitude								
Poor	123	69.1	55	30.9	178	100	<0.001*	460.69 (62.95-3371.11)
Good	1	0.5	206	99.5	207	100		
Family Support								
Poor	124	66.7	62	33.3	186	100	<0.001*	0.33 (0.27-0.40)
Good	0	0	199	100	199	100		

\*)Significant in  $p < 0.05$

The emergence of good personal hygiene behavior is based on good knowledge because knowledge can encourage someone to perform good personal hygiene behavior. A person will find it easier to understand his condition if he has good knowledge. As many as 35.8% of respondents still did not know that COVID-19 was caused by a virus, not bacteria. Besides that, 36.6% of respondents also did not know that when they are coughing but not wearing a mask, they should not be covered with their palms because droplets can spread easily through the palm. This can affect the behavior that will be formed so that it is necessary to increase knowledge so that good personal hygiene behavior can be formed.

According to Notoadmodjo, to increase knowledge, one of the ways that can be done is by digging up as much information as possible and sorting it well. It is hoped that this information will produce correct knowledge

about health, have a positive attitude, and hope that behavior change will occur. The behavior change in question is for those who do not have healthy behavior, they are expected to change, and if they do have, they will consistently behave healthily (Notoatmodjo, 2012).

Providing educational menus for each online motorbike taxi driver through applications used by drivers for work can increase their knowledge. The education menu can be in the form of videos, digital posters, short articles using language that is easily understood by the driver. The education menu contains the latest issues regarding COVID-19, such as COVID-19 in general, how to prevent it, the symptoms it causes, types of transmission, and the latest findings that have been adjusted to the correct information sources so that drivers can see or read them at their leisure time.

Equipping drivers with knowledge about COVID-19 can help avoid COVID-19 and other

infectious diseases. Besides that, it will increase driver awareness of the importance of performing good personal hygiene (Karo, 2020). Reminder for drivers to wash their hands regularly, wear masks, keep the distance, and do other personal hygiene behaviors related to COVID-19 can also help drivers form good personal hygiene behavior. It is hoped that all drivers will be motivated to perform good personal hygiene behavior.

The results showed that attitude has a significant relationship with personal hygiene behavior ( $p$ -value  $< 0,001$ ) with confidence interval of 69 (95% CI 22.43-212.18), which indicates that respondents with poor attitude have a 69 times greater chance of having poor personal hygiene behavior (Table 3). Attitude is a connector of someone's knowledge, which then be implemented into their behavior. If the information obtained by a person is incorrect (misinformation), it will affect the behavior they will do (Nasir, Baequni, & Nurmansyah, 2020).

Online motorbike taxi drivers who are still working during this pandemic certainly have their worries. They have to be outside for some uncertain duration because of the target orders they have to achieve. Still, on the other hand, they must be able to maintain their health. In a pandemic like this, someone tends to have unstable emotions, anxiety, and panic, which will affect the behavior he will shape (Al-Hanawi et al., 2020). For this reason, respondents tend to have good personal hygiene behavior in order to prevent themselves from COVID-19 so that they still have the opportunity to work as usual.

Research conducted in Hunan Province, China, regarding knowledge, attitudes, and behavior towards COVID-19 among residents in Hunan states that attitudes are related to behavior. ( $p$ -value  $< 0.05$ ) from this study, it can be seen that respondents who have good attitudes tend to have good COVID-19 prevention behavior (Chunyan et al., 2020).

Research conducted in China on behavior towards COVID-19 (a study on students during the quarantine period) states that attitudes are related to personal hygiene behaviors carried out as an effort to prevent COVID-19 such as washing hands, wearing masks, and maintaining distance ( $p$ -value  $< 0.033$ ). In this study, students who scored high on knowledge and attitudes tended to have good hand washing behavior, wearing masks and maintaining good distance. This is because they believe that washing hands, wearing masks, and keeping a distance can reduce the risk of getting infections of the

respiratory organs, proven by previous research (Zhang et al., 2020).

As much as 25.5% of respondents agreed with the statement that washing hands with running water alone is enough to get rid of viruses and bacteria (Table 1). This proves that the knowledge they have is still poor, so this attitude is formed. In this study, respondents who had poor knowledge had poor attitudes. This was evidenced by the relationship between knowledge and attitude ( $p$ -value  $< 0.001$ ) with a confidence interval of 460.69 (95% CI 62.95 - 3371.11), which indicates that respondents with poor knowledge have a chance of 460.69 times to have a poor attitude (Table 4).

Increasing the knowledge possessed by respondents has the opportunity to be able to improve attitudes so that it can influence personal hygiene behavior that they will have. Increasing knowledge can be done by providing precise and accurate information through the education menu in the online motorcycle taxi driver application. According to Zuchdi, in his attitude formation theory, attitudes can be influenced by personal experience, cultural influences, other people's experiences, mass media, and education (Azwar S, 2013).

Results showed that family support has a significant relationship with the behavior of other personal hygiene ( $p$ -value  $< 0.001$ ) with a confidence interval of 0.027 (95% CI 0.011-0.064), indicating that respondents with poor family support have amounted to 0.027 times the opportunity to have poor personal hygiene behavior (Table 3). This can happen because family support is one of the reinforcing factors in shaping health behavior.

Family support can encourage the formation of good health behavior because the easiest formation of behavior is through the presence of a family. In addition, during this pandemic, online motorbike taxi drivers spent more time with their families than with their colleagues, so that respondents received more affirmation for good personal hygiene.

Research conducted in the Philippines on the factors that influence the perception of the effectiveness of COVID-19 prevention measures by integrating the theory of the protection of motivation and behavior theory, which states that subjective norms have a relationship with the adaptation of COVID-19 prevention behavior ( $p$ -value  $< 0.001$ ). In this study, the subjective norm variable is a variable that has a statement regarding COVID-19 prevention behavior carried out by the people closest to the

respondents, such as their family (Prasetyo, Castillo, Salonga, Sia, & Seneta, 2020).

Someone will tend to do the same thing if the environment around them also does the behaviors. This is evidenced by 42.6% of respondents being reminded by their families to wash their hands with running water and soap. In addition to that 51.2% of respondents stated that their families provide facilities and infrastructure for washing hands properly (Table 1).

Family is the main unit because family is related to one another, influences each other among family members, and affects the families around it or the surrounding community (Bronson, 2016). According to Gordon and Rosenthal, mortality and disease rates tend to be low in people with families (Karina & Sodik, 2018).

What can be done to improve personal hygiene behavior through family support is to continue to provide facilities and infrastructure to maintain the cleanliness and health of online motorbike taxi drivers. Besides that, it is important to remind or reprimand each other if one's family members are neglectful in carrying out personal hygiene behavior in the effort to prevent COVID-19, especially online motorbike taxi drivers.

The results showed that peer support did not have a significant relationship with personal hygiene ( $p$ -value = 0.731) (Table 3). This can happen because, during the pandemic, there is a policy for social distancing, so the intensity of respondents to meet and gather with colleagues is reduced. They tend to focus on working and achieving targets so they can return home immediately.

This research is not in accordance with research conducted in the Philippines regarding the factors that affect the perception of the effectiveness of COVID-19 prevention measures by integrating the theory of the protection of motivation and behavior theory, which states that subjective norms have a relationship with the adaptation of COVID-19 preventive behavior ( $p$ -value <0.001). In this study, the subjective norm variable is a variable that has a statement about COVID-19 prevention behavior carried out by the people closest to the respondent, such as friends or colleagues. In addition, it was also explained that people tend to understand more easily about COVID-19 if they are surrounded by people who carry out health protocols according to government recommendations (Prasetyo et al., 2020).

A study conducted by Argyle and Furnham said that there are three processes that friends or colleagues can do to provide support. The first is instrumental support, such as information, money, and other things that can help solve someone's problem. The second is emotional support, such as mutual sympathy, and the third is social integration or a feeling of belonging to a circle of friends (Karina & Sodik, 2018).

In this COVID-19 pandemic situation, respondents rarely get direct support because they have to reduce the intensity of meeting or gathering to minimize the spread of COVID-19. This is evident from 46.5% of respondents who are rarely reminded by friends or colleagues to wash their hands thoroughly and adequately use running water and soap (Table 1).

The absence of a significant relationship also occurred in the variable information accessibility and personal hygiene behavior ( $p$ -value = 0.513) (Table 3). This can occur due to job demands that require them to achieve daily targets, limiting the time for respondents to access information about COVID-19. This can be seen from 28.3% of respondents who rarely seek out information about COVID-19 and how to prevent it (Table 1).

In addition, there is a company policy that requires online motorbike taxi drivers to carry out proper and correct personal hygiene behavior such as using masks, vehicle disinfection, providing hand sanitizer, washing hands regularly, and keeping a distance from customers, making them comply and implement it all so that the personal hygiene behavior of online motorbike taxi drivers is good.

Research conducted in Saudi Arabia states that information accessibility relates to personal hygiene behavior ( $p$ -value <0.05). In this study, the respondents were students, and it was explained that some students obtained information through social media. They tend to have a greater curiosity about the correctness of information so that the opportunity to get correct information increases (White, Omer, & Nazeer Mohammad, 2020).

The difference in the respondents' characteristics in the previous study with this study made the results obtained differently. The policies are given by the company make online motorbike taxi drivers inevitably have to comply. Although they may still trust hoax information that often circulates on social media, they use the main platform to obtain information.

This study shows that 47% of respondents still have poor personal hygiene behavior (Table 2). Although statistically, attitude is one of the

most influential determinants, after a deeper analysis, knowledge plays a very important role because there are still drivers who do not know the basics about COVID-19. This is because respondents do not know that COVID-19 comes from the SARS-CoV-2 virus, which can last a long time on surfaces for 4 - 72 hours according to the type of surface. (Massachusetts Medical Society, 2020). In addition, respondents also did not know that when coughing or sneezing while not wearing a mask, it is advisable to cover with deep elbows or tissue, not palms. This is because the virus will easily move from the palm to other surfaces so that the risk for the well-known COVID-19 or other infectious diseases can increase.

Lack of knowledge can affect the attitude that will be formed because attitude is an important component that must be possessed in making a decision. A person can choose his attitude to agree or disagree with something, which can then influence the behavior he will do (Suharyat, 2010).

The policies provided by the company have greatly helped online motorbike taxi drivers to prevent and reduce the transmission of COVID-19. However, further monitoring is required regarding this matter because there are still some drivers that do not run one of the protocols that have been granted by the company. This is due to a lack of discipline on the drivers.

#### 4. Conclusion and Suggestion

The determinants of personal hygiene behavior in efforts to prevent COVID-19 are knowledge, attitudes, and family support. Knowledge becomes the most dominant determinant in personal hygiene behavior. For this reason, innovations can be made such as providing an educational menu in the online motorcycle taxi driver application which contains the latest issues regarding COVID-19 such as COVID-19 in general, how to prevent it, the symptoms it causes, modes of transmission and the latest findings that have been adjusted to the source of correct information.

#### 5. Acknowledgments

Researchers are very grateful to online motorbike taxi driver communities who have been willing to become the respondents of this study.

#### 6. References

- Al-Hanawi, M. K., Angawi, K., Alshareef, N., Qattan, A. M. N., Helmy, H. Z., Abudawood, Y., ... Alsharqi, O. (2020). Knowledge, Attitude and Practice Toward COVID-19 Among the Public in the Kingdom of Saudi Arabia: A Cross-Sectional Study. *Frontiers in Public Health*, 8(May), 1–10. <https://doi.org/10.3389/fpubh.2020.00217>
- Azwar S. (2013). *Sikap Manusia Teori dan Pengukurannya*. Yogyakarta: Pustaka Pelajar.
- Bronson. (2016). Autonomy Support Environment and Autonomous Motivation on Nursing Student Academic Performance: An Exploratory Analysis. *Nurse Education Today*, 44(September), 103–108.
- Chen, X., Ran, L., Liu, Q., Hu, Q., Du, X., & Tan, X. (2020). Hand Hygiene, Mask-Wearing Behaviors and Its Associated Factors during the COVID-19 Epidemic: A Cross-Sectional Study among Primary School Students in Wuhan, China. *International Journal of Environmental Research and Public Health Article*, 17.
- Choi, J. S., & Kim, J. S. (2016). Factors influencing preventive behavior against Middle East Respiratory Syndrome-Coronavirus among nursing students in South Korea. *Nurse Education Today*, 40, 168–172. <https://doi.org/10.1016/j.nedt.2016.03.006>
- Chunyan, L., Jingcan, X., Liqing, Y., Minxue, S., Minhui, D., & Neng, L. (2020). *Knowledge, attitude, and practice survey regarding coronavirus disease 2019 among residents in Hunan Province*. 45(6), 0–2.
- Gugus Tugas Percepatan Penanganan COVID-19. (2020). *Peta Sebaran COVID-19*. Retrieved from <https://covid19.go.id/peta-sebaran>
- Karina, Z., & Sodik, M. A. (2018). *PENGARUH DUKUNGAN SOSIAL TERHADAP KESEHATAN*.
- Karo, M. B. (2020). Perilaku Hidup Bersih dan Sehat (PHBS) Strategi Pencegahan Penyebaran Virus Covid-19. *Jurnal Keperawatan Komunitas*, 01(01), 40–47. Retrieved from W Saputro, LY Budiarti, H Herawati - Dunia Keperawatan, 2016 - ppjp.unlam.ac.id
- Lai, T. H. T., Tang, E. W. H., Fung, K. S. C., & Li, K. K. W. (2020). Reply to "Does hand hygiene reduce SARS-CoV-2 transmission?" *Graefe's Archive for Clinical and Experimental Ophthalmology*.

- <https://doi.org/https://doi.org/10.1007/s00417-020-04653-4>
- Massachusetts Medical Society. (2020). Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-. *The New England Journal of Medicine*, 382(16).
- Nasir, N. M., Baequni, B., & Nurmansyah, M. I. (2020). Misinformation Related To Covid-19 in Indonesia. *Jurnal Administrasi Kesehatan Indonesia*, 8(2), 51. <https://doi.org/10.20473/jaki.v8i2.2020.51-59>
- Notoatmodjo, S. (2012). *Promosi Kesehatan dan Perilaku Kesehatan*. Jakarta: PT Rineka Cipta.
- Pemerintah Kota Semarang. (2020). Jumlah COVID-19 berdasarkan Kelompok Umur. Retrieved from <https://siagacorona.semarangkota.go.id/halaman/covid19>
- Prasetyo, Y. T., Castillo, A. M., Salonga, L. J., Sia, J. A., & Seneta, J. A. (2020). Factors Affecting Perceived Effectiveness of COVID-19 Prevention Measures among Filipino during Enhanced Community Quarantine in Luzon, Philippines: Integrating Protection Motivation Theory and Extended Theory of Planned Behavior. *International Journal of Infectious Diseases*, 99, 312-323. <https://doi.org/10.1016/j.ijid.2020.07.074>
- Suharyat, Y. (2010). Sikap dan Perilaku. *Region*, 1(3), 1-19.
- Susilo, A., Rumende, C. M., Pitoyo, C. W., Santoso, W. D., Yulianti, M., Sinto, R., ... Yunihastuti, E. (2020). Coronavirus Disease 2019: Tinjauan Literatur Terkini Coronavirus Disease 2019: Review of Current Literatures. *Jurnal Penyakit Dalam Indonesia*, Vol. 7, pp. 45-67.
- White, S., Omer, M., & Nazeer Mohammad, G. (2020). Knowledge, attitude and practice on prevention of airborne and droplet infections during the outbreak of coronavirus among the college students at the University of Bisha, Saudi Arabia. 11(04), 20773-20776.
- Zhang, M., Li, Q., Du, X., Zuo, D., Ding, Y., Tan, X., & Liu, Q. (2020). Health Behavior Toward COVID-19: The Role of Demographic Factors, Knowledge, and Attitude Among Chinese College Students During the Quarantine Period. *Asia-Pacific Journal of Public Health*, 1-3. <https://doi.org/10.1177/1010539520951408>