

ORIGINAL ARTICLE

The Roles of Knowledge and Perceptions in Covid-19 Transmission Prevention Behavior

Sri Rahayu¹, Wiwik Eko Pertiwi², Lisya Meidina², Sandeep Poddar³

¹ Nursing Science Study Program, Faculty of Health Science, Universities Faletahan Serang, Indonesia

² Public Health Study Program, Faculty of Health Science, Universities Faletahan Serang, Indonesia

³ Lincoln University College, Wisma Lincoln, No. 12-18, SS6/12, Off Jalan Perbandaran, 47301 Petaling Jaya, Selangor D. E. Malaysia

ABSTRACT

Introduction: COVID-19 is an infectious disease caused by novel Corona virus strain and transmitted in community. The present research aimed to find out about the relationships of knowledge and perceptions related to COVID-19 transmission prevention behavior among ticketing workers of a ferry operator. **Methods:** This research employed quantitative methods with cross-sectional research design and chi-square analysis approach. The research sample consisted of 99 respondents who were ticketing workers of ferry operators within the working area of the Port of Merak, Banten. **Results:** The research results showed that 30.3% of the respondents had poor and remaining 69.7% had good COVID-19 transmission prevention behavior. As many as 66.7% of the respondents had good knowledge, while 42.4 % had constructive perception of COVID-19 transmission prevention behavior. The analysis test showed that there were significant relationships between knowledge and perceptions related to COVID-19 transmission prevention behavior. Managers are suggested to improve workers' knowledge and perceptions on COVID-19 transmission prevention. **Conclusion:** Workers with good knowledge were twice as likely to have good COVID-19 transmission prevention behavior.

Keywords: COVID-19, Transmission prevention behavior, Knowledge, Perceptions

Corresponding Author:

Wiwik Eko Pertiwi, M.Kes

Email: wiek.ep@gmail.com

Tel: +6287771167746

INTRODUCTION

In the globalization era, transportation assumes an indispensable role in society as supported by varying daily activities and routines. The presence of public transportation yields a substantial influence on the economy of a region. The success of the economic growth in a country is inseparable by government interventions for the creation of comfortable, safe, clean, and well-organized public transportation. Public transportation by sea plays a vital role as it is the mode that connects different regions and even countries.

Sea transportation plays a critical role in connecting one island to another for smooth distribution of goods and passengers. Government policies in the sea transportation sector should not only concern sea transportation activities but also aspects of port work and shipping safety and health(1). The national transportation system encompasses port work which makes up a strategic part of the national transportation system and serves as an important supporting factor of trade activities. The

port sector is one of the main gateways of country in the provision of transport facilities. The spearhead of the port work is the provision of port services. The Ports of Merak and Bakuheni are managed by PT. Angkutan Sungai dan Perairan (PT. ASDP)(Indonesian state-owned passenger ferry) Indonesia Ferry (Persero)(1). Port is one of the transmission paths in various aspects of life, including the disease transmission between regions or islands. As a public area, port is a potential place with a high risk of transmission of environment-based diseases. As we know there are few diseases that are very closely linked to hygiene behavior, including the COVID-19.

The coronavirus belongs to a big family of viruses which cause various diseases, ranging from mild diseases such as common cold to severe ones like Middle East Respiratory Syndrome (MERS) and Severe acute respiratory syndrome (SARS). This disease is transmitted from animals to humans (zoonosis) and from human to another human is very limited. Actually, how exactly this disease is transmitted is still unclear. It is presumed to be transmitted from animals to humans because all the cases emerge in Wuhan, China, have histories of contacts with Wuhan animal market (2). In March 2020, the Director General of the World Health Organization (WHO) declared the coronavirus disease (COVID-19) as pandemic. In other words, the WHO

alarmed the governments across the world to increase their preparedness in the prevention and handling of the pandemic. This is because, when a pandemic is declared, there is a possibility of community transmission taking place (3). As of May 8, 2020, as many as 3,679,499 cases were confirmed worldwide, and this figure continues to increase with every passing day (4).

The coronavirus disease (COVID-19) was first identified to spread into Indonesia on March 2, 2020. The pandemic has spread throughout all the provinces in Indonesia after Gorontalo province reported its first case (5). The COVID-19 cases in Indonesia are constantly rising in number, and as of May 7, the disease has affected 12,776 patients (6). Sea path is a high-risk travel method for community transmission of COVID, which is referred in this research study. Port is the foremost community transmission gateway between islands in Indonesia. The government has implemented large-scale social distancing, lockdown in various regions, and work-from-home policies for workers. But these policies cannot be fully implemented in some sectors, such as in case of distribution of food materials and in the health sector which require non-stop operations. Therefore, COVID-19 transmission prevention is needed; particularly at the ports operated by PT. ASDP Indonesia Ferry which is the regional entry points with Java-Sumatra interisland sea transportation. Port of Bakauheni is a very sensitive area during this pandemic, because of transmission especially among the ticketing workers. These ticketing workers are a group at risk of COVID-19 transmission since they must frequently come into direct interactions with the service users. Two positive COVID-19 cases were reported by the coordinator of the Port Health Office (KKP) among service users in the port of Bakauheni. This means that risk for community transmission does exist, especially among ticketing workers. For this reason, the researchers sought to find out the relationships of knowledge and perceptions to COVID-19 transmission prevention behavior at PT. ASDP Indonesia Ferry in 2020.

MATERIALS AND METHODS

Quantitative methods and a cross-sectional approach were used in this research study. Serving as the independent variables in this research were knowledge and perceptions, serving as the dependent variable was COVID-19 transmission prevention behavior. The population was the ticketing officers at PT. ASDP Indonesia Ferry, 99 of them were selected as sample by total sampling technique. This research was conducted from March to July 2020 at PT. ASDP Indonesia Ferry, Bakauheni, Lampung.

Data collection used a questionnaire dealing with information on knowledge and perceptions on COVID-19 transmission prevention behavior among the ticketing officers. These questions refer to the

health SOP issued by the Ministry of Health in 2020. Fifteen questions were used to explore knowledge, with 15 points at the maximum. Levels of knowledge were categorized into two; a respondent would be knowledgeable if his/her score \geq mean score, and poor if his/her score $<$ mean score. Twelve questions were used to explore perceptions on COVID-19 transmission prevention, and the answers were measured by a 4-point Likert scale with points indicating “strongly agree”, “agree”, “disagree”, and “strongly disagree”. Perceptions were categorized into two: a respondent would be said to have a positive perception if his/her score \geq mean score, and negative if his/her score $<$ mean score. Lastly, 12 questions were used to explore COVID-19 transmission prevention behavior, with answer options “all the time”, “occasionally”, and “never”. COVID-19 transmission prevention behaviors also were categorized into two based on the mean score achieved by the respondents: a respondent would be said to have good transmission prevention behavior if his/her score \geq mean value and bad if his/her score $<$ mean score.

Primary data collection was conducted by directly disseminating the questionnaire to the workers by still observing the health protocols. This research has received an approval from PT. ASDP Indonesia Ferry through Research Approval Letter No. PR.002/06/VII/ASDP-CUB/2020.

RESULTS

Table I shows the respondents’ behavior, knowledge, and perception frequencies. There were still some ticketing workers who exhibited poor COVID-19 transmission prevention behavior. However, most of the respondents had good knowledge and positive perceptions.

Based on the results of the statistical test presented in Table II, the knowledge and perceptions were related to COVID-19 transmission prevention behavior was analyzed. Workers who had poor knowledge were at twice the risk of having poor COVID-19 transmission prevention behavior, while workers who had negative perceptions four times the risk of having poor COVID-19 transmission prevention behavior

Table I. Distribution of respondents’ behavior, knowledge, and perception frequencies (n = 99)

Variables	Number	%
COVID-19 transmission prevention behavior		
Poor	30	30.3
Good	69	69.7
Knowledge		
Poor	33	33.3
Good	66	66.7
Perceptions		
Positive	42	42.4
Negative	57	57.6

Table II: Relationships of knowledge and perceptions to COVID-19 transmission prevention behavior (n =99)

Variables	COVID-19 transmission prevention behavior				Total		P Value	OR
	Poor		Good		N	%		
	N	%	N	%				
Knowledge								
Poor	15	45.5	18	54.5	33	100	0.037	2.833
Good	15	22.7	51	77.3	66	100		
Total	30	30.3	69	69.7	99	100		
Perceptions								
Negative	20	47.6	22	52.4	42	100	0.003	4.273
Positive	10	17.5	57	82.5	57	100		
Total	30	30.3	99	69.7	99	100		

DISCUSSION

COVID-19 transmission prevention behavior

The coronavirus disease, or what is more popularly known as COVID-19, is a zoonosis, meaning that the virus originates in animals and later it transmitted to humans, presumably through droplets and contact with the virus in the droplets (7,8). Researchers show in their review and analyze the gradual changes of the genetic makeup of SARS CoV from evolutionary and epidemiological perspectives (9). This disease spread very quickly from one region to another region including through transmission by ports with their ferry facilities (10).

Ticketing workers are a group of officers in the ferry services at ports who are in charge of serving all service users including executive and regular ticket purchases. Ticketing workers provide services to users of private vehicles, public vehicles including trucks, and service users who were going to board the ferries. The interactions taking place between service users and ticketing workers increase the potential for COVID-19 transmission to the ticketing workers higher than to other workers at PT. ASDP Indonesia Ferry. In order to prevent and limit COVID-19 transmission among ticketing workers, PT. ASDP Indonesia Ferry applies health protocols and provides various facilities and infrastructure to support the COVID-19 transmission prevention. In spite of the implementation of health protocols at PT. ASDP Indonesia Ferry, it is also necessity that all ticketing workers and service users should perform appropriate COVID-19 transmission prevention behavior such as washing hands correctly with flowing water and with soap as well, and maintaining the health and immunity system of the body.

From the results of the research on the ticketing workers at PT. ASDP Indonesia Ferry, it was found that the majority of the respondents had already exhibited good COVID-19 transmission prevention behavior, although there were still some with poor COVID-19 transmission prevention behavior (30.3%). The COVID-19 transmission prevention behavior performed

by the ticketing workers had met the health protocols: who washed their hands with soap and flowing water after handling/touching surfaces at workplace and wore face masks during travel (94%), always wore face masks during work (94%), always carried hand sanitizer during travel (87%), and always covered their noses and mouths when sneezing/coughing (94%). Such behavior certainly would contribute greatly to the reduction of COVID-19 transmission as the virus is transmitted through the respiratory tract, and it is necessary to cover the COVID-19 exposure paths and applying hygiene and healthy life behavior (11).

Relationships of knowledge and perceptions to COVID-19 transmission prevention behavior

Knowledge can be acquired in many different ways and from many sources. Most of the knowledge in case of human beings is acquired through the eyes and ears. Cognitive knowledge is an essential domain in the formation of one's action (over-behavior) (12). Knowledge of work safety and health is resulted from the stimulation to the five senses as well as the efforts made by human beings to prevent things that might harm them when working in a given place, giving them a sense of safety during work (13).

Based on the results of the research on ticketing workers at PT. ASDP Indonesia Ferry, 33.3% of the respondents had poor knowledge, while the remaining 66.7% good knowledge. Some knowledge aspects which were still lacking were safe distance and hand washing to prevent COVID-19 transmission. From the research results it can be understood that the respondents neither knew about the safe distance of at least 2 meters must be maintained for COVID-19 transmission prevention nor had accurate knowledge of the six steps of hand washing. The analysis of the study results concluded that there was a significant relationship between knowledge and COVID-19 transmission prevention behavior. Those who had good knowledge exhibited good behavior of COVID-19 transmission prevention, and vice versa (14). This research is in line with previous research which stated that there is a relationship between knowledge and personal protective equipment use behavior and there is a relationship between knowledge and prevention behavior (15).

From experience and investigation, it is proven that behavior which is founded by knowledge will endure better than behavior which is not. Rogers' research (1974) (16) revealed that before adopting a new behavior, individuals will experience some processes inside them in the following order:

1. *Awareness*, meaning that he/she will have awareness in the sense that he/she has acknowledged a stimulus (object).
2. *Interest*, meaning that he/she comes to take interest in the stimulus.
3. *Evaluation* (considering the goodness and badness

of the stimulus for him-/herself), meaning that his/her attitude has improved.

4. *Adoption*, meaning that he/she has adopted a new behavior based on his/her knowledge, awareness, and attitude toward the stimulus.

Perception is a cognitive process used by an individual to interpret and make sense of the world around him/her. Hence, an individual will give a different definition than that given by another individual although the object is the same. According to Shadily (1991), perception is a mental process which generates an image in an individual with which he/she will be able to recognize an object through association with certain memories, be it through sight, hearing, touch, or any other sense, enabling the realization of the image in the end (17).

This research's results revealed that 77% of the ticketing workers strongly agreed that COVID-19 is a disease which infects the respiratory tract, and more than 50% strongly agreed that COVID-19 is dangerous and deadly, face mask is effective in preventing COVID-19 transmission, and keeping distance and frequently washing hands is important for preventing COVID-19 transmission. The analysis results showed that there was a significant relationship between perceptions and COVID-19 transmission prevention behavior among ticketing workers. The better the perceptions, the better the COVID-19 transmission prevention behavior. As shown by the analysis results, many of the respondents who had good perceptions also had good prevention behavior. Perception is an action that can directly motivate behavior and indirectly determine the activity plan to gain benefits as result(18). Perception in itself is a complex process undertaken by an individual to choose, arrange, and give meaning to the reality he/she encounters in his/her environment and the perception of each individual is influenced by experience, education, and culture. It also constitutes the foremost part in a personality system which captures stimuli from direct observation and connects them to certain meanings (17).

CONCLUSION

From the research results it was concluded that workers with good knowledge were twice as likely to have good COVID-19 transmission prevention behavior, and those who had good perception were four times as likely to have good COVID-19 transmission prevention behavior. Companies are suggested to improve the workers' COVID-19 transmission prevention knowledge.

ACKNOWLEDGMENT

All authors are very thankful to the members of Port of Merak, Banten and also thankful to the respondents for supporting the research works with their valuable comment.

REFERENCES

1. Faturachman D, Muswar M, Agun S. Analisis Keselamatan Transportasi Penyeberangan Laut Dan Antisipasi Terhadap Kecelakaan Kapal Di Merak-Bakauheni. 2015;(April):14–21.
2. Wulandari A, Rahman F, Pujianti N, Sari AR, Laily N, Anggraini L, Muddin FI, Ridwan AM, Anhar VY, Azmiyannoor M, Prasetio DB. Hubungan Karakteristik Individu dengan Pengetahuan tentang Pencegahan Coronavirus Disease 2019 pada Masyarakat di Kalimantan Selatan. *Jurnal Kesehatan Masyarakat Indonesia*. 2020 May 30;15(1):42-6.
3. Sebayang R. WHO Nyatakan Wabah Covid-19 sebagai Pandemi. *CNBC Indonesia*. 2020.
4. WHO. WHO Coronavirus Disease (Covid-19) Dashboard. WHO. 2020.
5. Setiawan adib rifki. Scientific Literacy Worksheet for Distance Learning in the Topic of Coronavirus 2019 (COVID-19). 2020;2019(24):2019–21.
6. Kemenkes R. Situasi COVID-19. 2020.
7. Handayani D, Hadi RD, Isbaniah F, Burhan E, Agustin H. Penyakit Virus Corona 2019. *J Respiriologi Indones* [Internet]. 2020;40(2):119–29. Available from: <http://www.jurnalrespirologi.org/>
8. Yuliana. Corona virus diseases (Covid-19); Sebuah tinjauan literatur. *Wellness Heal Mag* [Internet]. 2020;2(February):124–37. Available from: <https://wellness.journalpress.id/wellness>
9. Bhattacharya S, Basu P, Poddar S. Changing epidemiology of SARS-CoV in the context of COVID-19 pandemic. *Journal of preventive medicine and hygiene*. 2020 Jun;61(2):E130.
10. Handayani RT, Arradini D, Darmayanti AT, Widiyanto A, Atmojo JT. Pandemi covid-19, respon imun tubuh, dan herd immunity. *J Ilm Stikes Kendal*. 2020;10(3):373–80.
11. Karo BM. Perilaku Hidup Bersih dan Sehat (PHBS) Strategi Pencegahan Penyebaran Virus Covid-19. In: *Prosiding Seminar Nasional Hardiknas* [Internet]. 2020. p. 1–4. Available from: W Saputro, LY Budiarti, H Herawati - Dunia Keperawatan, 2016 - ppjp.unlam.ac.id
12. Amin Z, Afifah H, Mamudi CO. Short-term Survival of Acute Respiratory Distress Syndrome Patients at a Single Tertiary Referral Centre in Indonesia. *Acta Medica Indonesiana*. 2016 Oct 1;48(4):300-6.
13. Burton J, World Health Organization. WHO Healthy workplace framework and model: Background and supporting literature and practices. World Health Organization; 2010.
14. Prihati DR, Wirawati MK, Supriyanti E. Analisis Pengetahuan Dan Perilaku Masyarakat Di Kelurahan Baru Kotawaringin Barat Tentang Covid 19. *Malahayati Nursing Journal*. 2020 Sep 1;2(4):780-90.
15. Apriluana G, Khairiyati L, Setyaningrum R. Hubungan antara usia, jenis kelamin, lama kerja,

pengetahuan, sikap dan ketersediaan alat pelindung diri (APD) dengan perilaku penggunaan APD pada tenaga kesehatan. *Jurnal Publikasi Kesehatan Masyarakat Indonesia (JPKMI)*. 2016;3(3):82-7.

16. Rogers TB. An analysis of two central stages underlying responding to personality items: The self-referent decision and response selection. *Journal of Research in Personality*. 1974 Aug 1;8(2):128-38.
17. Hidayat N. Hubungan Persepsi Dengan Perilaku Kesehatan Masyarakat Terhadap Penderita Tuberculosis berbasis Health Promotion Model di Wilayah Kerja Puskesmas Pegirian Surabaya. *J Univ Airlangga*. 2017;192(8).
18. Ajzen I. The theory of planned behavior. *Organizational behavior and human decision processes*. 1991 Dec 1;50(2):179-211.