REKAPITULASI BUKTI REVIEW DARI JURNAL INTERNASIONAL BEREPUTASI

(International Journal of Public Health Science)

Penulis Utama : Musfirah, S.Si., M.Kes.

No	Tanggal	Uraian Kegiatan
1	8 Januari 2022	Submit Manuskrip Via OJS dan Bukti Notifikasi Email
2	10 Februari 2022	*Revision Required* & Hasil Review Ke-1 Manuskrip
3	26 Maret 2023	Revisi Ke-1 Manuskrip Versi Author
4	1 April 2022	*Accepted*_Manuskrip & Review Ke-2 oleh Editor
5	12 April 2022	Revisi Ke-2 Manuskrip Versi *Author*
6	11 Mei 2022	Revisi Ke-3 Manuskrip Versi *Author : (Cam Ready), Payment,* dan *similarity report (temporary)*
7	25 Juli 2022	Review Ke-4 Manuskrip Versi *Author* (edit Cam-Ready)
8	25 Juli 2022	Revisi Ke-4 Manuskrip Versi Author (edit Cam-Ready)
9	2 September 2022	Permintaan Pengecekan/*Proofreading* ke-1 (siap publish) manuskrip oleh pengelola jurnal
10	3 September 2022	Revisi *Proofreading* ke-1 manuskrip versi author
11	6 September 2022	*Proofreading* Ke-2 : *Re-check*
12	8 September 2022	Revisi *Proofreading* ke-2 manuskrip versi author
13	8 September 2022	*Finishing layout* manuskrip oleh pengelola
14	21 September 2022	Artikel ilmiah sudah dipublikasikan secara *online*

#21720 Review

Submission

Authors	Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Title	Factors influencing hand washing with soap compliance level among beach tourism workers
Section	Environmental_Health
Editor	Xiaoli Gao (Review) Tassanee Rawiworrakul (Review) Asna Urooj (Review)

Peer Review

Round 1

Review Version	21720-41865-1-RV.DOC 2022-01-08
Initiated	2022-01-19
Last modified	2022-01-31
Uploaded file	Reviewer A 21720-41951-1-RV.DOCX 2022-01-25 Reviewer D 21720-41960-1-RV.DOC 2022-01-26

Editor Decision

Decision	Accept Submission 2022-04-01
Notify Editor	Editor/Author Email Record 2022-04-01
Editor Version	None
Author Version	21720-42376-1-ED.DOC 2022-03-26 DELETE 21720-42376-2-ED.DOC 2022-04-12 DELETE 21720-42376-3-ED.PDF 2022-05-11 DELETE 21720-42376-4-ED.PDF 2022-05-11 DELETE 21720-42376-5-ED.DOCX 2022-07-25 DELETE
Upload Author Version	Choose File No file chosen Upload

International Journal of Public Health Science (IJPHS)
p-ISSN: 2252-8806, e-ISSN: 2620-4126

This journal is published by the Intelektual Pustaka Media Utama (IPMU) in collaboration with Institute of Advanced Engineering and Science (IAES).

International Journal of Public Health Science (IJPHS)
Vol.x, No.x, July 201x, pp. xx~xx
ISSN: 2252-8806

Factors Toward Hand Washing Using Soap Compliance Level Among Beach Tourism Managers In Bantul, Indonesia

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jun 12th, 201x
Revised Aug 20th, 201x
Accepted Aug 26th, 201x

Keyword:

COVID-19
Compliance level
Beach tourismmanagers,
Facilities,
Hand washing

ABSTRACT

The compliance of beach tourism managers is the most important factor to prevent COVID-19 spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism managers' compliance with Hand Washing Using Soap (HWUS). The study aimed to determine the related factors toward HWUS compliance level of the beach tourism managers. A cross-setional study involved 60 beach tourism managers using total sampling technique from September 2021 to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWUS compliance levels in beach tourism managers. The descriptive and fisher's tests are used in the analysis. The finding study demonstrates that majority of respondents "support" the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWUS compliance among beach tourism managers. This study found that the availability of hand washing facilities as main factor with related to HWUS compliance level among beach tourism managers.

Corresponding Author:

Musfirah Musfirah
Faculty of Public Health,
Universitas Ahmad Dahlan
Jl Prof Dr Soepomo, Janturan, Umbulharjo, Yogyakarta 55164, Indonesia
Email: musfirah @ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as COVID-19. COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [6].

The government has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [7]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [8] In addition, minimal knowledge can also be related to their low compliance [9]. Therefore, the presence of media such as print

media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [10].

The tourism sector is also heavily affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a New Normal policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for managers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the Covid-19 pandemic [11]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism managers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [12]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [13]. Handwashing with soap is still an inadequate practice [14]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [15].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [16]. The tourism sector in Bantul Regency is contributes to Regional Original Income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [17]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [18]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [40]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The behavior of managers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [19]. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and the media for COVID-19 health protocols media had related to HWUS compliance levels with beach tourism managers in Bantul, Indonesia.

2. RESEARCH METHOD

2.1. Study setting and design

This study uses quantitative analysis with cross sectional study design to measure the availability of hand washing facilities, health protocol media, and the level of HWUS compliance on beach managers.

2.2. Data Collection

Data collection was carried out on 3 beaches in Bantul Regency, namely Prangtritis Beach, Goa Cemara Beach, and Baru Beach from September, 2021 to November, 2021. The population in this study were 60 managers who worked on Parangtritis Beach, Goa Cemara Beach and Baru Beach. The sampling technique uses total sampling where all members of the population will be the sample.

2.3. Research Instrument

This study was used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWUS compliance in beach tourism managers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a Likert scale consisting of 7 favorable questions where the answer value of "always available" was given a score of 3, "rarely there was" was given a score of 2, and "none" was given a score of 1. Assessment of the questionnaire about availability health protocol media uses the Guttman scale which consists of 8 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while unfovarable answers with an answer of "yes" are given a score of 0 and the answer "no" is given a score of 1. Assessment of the questionnaire about level of HWUS compliance at beach tourism managers uses the Guttman scale which consists of 11 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while the unfovarable answer with the answer "yes" is given a score of 0 and the answer " no" is given a score of 1.

2.4 Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWUS compliance of managers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism managers, and the availability of health protocol media with HWUS compliance for beach tourism managers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value <5 and a significant level of 5%. Fisher's test is an alternative to the Chi-Square test and also non-parametric test.

2.5 Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the Research Ethics Committee Universitas Ahmad Dahlan as a category of health research using humans as research subjects with number: 012108053.

3. RESULTS AND ANALYSIS

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including SARS, H1N1 influenza, and avian influenza [20]. The scope of previous studies were conducted on healthcare staf [21]. However, the current study was community-based and involved respondents from beach tourism managers in Bantul, Indonesia.

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged <45 years as many as 34 (56,7%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73,3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is one of the simplest and most effective ways to protect oneself and others from the coronavirus [22]. Several hand washing facilities in Bantul Beach tourist were discovered to be lacking in tissues as a hand dryer, even though managers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria / viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [23]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [24].

Tabel 1. Characteristics of Respondent at Beach Tourism Place, Bantul, Indonesia (n = 60)

Variables	n	Percentage (%)
Gender		
Male	42	70,0
Female	18	30,0
Age		
<45	34	56,7
46-79	26	43,3

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [15]. Its roughly equivalent percentages of facial mucosal touches are as follows: 36% mouth, 31% nose, 27% eyes, and 6% face touches involving a combination of these [25]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [15]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [26].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workers and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88,3 %).

Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [27].

The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [28].

Tabel 1. Availability of Hand Washing Facilities, Availability of Health Proctocol Media Covid-19, and HWWS Compliance Level of Managers at Beach Tourism Place, Bantul, Indonesia

Variables	n	Percentage (%)
Availability of Hand Washing Facilities		
Not Support	16	26,70%
Support	44	73,30%
Availability of Health Proctocol Media Covid-19		
Not Support	7	11,70%
Support	53	88,30%
HWWS Compliance Level		
Poor	10	16,70%
Good	50	83,30%

The results showed that HWUS compliance levels of beach tourism managers were in the category “good” compliance as much as 83,3%. Most beach tourism managers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWUS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22,4% [29]. The consequences of not pursuing hand hygiene guidelines are severe [30]. Promoting hand washing compliance is a public health effort [31]. It has also been investigated whether the use of visual cues to improve HWC can raise hand-washing compliance in public facilities [32].

Table 3. Correlation between Availability of Hand Washing Facilities and Availability of Health Protocols Media for COVID-19 with HWUS Compliance Level among Beach Tourism Managers in Bantul, Indonesia

Variables	**HWUS Compliance Level**				**Total number**		**RP (95% CI)**	***P Value***
	Poor		**Good**					
	n	**%**	**n**	**%**	**N**	**%**		
Availability of Hand Washing Facilities								
Not Support	6	10	10	16,7	16	26,7	6 (1,418 - 25,387)	0,017
Support	4	6,7	40	66.7	44	73,3		
Availability of Health Protocols *Media* for COVID-19								
Not Support	1	1,7	6	10	7	11,7	0,8 (0,087-7,617)	1,000
Support	9	15	44	73,3	53	88,3		

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [30]. Offering a straightforward, non-intrusive visual

cue to rinse station responsiveness will consequence in a long - term increase in HWC compared to an environment with no signal related to capital gain [32].

The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will mak a person feel responsible for his health [33].

Bivariate analysis in this study was used to look at the relationship between independet variables and dependent variables distribution based using the fisher's test. Based on Table 3, it can be seen that the majority of respondents adressed the availability of hand washing facilities and Covid-19 health protocols media and had good compliance with HWUS. Satistical tests describes a p-value of 0.017 ($p < 0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWUS compliance in the beach tourism managers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWUS compliance with a 95% Confidence Interval (CI) value (1,418 -25,387) and a Prevalence Ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWUS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of Covid-19 health protocols media variable obtained a p-value of 1,000 ($p > 0.05$), meaning that there was no significant relationship between the availability of the COVID-19 protocol media and the level of HWUS compliance among beach tourism managers in Bantul, Indonesia.

The previous studies support this study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior in the study was caused by insufficient hand washing sink number and location of sinks that are not strategic [9]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [34]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [27]. The scientific proof for the implications of mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [35]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [27].

There was no significant relationship between the availability of COVID-19 protocol media and HWUS compliance level in this study. The reason of result study comes although health protocol media is available and supported, but the managers not frequently to practice HWUS . The factor that influences is a low reading culture. According to UNESCO's findings, the reading habits of Indoesian people in low category, only 1 in 1000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [36].

This study were consistent with other studies which reported no association between exposure to HWUS information and HWSU practice. HWUS practices are not good due to exposure to poor HWUS information by 30,8% respondents [37]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed , so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWUS and critical time to clean hands with soap [38] [39].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism managers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWUS practice which affect compliance among beach tourism managers .

4. CONCLUSION

The findings of this study demonstrates that the availability of hand washing facilities and COVID-19 health protocol media is majority in "support" category and the managers have good compliment of HWUS. In addition, the availability factor of hand washing facilities has a meaningful relationship with HWUS compliance rate in beach tourism managers and inversely proportional to the health protocol media Covid-19 factors. The government roles is needed in monitoring and evaluating of health behavior implementation in beach tourism managers with increasing the availability of HWUS facilities and

adjustment to relevant Covid 19 health protocols media as effort to reduce the transmission rate of Covid 19 which spread in vital public facilities.

ACKNOWLEDGEMENTS (10 PT)

The authors would like to thank all the participants for their sincere cooperation. This study was funded by the Universitas Ahmad Dahlan, Indonesia, with an ID contract (PD-248/SP3/LPPM-UAD/VI/2021).

REFERENCES

[1] World Health Organization .2021. *WHO Coronavirus (COVID-19) Dashboar*d.www.covid19.who.int. Availabled on https://covid19.who.int/region/searo/country/id [Accessed 21 November 2021].
[2] Ministry of Health. T*he Latest Situation of The Development of Coronavirus Disease (COVID-19)* March 21, 2021. www.Kemkes.go.id (2021).
[3] Karyono, Rohadin, Indriyani, D. & et al. Handling and Prevention of Cornona Virus Outbreak Pandemic (COVID-19). *A. Conflict Resolution Collaboration* 2, 162–173 (2020).
[4] [4] Yanti, E., Fridalni, N., Hermawati & et al. Prevent Transmission of Coronavirus. *J. Abdimas Saintika 2*, 7 (2020).
[5] Izzaty. Government Policy in Overcoming Panic Buying Due to Covid-19. *Short Info XII*, 19–30 (2020).
[6] Khedmat, L. New Coronavirus (2019-nCoV): An Insight Toward Preventive Actions and Natural Medicine. *Int. J. Travel Med. Glob. Heal.* **8**, 44–45 (2020).
[7] Prastiwi, D. & Anindhita, M. A. Education of Covid-19 Prevention Health Protocol in the New Normal Era in Karangtaruna Pemuda Pahlawan In Kacreaten Batang. *ABDIMAS 2*, 25–29 (2021).
[8] Nuriati, Y. et al. Employee Perception of The Availability of COVID-19 Facilities and Means of Handling in the Workplace Is Related to Compliance. *J. Kesehat. Masy. 9*, 566–575 (2021).
[9] Kasim, F., Satria, B., Wasliati, B., Sitepu, K., Nur, I. & Sihite, H.G.R., Factors Related to Community Compliance With the Covid-19 Health Protocol. *Kesmas And Nutrition 3*, 207–212 (2021).
[10] Pulungan, M. S. The Role of Students in Socializing the Covid-19 Health Protocol Through the KKL DR IAIN Padangsidimpuan Program. *J. At-Taghyir 2*, 291–308 (2020).
[11] Suprihatin, W. Analysis of Consumer Behavior of Tourists era Covid-19 Pandemic (Tourism Case Study in West Nusa Tenggara). *J. Bestari 19*, 56–66 (2020).
[12] Karlina, N., Muhafidin, D., Elisa & Susanti. Implementation of the Covid-19 Protocol in the Management of Ecorourism-Based Agrotourism Areas in the Pandemic Period. *J. Service. Masy. The wasters. Sos. Village and Masy*. 2, 28–36 (2021).
[13] Ma QX, Shan H, Zhang HL, Li GM, Yang RM, Chen JM, 2020. Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2. *J Med Virol* 92: 1567–1571
[14] Freeman MC., Greene LE, Dreibelbis R, Saboori S, Muga R, Brumback B, Rheingans R, 2012. Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza province, Kenya: a clusterrandomized trial. *Trop Med Int Health 17*: 380–391.
[15] Przekwas A. & Chen Z. 2020. Washing hands and the face may reduce COVID-19 infection. *Medical Hypotheses 144* (2020) 110261. doi.org/10.1016/j.mehy.2020.110261.
[16] Analysis of Favorite Tourist Attractions Based on Number of Visitors in Yogyakarta Special Region. *J. Travel Media* 15, 555–567 (2017).
[17] Damasdino, F. Study of Characteristics of Tourists and Development Efforts, Thematic Tourism Products in Goa Cemara Beach, Kuwaru Beach, and Pandansimo Baru Beach Bantul Regency. *J. Travel Media* 13, 308–320 (2015).
[18] Bantul Health Service 2021. *Bantul Prepadness to Covid-19.* Bantul government. Available on https://corona.bantulkab.go.id/ [Accessed July 17, 2021].
[19] Hillier MD. Using effective hand hygiene practice to prevent and control infection. *Nurs Stand.* 2020 Apr 29;35(5):45-50. doi: 10.7748/ns.2020.e11552. Epub 2020 Apr 27.
[20] Wong, J. S. W. & Lee, J. K. F. he common missed handwashing instances and areas ater 15 years of hand-hygiene education. *J. Environ. Public Health* 2019, 5928924 (2019).
[21] James, P. T., Kunoor, A. & Rakesh, P. S. Awareness of health care workers, patients and visitors regarding air borne infection control: A descriptive study from a Tertiary Care Centre in Kerala, southern India. *Indian J. Tuberc.* 65, 168–171 (2018)
[22] Al-Wutayd, Ali E. Mansour, Ahmad Hamad Aldosary, Hamdan Z. Hamdan, Manal A. Al-Batanony. 2021. Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi

Arabia: A non-representative cross-sectional study. *Scientiic Reports : Nature* (2021) 11:16769. https://doi.org/10.1038/s41598-021-96393-6

[23] Kusmiyati, Sinaga, E. R., Wanti & Et al. Hand Washing Habits, Condition of Hand Washing Facilities and The Presence of E.Coli on The Hands of Food Vendors in Restaurants in the Oebobo Kupang Health Center Work Area in 2012. *J. Kesehat info*. 11, 419–427 (2013).

[24] Kwong LH, Ercumen A, Pickering AJ, Unicom L, Davis J, Luby SP, 2020. Age-related changes to environmental exposure: variation in the frequency that young children place hands and objects in their mouths. *J Exp Sci Environ Epidemiol* 30: 205–216.

[25] Kwok YLA, Gralton J, McLaws M-L. Face touching: a frequent habit that has implications for hand hygiene. *Am J Infect Control* 2015;43:112–4.

[26] CDC, 2020. *Show Me the Science - How to Wash Your Hands.* Available at: https://www.cdc.gov/handwashing/ show-me-the-science-handwashing.html. Accessed December 5, 2021.

[27] Islam M., Sultana JBCS ., UnicomL., Alam, M., Rahman M., Ercumen A., and Luby SP., . 2021. Effectiveness of Mass Media Campaigns to Improve Handwashing-Related Behavior, Knowledge, and Practices in Rural Bangladesh. *Am. J. Trop. Med. Hyg.*, 104(4), 2021, pp. 1546–1553. doi:10.4269/ajtmh.20-1154.

[28] Hikmawati, F. 2011. *Counseling guidance*. Jakarta: King Grafindo Persada

[29] Mulyawan, A., Sekarsari, R., Nuraini, N. & Budi, E. Overview of Community Compliance Level in The Implementation of Post Vaccination Health Protocol Covid-19. *Edu Dharma J.. Res. And the service. Comm.* 5, 43 (2021).

[30] Miller S, Yardley L, Little P. Development of an intervention to reduce transmission of respiratory infections and pandemic flu: measuring and predicting hand-washing intentions. *Psychol Health Med.* 2012;17 (1):59-81

[31] Halbesleben JR, Rathert C, Bennett SF. Measuring nursing workarounds: tests of the reliability and validity of a tool. *J Nurs Adm.* 2013;43(1):50-55.

[32] Ford EW., Boyer BT., Menachemi N., and Huerta, TR., I ncreasing Hand Washing Compliance With a Simple Visual Cue . *American Journal of Public Health* | October 2014, Vol 104, No. 10, pg 1851-1856

[33] Samidah, I., Murwati & Sulastri. The Influence of Health Education in Complying with the Covid-19 Health Protocol in Pondok Batu Village of Mukomuko Regency in 2020. *Jnph* 9, 35–39 (2021).

[34] Howard, G., Bartram, J., Brocklehurst, C., Colford, J.M., Costa, F., Cunliffe, D., Dreibelbis, R., Eisenberg, J.N.S., Evans, B., Girones, R., Hrudey, S., Willetts, J. & Wright, C.Y. COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics. *J. Water Health* **18**, 613–630 (2020).

[35] Alexander CC, Shrestha S, Tounkara MD, Cooper S, Hunt L, Hoj TH, Dearden K, Kezakubi D, Atugonza V, West J, 2019. Media access is associated with knowledge of optimal water, sanitation and hygiene practices in Tanzania. *Int J Env Res Public Health* 16: 1963.

[36] Wiedarti, P., Laksono, K., Retnaningdyah, P., Dewayani, S., Muldian, W., Sufyadi, S., Roosaria, D.R., Sulastri, Rahmawan, N., Rahayu, E.S., Yusuf, A. & Antoro, B. *Master Design of the School Literacy Movement. vol. 1* (Directorate General of Primary and Secondary Education of the Ministry of Education and Culture, 2016).

[37] Mukminah, N., Istiarti, V. T., Syamsulhuda & BM. Factors Related to Hand Washing Practices Using Soap in Elementary School Students in the Working Area of Banyuurip Purworejo Health Center. *J. Kesehat. Masy.* 4, 354–360 (2016).

[38] Situmorang, D. A.C. *Application of Hand Washing Using Soap in the Elderly In Preventing COVID-19 Analyse In Nursing Home Winners Of Medan City*. (2021)

[39] Ministry of Health. Ministry of Health No. HK.01.07/MENKES/382/2020 On Public Health Protocols in Places and Public Facilities in the Framework of Prevention and Control of Corona Virus Disease 2019 (COVID-19). 8–15 (2020).

[40] Zielinski, S., & Botero, C. M. (2020). Beach Tourism in Times of COVID-19 Pandemic: Critical Issues, Knowledge Gaps and Research Opportunities. *International journal of environmental research and public health,* 17(19), 7288. https://doi.org/10.3390/ijerph17197288

BIOGRAPHY OF AUTHORS

	**Musfirah, S.Si., M.Kes.** The lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia Reserach Topics Interest :Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings
	**Ahmad Faizal Rangkuti, SKM., M.Kes.** The lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia Research Topics Interest : Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings
	**Fenni Nurul Khotimah** The Bachelor Degree Student on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia Interest : Environmental Health

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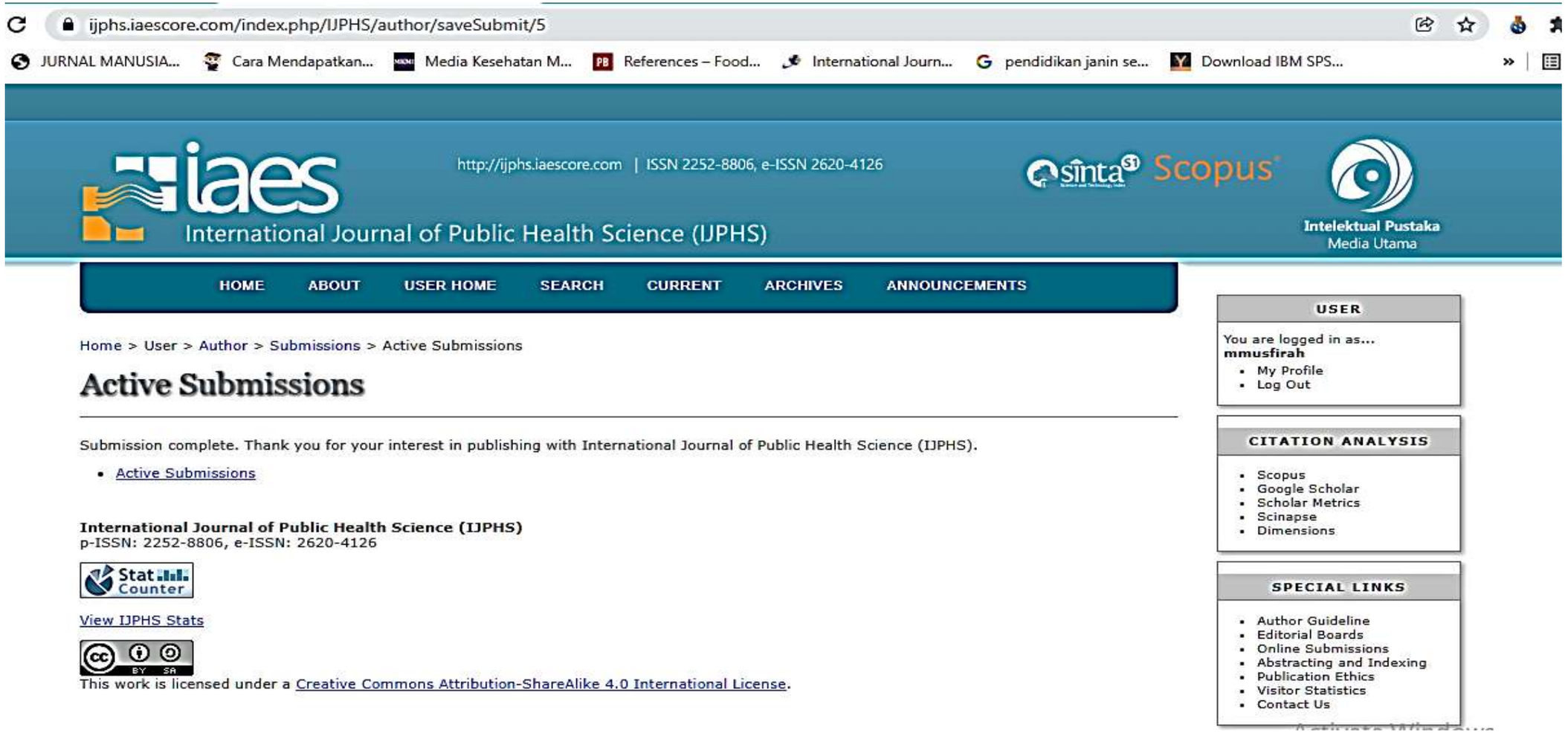

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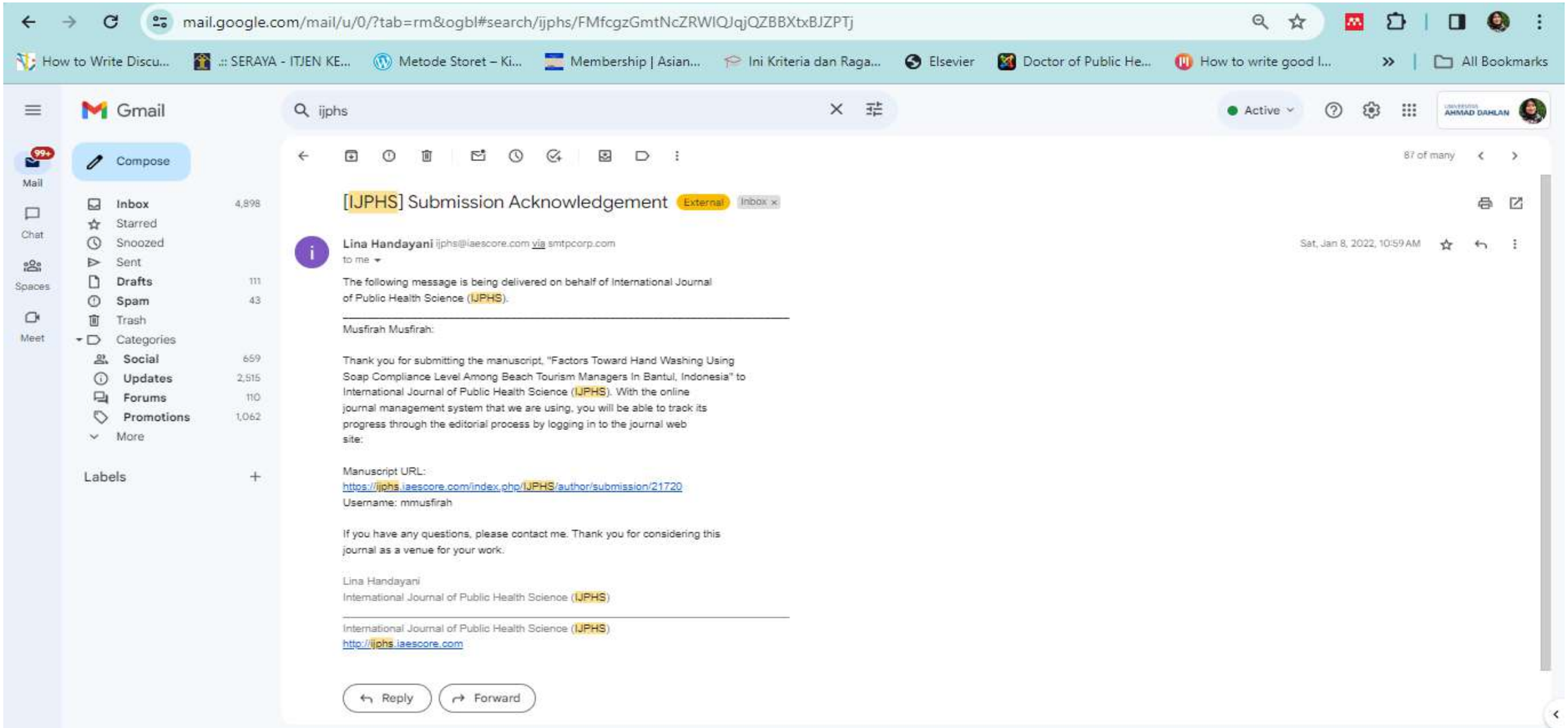
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Thank you for submitting the manuscript, "Factors Toward Hand Washing Using Soap Compliance Level Among Beach Tourism Managers In Bantul, Indonesia" to International Journal of Public Health Science (IJPHS). With the online journal management system that we are using, you will be able to track its progress through the editorial process by logging in to the journal web site:
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[IJPHS] Editor Decision

1 message

Lina Handayani <ijphs@iaescore.com> Thu, Feb 10, 2022 at 9:28 PM
Reply-To: "Dr. Lina Handayani" <ijphs@iaescore.com>
To: Musfirah Musfirah <musfirah@ikm.uad.ac.id>
Cc: Ahmad Faizal Rangkuti <faizal.rangkuti@ikm.uad.ac.id>, Fenni Nurul Khotimah <fenninurulkhotimah11@gmail.com>

The following message is being delivered on behalf of International Journal of Public Health Science (IJPHS).

Dear Prof/Dr/Mr/Mrs: Musfirah Musfirah,

We have reached a decision regarding your submission entitled "Factors Toward Hand Washing Using Soap Compliance Level Among Beach Tourism Managers In Bantul, Indonesia" to International Journal of Public Health Science (IJPHS), a peer-reviewed and an OPEN ACCESS journal that makes significant contributions to major areas of public health science.

Our decision is revisions required.
The goal of your revised paper is to describe novel technical results.
A high quality paper MUST has:
(1) a clear statement of the problem the paper is addressing --> explain in "Introduction" section
(2) the proposed solution(s)/method(s)/approach(es)/framework(s)/ ....
(3) results achieved. It describes clearly what has been done before on the problem, and what is new.

In preparing your revised paper, you should pay attention to:
1. Please ensure that: all references have been cited in your text; Each citation should be written in the order of appearance in the text; The references must be presented in numbering and CITATION ORDER is SEQUENTIAL [1], [2], [3], [4], ...
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2 An Introduction should contain the following three (3) parts:
- Background: Authors have to make clear what the context is. Ideally, authors should give an idea of the state-of-the art of the field the report is about.
- The Problem: If there was no problem, there would be no reason for writing a manuscript, and definitely no reason for reading it. So, please tell readers why they should proceed reading. Experience shows that for this part a few lines are often sufficient.
- The Proposed Solution: Now and only now! - authors may outline the contribution of the manuscript. Here authors have to make sure readers point out what are the novel aspects of authors work. Authors should place the paper in proper context by citing relevant papers. At least, 5 references (recently journal articles) are used in this section.

3. Results and discussion section: The presentation of results should be simple and straightforward in style. This section report the most important findings, including results of statistical analyses as appropriate. You should present the comparison between performance of your approach and other researches. Results given in figures should not be repeated in tables. It is very important to prove that your manuscript has a significant value and not trivial.

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I look forward for hearing from you

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Best Regards,
Dr. Lina Handayani

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Update your metadata in our online system when you submit your revised paper through our online system, included:
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Reviewer A:

see file

Reviewer D:

Does the paper contain an original contribution to the field?:
Yes

Is the paper technically sound?:
Yes

Does the title of the paper accurately reflect the major focus contribution of this paper?:
Yes

Please suggest change of the title as appropriate within 10 words:
.

Is the abstract a clear description of the paper?

:
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Are the equations, figures and tables in this journal style, clear, relevant, and are the captions adequate?:
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Please score the paper on a scale of 0 - 10 as per the directions below:

9-10 Excellent - Outstanding
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:
6

Comments to the Authors (how to improve this paper)::
needs revision

2b. Review Ke-1 Manuskrip (Reviewer 1)

TITLE OF MANUSCRIPT	Interesting Maybe should rephrase so that it will be clearer
ABSTRACT/ SUMMARY	The introduction and objective were simple, clear & consistent with the topic. The data collection and result were clearly stated. The conclusion was not mentioned.
INTRODUCTION	The problem has been clearly described and the need for this study has been justified.
OBJECTIVES	Clearly stated.
METHODOLOGY	The sampling method was not clearly mentioned The reliability and validity of the questionnaires were not mentioned Data analysis has been clearly described
RESULT / DISCUSSION	The result sections were consistent with the objectives However, it is quite confusing and the tables too Eg - what do you mean by support and not support for availability of the hand washing facility and health media? Perception by the respondents that the hand washing facility is available? - Table 3, am I right if I say among respondents who are not support the availability of the hand washing facility, 17% has good HWUS compliance For socio demography, better if could add educational level Is better to use one decimal for percentage. Should replace the comma To avoid further confusion, is better to separate the discussion from the results.
CONCLUSION	Understandable However, please rephrase or check the grammar
RECOMMENDATION	Clearly stated
REFERENCES	Appropriate

International Journal of Public Health Science (IJPHS)
Vol.x, No.x, July 201x, pp. xx~xx
ISSN: 2252-8806

Factors Toward Hand Washing Using Soap Compliance Level Among Beach Tourism Managers In Bantul, Indonesia

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jun 12th, 201x
Revised Aug 20th, 201x
Accepted Aug 26th, 201x

Keyword:

COVID-19
Compliance level
Beach tourismmanagers,
Facilities,
Hand washing

ABSTRACT

The compliance of beach tourism managers is the most important factor to prevent COVID-19 spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism managers' compliance with Hand Washing Using Soap (HWUS). The study aimed to determine the related factors toward HWUS compliance level of the beach tourism managers. A cross-setional study involved 60 beach tourism managers using total sampling technique from September 2021 to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWUS compliance levels in beach tourism managers. The descriptive and fisher's tests are used in the analysis. The finding study demonstrates that majority of respondents "support" the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWUS compliance among beach tourism managers. This study found that the availability of hand washing facilities as main factor with related to HWUS compliance level among beach tourism managers.

Corresponding Author:

Musfirah Musfirah
Faculty of Public Health,
Universitas Ahmad Dahlan
Jl Prof Dr Soepomo, Janturan, Umbulharjo, Yogyakarta 55164, Indonesia
Email: musfirah @ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as COVID-19. COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [6].

The government has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [7]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [8] In addition, minimal knowledge can also be related to their low compliance [9]. Therefore, the presence of media such as print

media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [10].

The tourism sector is also heavily affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a New Normal policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for managers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the Covid-19 pandemic [11]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism managers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [12]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [13]. Handwashing with soap is still an inadequate practice [14]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [15].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [16]. The tourism sector in Bantul Regency is contributes to Regional Original Income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [17]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [18]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [40]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The behavior of managers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [19]. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and the media for COVID-19 health protocols media had related to HWUS compliance levels with beach tourism managers in Bantul, Indonesia.

Commented [A1]: Wearing a mask is very important right now. Why did you choose to wash your hands between these two protocols? Need more explanation?
Introduction needs to be revised

2. RESEARCH METHOD

2.1. Study setting and design

This study uses quantitative analysis with cross sectional study design to measure the availability of hand washing facilities, health protocol media, and the level of HWUS compliance on beach managers.

2.2. Data Collection

Data collection was carried out on 3 beaches in Bantul Regency, namely Prangtritis Beach, Goa Cemara Beach, and Baru Beach from September, 2021 to November, 2021. The population in this study were 60 managers who worked on Parangtritis Beach, Goa Cemara Beach and Baru Beach. The sampling technique uses total sampling where all members of the population will be the sample.

Commented [A2]: What was the formula to compute sample size

2.3. Research Instrument

This study was used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWUS compliance in beach tourism managers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a Likert scale consisting of 7 favorable questions where the answer value of "always available" was given a score of 3, "rarely there was" was given a score of 2, and "none" was given a score of 1. Assessment of the questionnaire about availability health protocol media uses the Guttman scale which consists of 8 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while unfovarable answers with an answer of "yes" are given a score of 0 and the answer "no" is given a score of 1. Assessment of the questionnaire about level of HWUS compliance at beach tourism managers uses the Guttman scale which consists of 11 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while the unfovarable answer with the answer "yes" is given a score of 0 and the answer " no" is given a score of 1.

Commented [A3]: Explain the validity and reliability of the questionnaires?
You did not specify the cutting point of the questionnaires

2.4 Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWUS compliance of managers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism managers, and the availability of health protocol media with HWUS compliance for beach tourism managers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value <5 and a significant level of 5%. Fisher's test is an alternative to the Chi-Square test and also non-parametric test.

2.5 Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the Research Ethics Committee Universitas Ahmad Dahlan as a category of health research using humans as research subjects with number: 012108053.

3. RESULTS AND ANALYSIS

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including SARS, H1N1 influenza, and avian influenza [20]. The scope of previous studies were conducted on healthcare staf [21]. However, the current study was community-based and involved respondents from beach tourism managers in Bantul, Indonesia.

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged <45 years as many as 34 (56,7%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73,3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is one of the simplest and most effective ways to protect oneself and others from the coronavirus [22]. Several hand washing facilities in Bantul Beach tourist were discovered to be lacking in tissues as a hand dryer, even though managers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria / viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [23]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [24].

Commented [A4]: Discuss the implications
State your recommendations

Tabel 1. Characteristics of Respondent at Beach Tourism Place, Bantul, Indonesia (n = 60)

Variables	n	Percentage (%)
Gender		
Male	42	70,0
Female	18	30,0
Age		
<45	34	56,7
46-79	26	43,3

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [15]. Its roughly equivalent percentages of facial mucosal touches are as follows: 36% mouth, 31% nose, 27% eyes, and 6% face touches involving a combination of these [25]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [15]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [26].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workers and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88,3 %).

Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [27].

The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [28].

Tabel 1. Availability of Hand Washing Facilities, Availability of Health Proctocol Media Covid-19, and HWWS Compliance Level of Managers at Beach Tourism Place, Bantul, Indonesia

Variables	n	Percentage (%)
Availability of Hand Washing Facilities		
Not Support	16	26,70%
Support	44	73,30%
Availability of Health Proctocol Media Covid-19		
Not Support	7	11,70%
Support	53	88,30%
HWWS Compliance Level		
Poor	10	16,70%
Good	50	83,30%

The results showed that HWUS compliance levels of beach tourism managers were in the category “good” compliance as much as 83,3%. Most beach tourism managers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWUS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22,4% [29]. The consequences of not pursuing hand hygiene guidelines are severe [30]. Promoting hand washing compliance is a public health effort [31]. It has also been investigated whether the use of visual cues to improve HWC can raise hand-washing compliance in public facilities [32].

Table 3. Correlation between Availability of Hand Washing Facilities and Availability of Health Protocols Media for COVID-19 with HWUS Compliance Level among Beach Tourism Managers in Bantul, Indonesia

Variables	**HWUS Compliance Level**				**Total number**		**RP (95% CI)**	***P Value***
	Poor		**Good**					
	n	**%**	**n**	**%**	**N**	**%**		
Availability of Hand Washing Facilities								
Not Support	6	10	10	16,7	16	26,7	6	0,017
Support	4	6,7	40	66.7	44	73,3	(1,418 - 25,387)	
Availability of Health Protocols *Media* for COVID-19								
Not Support	1	1,7	6	10	7	11,7	0,8	1,000
Support	9	15	44	73,3	53	88,3	(0,087-7,617)	

Commented [A5]: It's best not to put it this way:N(%):6(10%)

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [30]. Offering a straightforward, non-intrusive visual

cue to rinse station responsiveness will consequence in a long - term increase in HWC compared to an environment with no signal related to capital gain [32].

The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will mak a person feel responsible for his health [33].

Bivariate analysis in this study was used to look at the relationship between independet variables and dependent variables distribution based using the fisher's test. Based on Table 3, it can be seen that the majority of respondents adressed the availability of hand washing facilities and Covid-19 health protocols media and had good compliance with HWUS. Satistical tests describes a p-value of 0.017 ($p < 0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWUS compliance in the beach tourism managers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWUS compliance with a 95% Confidence Interval (CI) value (1,418 -25,387) and a Prevalence Ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWUS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of Covid-19 health protocols media variable obtained a p-value of 1,000 ($p > 0.05$), meaning that there was no significant relationship between the availability of the COVID-19 protocol media and the level of HWUS compliance among beach tourism managers in Bantul, Indonesia.

The previous studies support this study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior in the study was caused by insufficient hand washing sink number and location of sinks that are not strategic [9]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [34]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [27]. The scientific proof for the implications of mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [35]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [27].

There was no significant relationship between the availability of COVID-19 protocol media and HWUS compliance level in this study. The reason of result study comes although health protocol media is available and supported, but the managers not frequently to practice HWUS . The factor that influences is a low reading culture. According to UNESCO's findings, the reading habits of Indoesian people in low category, only 1 in 1000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [36].

This study were consistent with other studies which reported no association between exposure to HWUS information and HWSU practice. HWUS practices are not good due to exposure to poor HWUS information by 30,8% respondents [37]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed , so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWUS and critical time to clean hands with soap [38] [39].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism managers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWUS practice which affect compliance among beach tourism managers .

4. CONCLUSION

The findings of this study demonstrates that the availability of hand washing facilities and COVID-19 health protocol media is majority in "support" category and the managers have good compliment of HWUS. In addition, the availability factor of hand washing facilities has a meaningful relationship with HWUS compliance rate in beach tourism managers and inversely proportional to the health protocol media Covid-19 factors. The government roles is needed in monitoring and evaluating of health behavior implementation in beach tourism managers with increasing the availability of HWUS facilities and

adjustment to relevant Covid 19 health protocols media as effort to reduce the transmission rate of Covid 19 which spread in vital public facilities.

ACKNOWLEDGEMENTS (10 PT)

The authors would like to thank all the participants for their sincere cooperation. This study was funded by the Universitas Ahmad Dahlan, Indonesia, with an ID contract (PD-248/SP3/LPPM-UAD/VI/2021).

REFERENCES

[1] World Health Organization .2021. *WHO Coronavirus (COVID-19) Dashboar*d.www.covid19.who.int. Availabled on https://covid19.who.int/region/searo/country/id [Accessed 21 November 2021].
[2] Ministry of Health. T*he Latest Situation of The Development of Coronavirus Disease (COVID-19)* March 21, 2021. www.Kemkes.go.id (2021).
[3] Karyono, Rohadin, Indriyani, D. & et al. Handling and Prevention of Cornona Virus Outbreak Pandemic (COVID-19). *A. Conflict Resolution Collaboration* 2, 162–173 (2020).
[4] [4] Yanti, E., Fridalni, N., Hermawati & et al. Prevent Transmission of Coronavirus. *J. Abdimas Saintika 2*, 7 (2020).
[5] Izzaty. Government Policy in Overcoming Panic Buying Due to Covid-19. *Short Info XII*, 19–30 (2020).
[6] Khedmat, L. New Coronavirus (2019-nCoV): An Insight Toward Preventive Actions and Natural Medicine. *Int. J. Travel Med. Glob. Heal.* **8**, 44–45 (2020).
[7] Prastiwi, D. & Anindhita, M. A. Education of Covid-19 Prevention Health Protocol in the New Normal Era in Karangtaruna Pemuda Pahlawan In Kacreaten Batang. *ABDIMAS 2*, 25–29 (2021).
[8] Nuriati, Y. et al. Employee Perception of The Availability of COVID-19 Facilities and Means of Handling in the Workplace Is Related to Compliance. *J. Kesehat. Masy. 9*, 566–575 (2021).
[9] Kasim, F., Satria, B., Wasliati, B., Sitepu, K., Nur, I. & Sihite, H.G.R., Factors Related to Community Compliance With the Covid-19 Health Protocol. *Kesmas And Nutrition 3*, 207–212 (2021).
[10] Pulungan, M. S. The Role of Students in Socializing the Covid-19 Health Protocol Through the KKL DR IAIN Padangsidimpuan Program. *J. At-Taghyir 2*, 291–308 (2020).
[11] Suprihatin, W. Analysis of Consumer Behavior of Tourists era Covid-19 Pandemic (Tourism Case Study in West Nusa Tenggara). *J. Bestari 19*, 56–66 (2020).
[12] Karlina, N., Muhafidin, D., Elisa & Susanti. Implementation of the Covid-19 Protocol in the Management of Ecorourism-Based Agrotourism Areas in the Pandemic Period. *J. Service. Masy. The wasters. Sos. Village and Masy*. 2, 28–36 (2021).
[13] Ma QX, Shan H, Zhang HL, Li GM, Yang RM, Chen JM, 2020. Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2. *J Med Virol* 92: 1567–1571
[14] Freeman MC., Greene LE, Dreibelbis R, Saboori S, Muga R, Brumback B, Rheingans R, 2012. Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza province, Kenya: a clusterrandomized trial. *Trop Med Int Health 17*: 380–391.
[15] Przekwas A. & Chen Z. 2020. Washing hands and the face may reduce COVID-19 infection. *Medical Hypotheses 144* (2020) 110261. doi.org/10.1016/j.mehy.2020.110261.
[16] Analysis of Favorite Tourist Attractions Based on Number of Visitors in Yogyakarta Special Region. *J. Travel Media* 15, 555–567 (2017).
[17] Damasdino, F. Study of Characteristics of Tourists and Development Efforts, Thematic Tourism Products in Goa Cemara Beach, Kuwaru Beach, and Pandansimo Baru Beach Bantul Regency. *J. Travel Media* 13, 308–320 (2015).
[18] Bantul Health Service 2021. *Bantul Prepadness to Covid-19.* Bantul government. Available on https://corona.bantulkab.go.id/ [Accessed July 17, 2021].
[19] Hillier MD. Using effective hand hygiene practice to prevent and control infection. *Nurs Stand.* 2020 Apr 29;35(5):45-50. doi: 10.7748/ns.2020.e11552. Epub 2020 Apr 27.
[20] Wong, J. S. W. & Lee, J. K. F. he common missed handwashing instances and areas ater 15 years of hand-hygiene education. *J. Environ. Public Health* 2019, 5928924 (2019).
[21] James, P. T., Kunoor, A. & Rakesh, P. S. Awareness of health care workers, patients and visitors regarding air borne infection control: A descriptive study from a Tertiary Care Centre in Kerala, southern India. *Indian J. Tuberc.* 65, 168–171 (2018)
[22] Al-Wutayd, Ali E. Mansour, Ahmad Hamad Aldosary, Hamdan Z. Hamdan, Manal A. Al-Batanony. 2021. Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi

Arabia: A non-representative cross-sectional study. *Scientiic Reports : Nature* (2021) 11:16769. https://doi.org/10.1038/s41598-021-96393-6

[23] Kusmiyati, Sinaga, E. R., Wanti & Et al. Hand Washing Habits, Condition of Hand Washing Facilities and The Presence of E.Coli on The Hands of Food Vendors in Restaurants in the Oebobo Kupang Health Center Work Area in 2012. *J. Kesehat info*. 11, 419–427 (2013).

[24] Kwong LH, Ercumen A, Pickering AJ, Unicom L, Davis J, Luby SP, 2020. Age-related changes to environmental exposure: variation in the frequency that young children place hands and objects in their mouths. *J Exp Sci Environ Epidemiol* 30: 205–216.

[25] Kwok YLA, Gralton J, McLaws M-L. Face touching: a frequent habit that has implications for hand hygiene. *Am J Infect Control* 2015;43:112–4.

[26] CDC, 2020. *Show Me the Science - How to Wash Your Hands.* Available at: https://www.cdc.gov/handwashing/ show-me-the-science-handwashing.html. Accessed December 5, 2021.

[27] Islam M., Sultana JBCS ., UnicomL., Alam, M., Rahman M., Ercumen A., and Luby SP., . 2021. Effectiveness of Mass Media Campaigns to Improve Handwashing-Related Behavior, Knowledge, and Practices in Rural Bangladesh. *Am. J. Trop. Med. Hyg.*, 104(4), 2021, pp. 1546–1553. doi:10.4269/ajtmh.20-1154.

[28] Hikmawati, F. 2011. *Counseling guidance*. Jakarta: King Grafindo Persada

[29] Mulyawan, A., Sekarsari, R., Nuraini, N. & Budi, E. Overview of Community Compliance Level in The Implementation of Post Vaccination Health Protocol Covid-19. *Edu Dharma J.. Res. And the service. Comm.* 5, 43 (2021).

[30] Miller S, Yardley L, Little P. Development of an intervention to reduce transmission of respiratory infections and pandemic flu: measuring and predicting hand-washing intentions. *Psychol Health Med.* 2012;17 (1):59-81

[31] Halbesleben JR, Rathert C, Bennett SF. Measuring nursing workarounds: tests of the reliability and validity of a tool. *J Nurs Adm*. 2013;43(1):50-55.

[32] Ford EW., Boyer BT., Menachemi N., and Huerta, TR., I ncreasing Hand Washing Compliance With a Simple Visual Cue . *American Journal of Public Health* | October 2014, Vol 104, No. 10, pg 1851-1856

[33] Samidah, I., Murwati & Sulastri. The Influence of Health Education in Complying with the Covid-19 Health Protocol in Pondok Batu Village of Mukomuko Regency in 2020. *Jnph* 9, 35–39 (2021).

[34] Howard, G., Bartram, J., Brocklehurst, C., Colford, J.M., Costa, F., Cunliffe, D., Dreibelbis, R., Eisenberg, J.N.S., Evans, B., Girones, R., Hrudey, S., Willetts, J. & Wright, C.Y. COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics. *J. Water Health* **18**, 613–630 (2020).

[35] Alexander CC, Shrestha S, Tounkara MD, Cooper S, Hunt L, Hoj TH, Dearden K, Kezakubi D, Atugonza V, West J, 2019. Media access is associated with knowledge of optimal water, sanitation and hygiene practices in Tanzania. *Int J Env Res Public Health* 16: 1963.

[36] Wiedarti, P., Laksono, K., Retnaningdyah, P., Dewayani, S., Muldian, W., Sufyadi, S., Roosaria, D.R., Sulastri, Rahmawan, N., Rahayu, E.S., Yusuf, A. & Antoro, B. *Master Design of the School Literacy Movement. vol. 1* (Directorate General of Primary and Secondary Education of the Ministry of Education and Culture, 2016).

[37] Mukminah, N., Istiarti, V. T., Syamsulhuda & BM. Factors Related to Hand Washing Practices Using Soap in Elementary School Students in the Working Area of Banyuurip Purworejo Health Center. *J. Kesehat. Masy.* 4, 354–360 (2016).

[38] Situmorang, D. A.C. *Application of Hand Washing Using Soap in the Elderly In Preventing COVID-19 Analyse In Nursing Home Winners Of Medan City*. (2021)

[39] Ministry of Health. Ministry of Health No. HK.01.07/MENKES/382/2020 On Public Health Protocols in Places and Public Facilities in the Framework of Prevention and Control of Corona Virus Disease 2019 (COVID-19). 8–15 (2020).

[40] Zielinski, S., & Botero, C. M. (2020). Beach Tourism in Times of COVID-19 Pandemic: Critical Issues, Knowledge Gaps and Research Opportunities. *International journal of environmental research and public health*, 17(19), 7288. https://doi.org/10.3390/ijerph17197288

BIOGRAPHY OF AUTHORS

	**Musfirah, S.Si., M.Kes.** The lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia Reserach Topics Interest :Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings
	**Ahmad Faizal Rangkuti, SKM., M.Kes.** The lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia Research Topics Interest : Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings
	**Fenni Nurul Khotimah** The Bachelor Degree Student on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia Interest : Environmental Health

International Journal of Public Health Science (IJPHS)
Vol.x, No.x, July 201x, pp. xx~xx
ISSN: 2252-8806

Factors Influencing Hand Washing With Soap Compliance Level Among Beach Tourism Workers

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jun 12th, 201x
Revised Aug 20th, 201x
Accepted Aug 26th, 201x

Keyword:

COVID-19
Compliance level
Beach tourism workers,
Facilities,
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent COVID-19 spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with Hand Washing With Soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers using total sampling technique from September 2021 to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and fisher's tests are used in the analysis. The finding study demonstrates that majority of respondents "support" the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah Musfirah
Faculty of Public Health,
Universitas Ahmad Dahlan
Jl Prof Dr Soepomo, Janturan, Umbulharjo, Yogyakarta 55164, Indonesia
Email: musfirah @ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as COVID-19. COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

One of the important efforts for applying the health protocol is washing hands with soap. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and education, hand hygiene is an important factor to increase the incidence of Covid 19 [6]. Therefore, facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions and so on.

Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to

those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within 5 meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12] In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector is potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a *"new normal"* policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the Covid-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to Regional Original Income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but HWWS are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Indonesia.

2. RESEARCH METHOD

2.1. Study setting and design

This study uses quantitative analysis with cross sectional study design to measure the availability of hand washing facilities, health protocol media, and the level of HWWS compliance on beach workers.

2.2. Data Collection

Data collection was carried out on 3 beaches in Bantul Regency, namely Prangtritis Beach, Goa Cemara Beach, and Baru Beach from September, 2021 to November, 2021. The population in this study

were 60 workers who worked on Parangtritis Beach, Goa Cemara Beach and Baru Beach. The sampling technique uses "total sampling" which all members of the population will be the sample and due to the small number of population members. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis Beach, 23 respondents at Baru Beach, and 14 respondents at Goa Cemara Beach. Beach tourism workers in this study are people who participate in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study was used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a *Likert scale* consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "Not Support" category is given for respondent answer < (mean value = 4,7) and "Support" category is given respondent answer ≥ (mean value = 4,7). Assessment of the questionnaire about availability of health protocol media uses the *Guttman scale* which consists of 5 favorable questions where the value of the answer "Yes" is given a score of 1 and the answer "No" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer < (mean value = 14) and "Support" category is given respondent answer ≥ (mean value = 14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the *Guttman scale* which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "No" is given a score of 0, while the 1 unfovarable question answer with the answer "Yes" is given a score of 0 and the answer "No" is given a score of 1. The questionnaire have cutting point "Poor" category is given for respondent answer < (mean value = 9) and "Good" category is given respondent answer ≥ (mean value = 9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari Beach, Gadingsari Village, Sanden District, Bantul Regency, Yogyakarta Special Region which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the *Person Correlation Product Moment*, question items are valid if the test results are known that *r count* ≥ *r table* [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with *Cronbach's Alpha*, the measuring instrument is said to be reliable if the value of *Cronbach's Alpha* constant ≥ (0.6) [26].

Based on the results of the validity and reliability tests that have been carried out, the results obtained on the variable availability of hand washing facilities there are 1 invalid question item and 5 valid questions with a reliability test result of (0,618), the COVID-19 health protocol media availability variable there are 2 invalid question items and 5 valid questions with a reliability test result of (0,658), and on the CTPS compliance variable there are 2 invalid question items and 10 valid questions with a reliability test result of (0,860).

2.4 Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value <5 and a significant level of 5%. Fisher's test is an alternative to the Chi-Square test and also non-parametric test.

2.5 Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the Research Ethics Committee Universitas Ahmad Dahlan as a category of health research using humans as research subjects with number: 012108053.

3. RESULTS AND ANALYSIS

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including SARS, H1N1 influenza, and avian influenza [27]. The scope of

previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Tabel 1. Characteristics of Respondent at Beach Tourism Place, Bantul, Indonesia (n = 60)

Variables	n	Percentage (%)
Gender		
Male	42	70,0
Female	18	30,0
Age		
<45	34	56,7
46-79	26	43,3
Education Level		
Low	15	25,0
High	45	75,0

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged <45 years as many as 34 (56,7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73,3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Tabel 1. The Availability of Hand Washing Facilities, Availability of Health Proctocol Media Covid-19, and HWWS Compliance Level among Beach Tourism Workers in Bantul, Indonesia

Variables	n	Percentage (%)
Availability of Hand Washing Facilities		
Not Support	16	26,7
Support	44	73,3
Availability of Health Proctocol Media Covid-19		
Not Support	7	11,7
Support	53	88,3
HWWS Compliance Level		
Poor	10	16,7
Good	50	83,3

Several hand washing facilities in Bantul Beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria / viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: 36% mouth, 31% nose, 27% eyes, and 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial

regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88,3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83,3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22,4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance is a public health effort [38]. It has also been investigated whether the use hand washing compliance (HWC) visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will mak a person feel responsible for his health [40].

Table 3. Correlation between Availability of Hand Washing Facilities and Availability of Health Protocols Media for COVID-19 with HWWS Compliance Level among Beach Tourism Workers in Bantul, Indonesia

Variables	**HWWS Compliance Level**		**Total number**	**RP (95% CI)**	***P Value***
	Poor	**Good**			
	n (%)	**n (%)**	**N (%)**		
Availability of Hand Washing Facilities					
Not Support	6 (10)	10 (16,7)	16 (26,7)	6	0,017
Support	4 (6,7)	40 (66,7)	44 (73,3)	(1,418 -25,387)	
Availability of Health Protocols *Media* for COVID-19					
Not Support	1 (1,7)	6 (10)	7 (11,7)	0,8	1,000
Support	9 (15)	44 (73,3)	53 (88,3)	(0,087-7,617)	

Bivariate analysis in this study was used to look at the relationship between independet variables and dependent variables distribution based using the *fisher’s test*. Based on Table 3, it can be seen that the majority of respondents adressed the availability of hand washing facilities and Covid-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p < 0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95%

Confidence Interval (CI) value (1,418 -25,387) and a Prevalence Ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of Covid-19 health protocols media variable obtained a p-value of 1,000 (p>0.05), meaning that there was no significant relationship between the availability of the COVID-19 protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

The previous studies support this study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [34]. The scientific proof for the implications of mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to UNESCO's findings, the reading habits of Indoesian people in low category, only 1 in 1000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study were consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30,8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed , so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46] [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers .

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in “support” category and the beach workers have “good” compliance level of HWWS. In addition, our finding study highlighted that the availability of hand washing facilities was relationship with HWWS compliance level among beach tourism workers. The government's role for beach tourism workers is required by monitoring and evaluating health behavior practice and already increasing the availability of HWWS facilities and adjusting to relevant Covid 19 health protocols media in an effort to reduce the transmission rate of Covid 19 in public facilities.

ACKNOWLEDGEMENTS

The authors would like to thank all the participants for their sincere cooperation. This study was funded by the Universitas Ahmad Dahlan, Indonesia, with an ID contract (PD-248/SP3/LPPM-UAD/VI/2021).

REFERENCES

[1] World Health Organization .2021. *WHO Coronavirus (COVID-19) Dashboar*d.www.covid19.who.int. Availabled on https://covid19.who.int/region/searo/country/id [Accessed November 21, 2021].
[2] Ministry of Health. T*he Latest Situation of The Development of Coronavirus Disease (COVID-19)* March 21, 2021. www.Kemkes.go.id (2021).

[3] Karyono, Rohadin, Indriyani, D. & et al. Handling and Prevention of Cornona Virus Outbreak Pandemic (COVID-19). *A. Conflict Resolution Collaboration* 2, 162–173 (2020).
[4] [4] Yanti, E., Fridalni, N., Hermawati & et al. Prevent Transmission of Coronavirus. *J. Abdimas Saintika 2*, 7 (2020).
[5] Izzaty. Government Policy in Overcoming Panic Buying Due to Covid-19. *Short Info XII*, 19–30 (2020).
[6] Lamichhane, D. K., Shrestha, S., & Kim, H.-C. District-Level Risk Factors for COVID-19 Incidence and Mortality in Nepal. *International Journal of Environmental Research and Public Health*, *19*(5), 2659, (2022). MDPI AG. Retrieved from http://dx.doi.org/10.3390/ijerph19052659.
[7] World Health Organization. *United Nations Children's Fund. Water, Sanitation, Hygiene, and Waste Management for the COVID-19 Virus: Interim Guidance,* (2020). Available online: https://apps.who.int/iris/handle/10665/331499.
[8] Jefferson, T., Del Mar, C.B., Dooley, L., Ferroni, E., Al-Ansary, L.A., Bawazeer, G.A., Van Driel, M.L., Jones, M.A., Thorning, S., Beller, E.M., Clark, J., Hoffmann, T.C., Glasziou, P.P., Conly, J.M., (2020). Physical interventions to interrupt or reduce the spread of respiratory viruses. *Cochrane Database Syst Rev.* 11(11):CD006207. doi: 10.1002/14651858.CD006207.
[9] Sharif, N., Alzahrani, K.J., Ahmed, S.N., Opu, R.R., Ahmed, N., Talukder, A., Nunia, R, Chowdhury M.S., Nodi I.J., Saha T., Zhang M., Dey S.K., Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study. *PLoS ONE* 16(11): e0260287 (2021). https://doi.org/10.1371/journal. pone.0260287.
[10] Khedmat, L. New Coronavirus (2019-nCoV): An Insight Toward Preventive Actions and Natural Medicine. *Int. J. Travel Med. Glob. Heal.* 8, 44–45 (2020).
[11] Prastiwi, D. & Anindhita, M. A. Education of Covid-19 Prevention Health Protocol in the New Normal Era in Karangtaruna Pemuda Pahlawan In Kacreaten Batang. *ABDIMAS 2*, 25–29 (2021).
[12] Nuriati, Y. et al. Employee Perception of The Availability of COVID-19 Facilities and Means of Handling in the Workplace Is Related to Compliance. *J. Kesehat. Masy.* 9, 566–575 (2021).
[13] Kasim, F., Satria, B., Wasliati, B., Sitepu, K., Nur, I. & Sihite, H.G.R., Factors Related to Community Compliance With the Covid-19 Health Protocol. *Kesmas And Nutrition 3*, 207–212 (2021).
[14] Pulungan, M. S. The Role of Students in Socializing the Covid-19 Health Protocol Through the KKL DR IAIN Padangsidimpuan Program. *J. At-Taghyir 2*, 291–308 (2020).
[15] Suprihatin, W. Analysis of Consumer Behavior of Tourists era Covid-19 Pandemic (Tourism Case Study in West Nusa Tenggara). *J. Bestari 19*, 56–66 (2020).
[16] Karlina, N., Muhafidin, D., Elisa & Susanti. Implementation of the Covid-19 Protocol in the Management of Ecorourism-Based Agrotourism Areas in the Pandemic Period. *J. Service. Masy. The wasters. Sos. Village and Masy*. 2, 28–36 (2021).
[17] Ma QX, Shan H, Zhang HL, Li GM, Yang RM, Chen JM, Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2. *J Med Virol* 92: 1567–1571 (2020).
[18] Freeman MC., Greene LE, Dreibelbis R, Saboori S, Muga R, Brumback B, Rheingans R., (2012). Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza province, Kenya: a clusterrandomized trial. *Trop Med Int Health 17*: 380–391.
[19] Przekwas A. & Chen Z. Washing hands and the face may reduce COVID-19 infection. *Medical Hypotheses 144* (2020) 110261. doi.org/10.1016/j.mehy.2020.110261.
[20] Analysis of Favorite Tourist Attractions Based on Number of Visitors in Yogyakarta Special Region. *J. Travel Media* 15, 555–567 (2017).
[21] Damasdino, F. Study of Characteristics of Tourists and Development Efforts, Thematic Tourism Products in Goa Cemara Beach, Kuwaru Beach, and Pandansimo Baru Beach Bantul Regency. *J. Travel Media* 13, 308–320 (2015).
[22] Bantul Health Service 2021. *Bantul Prepadness to Covid-19.* Bantul government. Available on https://corona.bantulkab.go.id/ [Accessed July 17, 2021].
[23] Zielinski, S., & Botero, C. M. (2020). Beach Tourism in Times of COVID-19 Pandemic: Critical Issues, Knowledge Gaps and Research Opportunities. *International journal of environmental research and public health*, 17(19), 7288. https://doi.org/10.3390/ijerph17197288.
[24] Hillier MD. Using effective hand hygiene practice to prevent and control infection. *Nurs Stand.* 2020 Apr 29;35(5):45-50. doi: 10.7748/ns.2020.e11552. Epub 2020 Apr 27.
[25] Notoatmodjo, S., *Health Research Methodology*. Jakarta: Rineka Cipta, (2014).
[26] Riyanto, A. *Application of Health Methodology*. 1 ed. Yogyakarta: Nuha Medika, (2011).
[27] Wong, J. S. W. & Lee, J. K. F. he common missed handwashing instances and areas ater 15 years of hand-hygiene education. *J. Environ. Public Health* 2019, 5928924 (2019).
[28] James, P. T., Kunoor, A. & Rakesh, P. S. Awareness of health care workerss, patients and visitors

regarding air borne infection control: A descriptive study from a Tertiary Care Centre in Kerala, southern India. *Indian J. Tuberc.* 65, 168–171 (2018).

[29] Al-Wutayd, Ali E. Mansour, Ahmad Hamad Aldosary, Hamdan Z. Hamdan, Manal A. Al-Batanony. 2021. Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study. *Scientiic Reports : Nature* (2021) 11:16769. https://doi.org/10.1038/s41598-021-96393-6.

[30] Kusmiyati, Sinaga, E. R., Wanti & Et al. Hand Washing Habits, Condition of Hand Washing Facilities and The Presence of E.Coli on The Hands of Food Vendors in Restaurants in the Oebobo Kupang Health Center Work Area in 2012. *J. Kesehat info*. 11, 419–427 (2013).

[31] Kwong LH, Ercumen A, Pickering AJ, Unicom L, Davis J, Luby SP., Age-related changes to environmental exposure: variation in the frequency that young children place hands and objects in their mouths. *J Exp Sci Environ Epidemiol* 30: 205–216 (2020).

[32] Kwok YLA, Gralton J, McLaws M-L. Face touching: a frequent habit that has implications for hand hygiene. *Am J Infect Control* ;43:112–4 (2015).

[33] CDC, 2020. *Show Me the Science - How to Wash Your Hands.* Available at: https://www.cdc.gov/handwashing/ show-me-the-science-handwashing.html, [Accessed Dec 5, 2021]..

[34] Islam, M., Sultana , J.B.C.S ., Unicom, L., Alam, M., Rahman, M., Ercumen A., and Luby, S.P., Effectiveness of Mass Media Campaigns to Improve Handwashing-Related Behavior, Knowledge, and Practices in Rural Bangladesh. *Am. J. Trop. Med. Hyg.*, 104(4), pp. 1546–1553 (2021). doi:10.4269/ajtmh.20-1154.

[35] Hikmawati, F. (2011). *Counseling guidance*. Jakarta: King Grafindo Persada.

[36] Mulyawan, A., Sekarsari, R., Nuraini, N. & Budi, E. Overview of Community Compliance Level in The Implementation of Post Vaccination Health Protocol Covid-19. *Edu Dharma J.. Res. And the service. Comm.* 5, 43 (2021).

[37] Miller, S., Yardley, L., Little, P.. Development of an intervention to reduce transmission of respiratory infections and pandemic flu: measuring and predicting hand-washing intentions. *Psychol Health Med.* 2012;17 (1):59-81.

[38] Halbesleben JR, Rathert C, Bennett SF. Measuring nursing workarounds: tests of the reliability and validity of a tool. *J Nurs Adm.* 2013;43(1):50-55.

[39] Ford EW., Boyer BT., Menachemi N., and Huerta, TR., I ncreasing Hand Washing Compliance With a Simple Visual Cue . *American Journal of Public Health*, Vol 104, No. 10, pg 1851-1856 (2014).

[40] Samidah, I., Murwati & Sulastri. The Influence of Health Education in Complying with the Covid-19 Health Protocol in Pondok Batu Village of Mukomuko Regency in 2020. *Jnph* 9, 35–39 (2021).

[41] Howard, G., Bartram, J., Brocklehurst, C., Colford, J.M., Costa, F., Cunliffe, D., Dreibelbis, R., Eisenberg, J.N.S., Evans, B., Girones, R., Hrudey, S., Willetts, J. & Wright, C.Y. COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics. *J. Water Health* **18**, 613–630 (2020).

[42] Alexander CC, Shrestha S, Tounkara MD, Cooper S, Hunt L, Hoj TH, Dearden K, Kezakubi D, Atugonza V, West J., Media access is associated with knowledge of optimal water, sanitation and hygiene practices in Tanzania. *Int J Env Res Public Health* 16: 1963 (2019).

[43] Tjoa, E., Mahendra, C., Suryanto, S., Theresia, S., Wirjanata, M., & Soeselo, A., Hand hygiene knowledge , perception , and compliance among healthcare workers. *International Journal of Public Health Science (IJPHS), 11*(2), 405–416 (2022). https://doi.org/10.11591/ijphs.v11i2.21263.

[44] Wiedarti, P., Laksono, K., Retnaningdyah, P., Dewayani, S., Muldian, W., Sufyadi, S., Roosaria, D.R., Sulastri, Rahmawan, N., Rahayu, E.S., Yusuf, A. & Antoro, B. *Master Design of the School Literacy Movement. vol. 1* (Directorate General of Primary and Secondary Education of the Ministry of Education and Culture, 2016).

[45] Mukminah, N., Istiarti, V. T., Syamsulhuda & BM. Factors Related to Hand Washing Practices Using Soap in Elementary School Students in the Working Area of Banyuurip Purworejo Health Center. *J. Kesehat. Masy.* 4, 354–360 (2016).

[46] Situmorang, D. A.C. *Application of Hand Washing Using Soap in the Elderly In Preventing COVID-19 Analyse In Nursing Home Winners Of Medan City*, (2021).

[47] Ministry of Health. Ministry of Health No. HK.01.07/MENKES/382/2020 On Public Health Protocols in Places and Public Facilities in the Framework of Prevention and Control of Corona Virus Disease 2019 (COVID-19). 8–15 (2020).

BIOGRAPHY OF AUTHORS

	**Musfirah, S.Si., M.Kes.** The lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia Reserach Topics Interest :Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings
	**Ahmad Faizal Rangkuti, SKM., M.Kes.** The lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia Research Topics Interest : Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings
	**Fenni Nurul Khotimah** The Bachelor Degree Graduated on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia Interest : Environmental Health

4. Accepted_Manuskrip & Review Ke-2 oleh Editor

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Musfirah FKM UAD <musfirah@ikm.uad.ac.id>

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International Journal of Public Health Science (IJPHS)
Vol.x, No.x, July 201x, pp. xx~xx
ISSN: 2252-8806

Factors Influencing Hand Washing With Soap Compliance Level Among Beach Tourism Workers

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jun 12th, 201x
Revised Aug 20th, 201x
Accepted Aug 26th, 201x

Keyword:

COVID-19
Compliance level
Beach tourism workers,
Facilities,
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent COVID-19 spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with Hand Washing With Soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers using total sampling technique from September 2021 to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and fisher's tests are used in the analysis. The finding study demonstrates that majority of respondents "support" the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah Musfirah
Faculty of Public Health,
Universitas Ahmad Dahlan
Jl Prof Dr Soepomo, Janturan, Umbulharjo, Yogyakarta 55164, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as COVID-19. COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and education, hand hygiene is an important factor to increase the incidence of Covid 19 [6]. Therefore, facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions and so on. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to

those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within 5 meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12] In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a *"new normal"* policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the Covid-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to Regional Original Income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but HWWS are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Indonesia.

2. METHOD

2.1. Study setting and design

This study uses quantitative analysis with cross sectional study design to measure the availability of hand washing facilities, health protocol media, and the level of HWWS compliance on beach workers.

2.2. Data Collection

Data collection was carried out on 3 beaches in Bantul Regency, namely Prangtritis Beach, Goa Cemara Beach, and Baru Beach from September, 2021 to November, 2021. The population in this study

were 60 workers who worked on Parangtritis Beach, Goa Cemara Beach and Baru Beach. The sampling technique uses "total sampling" which all members of the population will be the sample and due to the small number of population members. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis Beach, 23 respondents at Baru Beach, and 14 respondents at Goa Cemara Beach. Beach tourism workers in this study are people who participate in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study was used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a *Likert scale* consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "Not Support" category is given for respondent answer < (mean value = 4,7) and "Support" category is given respondent answer ≥ (mean value = 4,7). Assessment of the questionnaire about availability of health protocol media uses the *Guttman scale* which consists of 5 favorable questions where the value of the answer "Yes" is given a score of 1 and the answer "No" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer < (mean value = 14) and "Support" category is given respondent answer ≥ (mean value = 14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the *Guttman scale* which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "No" is given a score of 0, while the 1 unfovarable question answer with the answer "Yes" is given a score of 0 and the answer "No" is given a score of 1. The questionnaire have cutting point "Poor" category is given for respondent answer < (mean value = 9) and "Good" category is given respondent answer ≥ (mean value = 9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari Beach, Gadingsari Village, Sanden District, Bantul Regency, Yogyakarta Special Region which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the *Person Correlation Product Moment*, question items are valid if the test results are known that *r count* ≥ *r table* [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with *Cronbach's Alpha*, the measuring instrument is said to be reliable if the value of *Cronbach's Alpha* constant ≥ (0.6) [26].

Based on the results of the validity and reliability tests, there are 1 invalid question item the results obtained on the availability of hand washing facilities variable and 5 valid questions with a reliability test result of (0,618), 2 invalid question items and 5 valid questions on the availability of COVID-19 health protocols media variable with a reliability test result of (0,658), and 2 invalid question items and 10 valid questions on the HWWS compliance variable with a reliability test result of (0,860).

2.3 Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value <5 and a significant level of 5%. Fisher's test is an alternative to the Chi-Square test and also non-parametric test.

2.4 Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the Research Ethics Committee Universitas Ahmad Dahlan as a category of health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including SARS, H1N1 influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Tabel 1. Characteristics of Respondent at Beach Tourism Place, Bantul, Indonesia (n = 60)

Variables	n	Percentage (%)
Gender		
Male	42	70,0
Female	18	30,0
Age		
<45	34	56,7
46-79	26	43,3
Education Level		
Low	15	25,0
High	45	75,0

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged <45 years as many as 34 (56,7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73,3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Tabel 1. The Availability of Hand Washing Facilities, Availability of Health Protocols Media for COVID-19, and HWWS Compliance Level among Beach Tourism Workers in Bantul, Indonesia

Variables	n	Percentage (%)
Availability of Hand Washing Facilities		
Not Support	16	26,7
Support	44	73,3
Availability of Health Protocols Media for COVID-19		
Not Support	7	11,7
Support	53	88,3
HWWS Compliance Level		
Poor	10	16,7
Good	50	83,3

Several hand washing facilities in Bantul Beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria / viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: 36% mouth, 31% nose, 27% eyes, and 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The

CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88,3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83,3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22,4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance is a public health effort [38]. It has also been investigated whether the use hand washing compliance (HWC) visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will mak a person feel responsible for his health [40].

Table 3. Correlation between Availability of Hand Washing Facilities and Availability of COVID-19 Health Protocols Media with HWWS Compliance Level among Beach Tourism Workers in Bantul, Indonesia

Variables	**HWWS Compliance Level**		**Total number**	**RP (95% CI)**	***P Value***
	Poor	**Good**			
	n (%)	**n (%)**	**N (%)**		
Availability of Hand Washing Facilities					
Not Support	6 (10)	10 (16,7)	16 (26,7)	6	0,017
Support	4 (6,7)	40 (66,7)	44 (73,3)	(1,418 -25,387)	
Availability of COVID-19 Health Protocols Media					
Not Support	1 (1,7)	6 (10)	7 (11,7)	0,8	1,000
Support	9 (15)	44 (73,3)	53 (88,3)	(0,087-7,617)	

Bivariate analysis in this study was used to look at the relationship between independet variables and dependent variables distribution based using the *fisher’s test*. Based on Table 3, it can be seen that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p < 0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% Confidence Interval (CI) value (1,418 -25,387) and a Prevalence Ratio (RP) value of 6, meaning that

respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of Covid-19 health protocols media variable obtained a p-value of 1,000 (p>0.05), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

The previous studies support this study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [34]. The scientific proof for the implications of mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to UNESCO's findings, the reading habits of Indonesian people in low category, only 1 in 1000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study were consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30,8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed , so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46] [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers .

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in “support” category and the beach workers have “good” compliance level of HWWS. In addition, our finding study highlighted that the availability of hand washing facilities was relationship with HWWS compliance level among beach tourism workers. The government's role for beach tourism workers is required by monitoring and evaluating health behavior practice and already increasing the availability of HWWS facilities and adjusting to relevant Covid 19 health protocols media in an effort to reduce the transmission rate of COVID-19 in public facilities.

ACKNOWLEDGEMENTS

The authors would like to thank all the participants for their sincere cooperation. This study was funded by the Universitas Ahmad Dahlan, Indonesia, with an ID contract (PD-248/SP3/LPPM-UAD/VI/2021).

REFERENCES

[1] World Health Organization .2021. *WHO Coronavirus (COVID-19) Dashboar*d.www.covid19.who.int. Availabled on https://covid19.who.int/region/searo/country/id [Accessed November 21, 2021].

[2] Ministry of Health. T*he Latest Situation of The Development of Coronavirus Disease (COVID-19)* March 21, 2021. www.Kemkes.go.id (2021).

[3] Karyono, Rohadin, Indriyani, D. & et al. Handling and Prevention of Cornona Virus Outbreak Pandemic (COVID-19). *A. Conflict Resolution Collaboration* 2, 162–173 (2020).

[4] [4] Yanti, E., Fridalni, N., Hermawati & et al. Prevent Transmission of Coronavirus. *J. Abdimas Saintika 2*, 7 (2020).
[5] Izzaty. Government Policy in Overcoming Panic Buying Due to Covid-19. *Short Info XII*, 19–30 (2020).
[6] Lamichhane, D. K., Shrestha, S., & Kim, H.-C. District-Level Risk Factors for COVID-19 Incidence and Mortality in Nepal. *International Journal of Environmental Research and Public Health*, *19*(5), 2659, (2022). MDPI AG. Retrieved from http://dx.doi.org/10.3390/ijerph19052659.
[7] World Health Organization. *United Nations Children's Fund. Water, Sanitation, Hygiene, and Waste Management for the COVID-19 Virus: Interim Guidance*, (2020). Available online: https://apps.who.int/iris/handle/10665/331499.
[8] Jefferson, T., Del Mar, C.B., Dooley, L., Ferroni, E., Al-Ansary, L.A., Bawazeer, G.A., Van Driel, M.L., Jones, M.A., Thorning, S., Beller, E.M., Clark, J., Hoffmann, T.C., Glasziou, P.P., Conly, J.M., (2020). Physical interventions to interrupt or reduce the spread of respiratory viruses. *Cochrane Database Syst Rev.* 11(11):CD006207. doi: 10.1002/14651858.CD006207.
[9] Sharif, N., Alzahrani, K.J., Ahmed, S.N., Opu, R.R., Ahmed, N., Talukder, A., Nunia, R, Chowdhury M.S., Nodi I.J., Saha T., Zhang M., Dey S.K., Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study. *PLoS ONE* 16(11): e0260287 (2021). https://doi.org/10.1371/journal. pone.0260287.
[10] Khedmat, L. New Coronavirus (2019-nCoV): An Insight Toward Preventive Actions and Natural Medicine. *Int. J. Travel Med. Glob. Heal*. 8, 44–45 (2020).
[11] Prastiwi, D. & Anindhita, M. A. Education of Covid-19 Prevention Health Protocol in the New Normal Era in Karangtaruna Pemuda Pahlawan In Kacreaten Batang. *ABDIMAS 2*, 25–29 (2021).
[12] Nuriati, Y. et al. Employee Perception of The Availability of COVID-19 Facilities and Means of Handling in the Workplace Is Related to Compliance. *J. Kesehat. Masy. 9*, 566–575 (2021).
[13] Kasim, F., Satria, B., Wasliati, B., Sitepu, K., Nur, I. & Sihite, H.G.R., Factors Related to Community Compliance With the Covid-19 Health Protocol. *Kesmas And Nutrition 3*, 207–212 (2021).
[14] Pulungan, M. S. The Role of Students in Socializing the Covid-19 Health Protocol Through the KKL DR IAIN Padangsidimpuan Program. *J. At-Taghyir 2*, 291–308 (2020).
[15] Suprihatin, W. Analysis of Consumer Behavior of Tourists era Covid-19 Pandemic (Tourism Case Study in West Nusa Tenggara). *J. Bestari 19*, 56–66 (2020).
[16] Karlina, N., Muhafidin, D., Elisa & Susanti. Implementation of the Covid-19 Protocol in the Management of Ecorourism-Based Agrotourism Areas in the Pandemic Period. *J. Service. Masy. The wasters. Sos. Village and Masy*. 2, 28–36 (2021).
[17] Ma QX, Shan H, Zhang HL, Li GM, Yang RM, Chen JM, Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2. *J Med Virol* 92: 1567–1571 (2020).
[18] Freeman MC., Greene LE, Dreibelbis R, Saboori S, Muga R, Brumback B, Rheingans R., (2012). Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza province, Kenya: a clusterrandomized trial. *Trop Med Int Health 17*: 380–391.
[19] Przekwas A. & Chen Z. Washing hands and the face may reduce COVID-19 infection. *Medical Hypotheses 144* (2020) 110261. doi.org/10.1016/j.mehy.2020.110261.
[20] Analysis of Favorite Tourist Attractions Based on Number of Visitors in Yogyakarta Special Region. *J. Travel Media* 15, 555–567 (2017).
[21] Damasdino, F. Study of Characteristics of Tourists and Development Efforts, Thematic Tourism Products in Goa Cemara Beach, Kuwaru Beach, and Pandansimo Baru Beach Bantul Regency. *J. Travel Media* 13, 308–320 (2015).
[22] Bantul Health Service 2021. *Bantul Prepadness to Covid-19.* Bantul government. Available on https://corona.bantulkab.go.id/ [Accessed July 17, 2021].
[23] Zielinski, S., & Botero, C. M. (2020). Beach Tourism in Times of COVID-19 Pandemic: Critical Issues, Knowledge Gaps and Research Opportunities. *International journal of environmental research and public health*, 17(19), 7288. https://doi.org/10.3390/ijerph17197288.
[24] Hillier MD. Using effective hand hygiene practice to prevent and control infection. *Nurs Stand.* 2020 Apr 29;35(5):45-50. doi: 10.7748/ns.2020.e11552. Epub 2020 Apr 27.
[25] Notoatmodjo, S., *Health Research Methodology.* Jakarta: Rineka Cipta, (2014).
[26] Riyanto, A. *Application of Health Methodology.* 1 ed. Yogyakarta: Nuha Medika, (2011).
[27] Wong, J. S. W. & Lee, J. K. F. he common missed handwashing instances and areas ater 15 years of hand-hygiene education. *J. Environ. Public Health* 2019, 5928924 (2019).
[28] James, P. T., Kunoor, A. & Rakesh, P. S. Awareness of health care workerss, patients and visitors regarding air borne infection control: A descriptive study from a Tertiary Care Centre in Kerala, southern India. *Indian J. Tuberc.* 65, 168–171 (2018).
[29] Al-Wutayd, Ali E. Mansour, Ahmad Hamad Aldosary, Hamdan Z. Hamdan, Manal A. Al-Batanony. 2021. Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study. *Scientiic Reports : Nature* (2021) 11:16769. https://doi.org/10.1038/s41598-021-96393-6.
[30] Kusmiyati, Sinaga, E. R., Wanti & Et al. Hand Washing Habits, Condition of Hand Washing Facilities and The Presence of E.Coli on The Hands of Food Vendors in Restaurants in the Oebobo Kupang Health Center Work Area in 2012. *J. Kesehat info*. 11, 419–427 (2013).
[31] Kwong LH, Ercumen A, Pickering AJ, Unicom L, Davis J, Luby SP., Age-related changes to environmental exposure: variation in the frequency that young children place hands and objects in their mouths. *J Exp Sci Environ Epidemiol* 30: 205–216 (2020).
[32] Kwok YLA, Gralton J, McLaws M-L. Face touching: a frequent habit that has implications for hand hygiene. *Am J Infect Control* ;43:112–4 (2015).
[33] CDC, 2020. *Show Me the Science - How to Wash Your Hands.* Available at: https://www.cdc.gov/handwashing/ show-me-the-science-handwashing.html, [Accessed Dec 5, 2021]..
[34] Islam, M., Sultana , J.B.C.S ., Unicom, L., Alam, M., Rahman, M., Ercumen A., and Luby, S.P., Effectiveness of Mass Media Campaigns to Improve Handwashing-Related Behavior, Knowledge, and Practices in Rural Bangladesh. *Am. J. Trop. Med. Hyg.*, 104(4), pp. 1546–1553 (2021). doi:10.4269/ajtmh.20-1154.
[35] Hikmawati, F. (2011). *Counseling guidance*. Jakarta: King Grafindo Persada.
[36] Mulyawan, A., Sekarsari, R., Nuraini, N. & Budi, E. Overview of Community Compliance Level in The Implementation of Post Vaccination Health Protocol Covid-19. *Edu Dharma J.. Res. And the service. Comm.* 5, 43 (2021).
[37] Miller, S., Yardley, L., Little, P.. Development of an intervention to reduce transmission of respiratory infections and pandemic flu: measuring and predicting hand-washing intentions. *Psychol Health Med.* 2012;17 (1):59-81.

[38] Halbesleben JR, Rathert C, Bennett SF. Measuring nursing workarounds: tests of the reliability and validity of a tool. *J Nurs Adm.* 2013;43(1):50-55.

[39] Ford EW., Boyer BT., Menachemi N., and Huerta, TR., I ncreasing Hand Washing Compliance With a Simple Visual Cue . *American Journal of Public Health*, Vol 104, No. 10, pg 1851-1856 (2014).

[40] Samidah, I., Murwati & Sulastri. The Influence of Health Education in Complying with the Covid-19 Health Protocol in Pondok Batu Village of Mukomuko Regency in 2020. *Jnph* 9, 35–39 (2021).

[41] Howard, G., Bartram, J., Brocklehurst, C., Colford, J.M., Costa, F., Cunliffe, D., Dreibelbis, R., Eisenberg, J.N.S., Evans, B., Girones, R., Hrudey, S., Willetts, J. & Wright, C.Y. COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics. *J. Water Health* **18**, 613–630 (2020).

[42] Alexander CC, Shrestha S, Tounkara MD, Cooper S, Hunt L, Hoj TH, Dearden K, Kezakubi D, Atugonza V, West J., Media access is associated with knowledge of optimal water, sanitation and hygiene practices in Tanzania. *Int J Env Res Public Health* 16: 1963 (2019).

[43] Tjoa, E., Mahendra, C., Suryanto, S., Theresia, S., Wirjanata, M., & Soeselo, A., Hand hygiene knowledge , perception , and compliance among healthcare workers. *International Journal of Public Health Science (IJPHS)*, *11*(2), 405–416 (2022). https://doi.org/10.11591/ijphs.v11i2.21263.

[44] Wiedarti, P., Laksono, K., Retnaningdyah, P., Dewayani, S., Muldian, W., Sufyadi, S., Roosaria, D.R., Sulastri, Rahmawan, N., Rahayu, E.S., Yusuf, A. & Antoro, B. *Master Design of the School Literacy Movement. vol. 1* (Directorate General of Primary and Secondary Education of the Ministry of Education and Culture, 2016).

[45] Mukminah, N., Istiarti, V. T., Syamsulhuda & BM. Factors Related to Hand Washing Practices Using Soap in Elementary School Students in the Working Area of Banyuurip Purworejo Health Center. *J. Kesehat. Masy*. 4, 354–360 (2016).

[46] Situmorang, D. A.C. *Application of Hand Washing Using Soap in the Elderly In Preventing COVID-19 Analyse In Nursing Home Winners Of Medan City*, (2021).

[47] Ministry of Health. Ministry of Health No. HK.01.07/MENKES/382/2020 On Public Health Protocols in Places and Public Facilities in the Framework of Prevention and Control of Corona Virus Disease 2019 (COVID-19). 8–15 (2020).

BIOGRAPHY OF AUTHORS

Musfirah, S.Si., M.Kes. is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. Author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email : musfirah@ikm.uad.ac.id

Ahmad Faizal Rangkuti, SKM., M.Kes. is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email : faizal.rangkuti@ikm.uad.ac.id

Fenni Nurul Khotimah is Bachelor Degree Graduated on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest on environmental health aspect with focused health tourism. She can be contacted at email : fenninurulkhotimah11@gmail.com

International Journal of Public Health Science (IJPHS)
Vol.x, No.x, July 201x, pp. xx~xx
ISSN: 2252-8806

Factors Influencing Hand Washing With Soap Compliance Level Among Beach Tourism Workers

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jun 12th, 201x
Revised Aug 20th, 201x
Accepted Aug 26th, 201x

Keyword:

COVID-19
Compliance level
Beach tourism workers,
Facilities,
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent COVID-19 spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with Hand Washing With Soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers using total sampling technique from September 2021 to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and fisher's tests are used in the analysis. The finding study demonstrates that majority of respondents "support" the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah Musfirah
Faculty of Public Health,
Universitas Ahmad Dahlan
Jl Prof Dr Soepomo, Janturan, Umbulharjo, Yogyakarta 55164, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as COVID-19. COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and education, hand hygiene is an important factor to increase the incidence of Covid 19 [6]. Therefore, facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions and so on. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to

those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within 5 meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12] In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a *"new normal"* policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the Covid-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to Regional Original Income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but HWWS are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Indonesia.

2. METHOD

2.1. Study setting and design

This study uses quantitative analysis with cross sectional study design to measure the availability of hand washing facilities, health protocol media, and the level of HWWS compliance on beach workers.

2.2. Data Collection

Data collection was carried out on 3 beaches in Bantul Regency, namely Prangtritis Beach, Goa Cemara Beach, and Baru Beach from September, 2021 to November, 2021. The population in this study

were 60 workers who worked on Parangtritis Beach, Goa Cemara Beach and Baru Beach. The sampling technique uses "total sampling" which all members of the population will be the sample and due to the small number of population members. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis Beach, 23 respondents at Baru Beach, and 14 respondents at Goa Cemara Beach. Beach tourism workers in this study are people who participate in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study was used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a *Likert scale* consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "Not Support" category is given for respondent answer < (mean value = 4,7) and "Support" category is given respondent answer ≥ (mean value = 4,7). Assessment of the questionnaire about availability of health protocol media uses the *Guttman scale* which consists of 5 favorable questions where the value of the answer "Yes" is given a score of 1 and the answer "No" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer < (mean value = 14) and "Support" category is given respondent answer ≥ (mean value = 14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the *Guttman scale* which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "No" is given a score of 0, while the 1 unfovarable question answer with the answer "Yes" is given a score of 0 and the answer "No" is given a score of 1. The questionnaire have cutting point "Poor" category is given for respondent answer < (mean value = 9) and "Good" category is given respondent answer ≥ (mean value = 9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari Beach, Gadingsari Village, Sanden District, Bantul Regency, Yogyakarta Special Region which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the *Person Correlation Product Moment*, question items are valid if the test results are known that *r count* ≥ *r table* [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with *Cronbach's Alpha*, the measuring instrument is said to be reliable if the value of *Cronbach's Alpha* constant ≥ (0.6) [26].

Based on the results of the validity and reliability tests, there are 1 invalid question item the results obtained on the availability of hand washing facilities variable and 5 valid questions with a reliability test result of (0,618), 2 invalid question items and 5 valid questions on the availability of COVID-19 health protocols media variable with a reliability test result of (0,658), and 2 invalid question items and 10 valid questions on the HWWS compliance variable with a reliability test result of (0,860).

2.3 Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value <5 and a significant level of 5%. Fisher's test is an alternative to the Chi-Square test and also non-parametric test.

2.4 Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the Research Ethics Committee Universitas Ahmad Dahlan as a category of health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including SARS, H1N1 influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Tabel 1. Characteristics of Respondent at Beach Tourism Place, Bantul, Indonesia (n = 60)

Variables	n	Percentage (%)
Gender		
Male	42	70,0
Female	18	30,0
Age		
<45	34	56,7
46-79	26	43,3
Education Level		
Low	15	25,0
High	45	75,0

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged <45 years as many as 34 (56,7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73,3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Tabel 1. The Availability of Hand Washing Facilities, Availability of Health Protocols Media for COVID-19, and HWWS Compliance Level among Beach Tourism Workers in Bantul, Indonesia

Variables	n	Percentage (%)
Availability of Hand Washing Facilities		
Not Support	16	26,7
Support	44	73,3
Availability of Health Protocols Media for COVID-19		
Not Support	7	11,7
Support	53	88,3
HWWS Compliance Level		
Poor	10	16,7
Good	50	83,3

Several hand washing facilities in Bantul Beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria / viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: 36% mouth, 31% nose, 27% eyes, and 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The

CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88,3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83,3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22,4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance is a public health effort [38]. It has also been investigated whether the use hand washing compliance (HWC) visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will mak a person feel responsible for his health [40].

Table 3. Correlation between Availability of Hand Washing Facilities and Availability of COVID-19 Health Protocols Media with HWWS Compliance Level among Beach Tourism Workers in Bantul, Indonesia

Variables	**HWWS Compliance Level**		**Total number**	**RP (95% CI)**	***P Value***
	Poor	**Good**			
	n (%)	**n (%)**	**N (%)**		
Availability of Hand Washing Facilities					
Not Support	6 (10)	10 (16,7)	16 (26,7)	6	0,017
Support	4 (6,7)	40 (66,7)	44 (73,3)	(1,418 -25,387)	
Availability of COVID-19 Health Protocols Media					
Not Support	1 (1,7)	6 (10)	7 (11,7)	0,8	1,000
Support	9 (15)	44 (73,3)	53 (88,3)	(0,087-7,617)	

Bivariate analysis in this study was used to look at the relationship between independet variables and dependent variables distribution based using the *fisher’s test*. Based on Table 3, it can be seen that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p < 0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% Confidence Interval (CI) value (1,418 -25,387) and a Prevalence Ratio (RP) value of 6, meaning that

respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of Covid-19 health protocols media variable obtained a p-value of 1,000 (p>0.05), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

The previous studies support this study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [34]. The scientific proof for the implications of mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to UNESCO's findings, the reading habits of Indonesian people in low category, only 1 in 1000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study were consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30,8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed , so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46] [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers .

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in “support” category and the beach workers have “good” compliance level of HWWS. In addition, our finding study highlighted that the availability of hand washing facilities was relationship with HWWS compliance level among beach tourism workers. The government's role for beach tourism workers is required by monitoring and evaluating health behavior practice and already increasing the availability of HWWS facilities and adjusting to relevant Covid 19 health protocols media in an effort to reduce the transmission rate of COVID-19 in public facilities.

ACKNOWLEDGEMENTS

The authors would like to thank all the participants for their sincere cooperation. This study was funded by the Universitas Ahmad Dahlan, Indonesia, with an ID contract (PD-248/SP3/LPPM-UAD/VI/2021).

REFERENCES

[1] World Health Organization .2021. *WHO Coronavirus (COVID-19) Dashboar*d.www.covid19.who.int. Availabled on https://covid19.who.int/region/searo/country/id [Accessed November 21, 2021].

[2] Ministry of Health. T*he Latest Situation of The Development of Coronavirus Disease (COVID-19)* March 21, 2021. www.Kemkes.go.id (2021).

[3] Karyono, Rohadin, Indriyani, D. & et al. Handling and Prevention of Cornona Virus Outbreak Pandemic (COVID-19). *A. Conflict Resolution Collaboration* 2, 162–173 (2020).

[4] [4] Yanti, E., Fridalni, N., Hermawati & et al. Prevent Transmission of Coronavirus. *J. Abdimas Saintika 2*, 7 (2020).
[5] Izzaty. Government Policy in Overcoming Panic Buying Due to Covid-19. *Short Info XII*, 19–30 (2020).
[6] Lamichhane, D. K., Shrestha, S., & Kim, H.-C. District-Level Risk Factors for COVID-19 Incidence and Mortality in Nepal. *International Journal of Environmental Research and Public Health*, *19*(5), 2659, (2022). MDPI AG. Retrieved from http://dx.doi.org/10.3390/ijerph19052659.
[7] World Health Organization. *United Nations Children's Fund. Water, Sanitation, Hygiene, and Waste Management for the COVID-19 Virus: Interim Guidance*, (2020). Available online: https://apps.who.int/iris/handle/10665/331499.
[8] Jefferson, T., Del Mar, C.B., Dooley, L., Ferroni, E., Al-Ansary, L.A., Bawazeer, G.A., Van Driel, M.L., Jones, M.A., Thorning, S., Beller, E.M., Clark, J., Hoffmann, T.C., Glasziou, P.P., Conly, J.M., (2020). Physical interventions to interrupt or reduce the spread of respiratory viruses. *Cochrane Database Syst Rev.* 11(11):CD006207. doi: 10.1002/14651858.CD006207.
[9] Sharif, N., Alzahrani, K.J., Ahmed, S.N., Opu, R.R., Ahmed, N., Talukder, A., Nunia, R, Chowdhury M.S., Nodi I.J., Saha T., Zhang M., Dey S.K., Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study. *PLoS ONE* 16(11): e0260287 (2021). https://doi.org/10.1371/journal. pone.0260287.
[10] Khedmat, L. New Coronavirus (2019-nCoV): An Insight Toward Preventive Actions and Natural Medicine. *Int. J. Travel Med. Glob. Heal*. 8, 44–45 (2020).
[11] Prastiwi, D. & Anindhita, M. A. Education of Covid-19 Prevention Health Protocol in the New Normal Era in Karangtaruna Pemuda Pahlawan In Kacreaten Batang. *ABDIMAS 2*, 25–29 (2021).
[12] Nuriati, Y. et al. Employee Perception of The Availability of COVID-19 Facilities and Means of Handling in the Workplace Is Related to Compliance. *J. Kesehat. Masy. 9*, 566–575 (2021).
[13] Kasim, F., Satria, B., Wasliati, B., Sitepu, K., Nur, I. & Sihite, H.G.R., Factors Related to Community Compliance With the Covid-19 Health Protocol. *Kesmas And Nutrition 3*, 207–212 (2021).
[14] Pulungan, M. S. The Role of Students in Socializing the Covid-19 Health Protocol Through the KKL DR IAIN Padangsidimpuan Program. *J. At-Taghyir 2*, 291–308 (2020).
[15] Suprihatin, W. Analysis of Consumer Behavior of Tourists era Covid-19 Pandemic (Tourism Case Study in West Nusa Tenggara). *J. Bestari 19*, 56–66 (2020).
[16] Karlina, N., Muhafidin, D., Elisa & Susanti. Implementation of the Covid-19 Protocol in the Management of Ecorourism-Based Agrotourism Areas in the Pandemic Period. *J. Service. Masy. The wasters. Sos. Village and Masy*. 2, 28–36 (2021).
[17] Ma QX, Shan H, Zhang HL, Li GM, Yang RM, Chen JM, Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2. *J Med Virol* 92: 1567–1571 (2020).
[18] Freeman MC., Greene LE, Dreibelbis R, Saboori S, Muga R, Brumback B, Rheingans R., (2012). Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza province, Kenya: a clusterrandomized trial. *Trop Med Int Health 17*: 380–391.
[19] Przekwas A. & Chen Z. Washing hands and the face may reduce COVID-19 infection. *Medical Hypotheses 144* (2020) 110261. doi.org/10.1016/j.mehy.2020.110261.
[20] Analysis of Favorite Tourist Attractions Based on Number of Visitors in Yogyakarta Special Region. *J. Travel Media* 15, 555–567 (2017).
[21] Damasdino, F. Study of Characteristics of Tourists and Development Efforts, Thematic Tourism Products in Goa Cemara Beach, Kuwaru Beach, and Pandansimo Baru Beach Bantul Regency. *J. Travel Media* 13, 308–320 (2015).
[22] Bantul Health Service 2021. *Bantul Prepadness to Covid-19.* Bantul government. Available on https://corona.bantulkab.go.id/ [Accessed July 17, 2021].
[23] Zielinski, S., & Botero, C. M. (2020). Beach Tourism in Times of COVID-19 Pandemic: Critical Issues, Knowledge Gaps and Research Opportunities. *International journal of environmental research and public health*, 17(19), 7288. https://doi.org/10.3390/ijerph17197288.
[24] Hillier MD. Using effective hand hygiene practice to prevent and control infection. *Nurs Stand.* 2020 Apr 29;35(5):45-50. doi: 10.7748/ns.2020.e11552. Epub 2020 Apr 27.
[25] Notoatmodjo, S., *Health Research Methodology.* Jakarta: Rineka Cipta, (2014).
[26] Riyanto, A. *Application of Health Methodology.* 1 ed. Yogyakarta: Nuha Medika, (2011).
[27] Wong, J. S. W. & Lee, J. K. F. he common missed handwashing instances and areas ater 15 years of hand-hygiene education. *J. Environ. Public Health* 2019, 5928924 (2019).
[28] James, P. T., Kunoor, A. & Rakesh, P. S. Awareness of health care workerss, patients and visitors regarding air borne infection control: A descriptive study from a Tertiary Care Centre in Kerala, southern India. *Indian J. Tuberc.* 65, 168–171 (2018).
[29] Al-Wutayd, Ali E. Mansour, Ahmad Hamad Aldosary, Hamdan Z. Hamdan, Manal A. Al-Batanony. 2021. Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study. *Scientiic Reports : Nature* (2021) 11:16769. https://doi.org/10.1038/s41598-021-96393-6.
[30] Kusmiyati, Sinaga, E. R., Wanti & Et al. Hand Washing Habits, Condition of Hand Washing Facilities and The Presence of E.Coli on The Hands of Food Vendors in Restaurants in the Oebobo Kupang Health Center Work Area in 2012. *J. Kesehat info*. 11, 419–427 (2013).
[31] Kwong LH, Ercumen A, Pickering AJ, Unicom L, Davis J, Luby SP., Age-related changes to environmental exposure: variation in the frequency that young children place hands and objects in their mouths. *J Exp Sci Environ Epidemiol* 30: 205–216 (2020).
[32] Kwok YLA, Gralton J, McLaws M-L. Face touching: a frequent habit that has implications for hand hygiene. *Am J Infect Control* ;43:112–4 (2015).
[33] CDC, 2020. *Show Me the Science - How to Wash Your Hands.* Available at: https://www.cdc.gov/handwashing/ show-me-the-science-handwashing.html, [Accessed Dec 5, 2021]..
[34] Islam, M., Sultana , J.B.C.S ., Unicom, L., Alam, M., Rahman, M., Ercumen A., and Luby, S.P., Effectiveness of Mass Media Campaigns to Improve Handwashing-Related Behavior, Knowledge, and Practices in Rural Bangladesh. *Am. J. Trop. Med. Hyg.*, 104(4), pp. 1546–1553 (2021). doi:10.4269/ajtmh.20-1154.
[35] Hikmawati, F. (2011). *Counseling guidance*. Jakarta: King Grafindo Persada.
[36] Mulyawan, A., Sekarsari, R., Nuraini, N. & Budi, E. Overview of Community Compliance Level in The Implementation of Post Vaccination Health Protocol Covid-19. *Edu Dharma J.. Res. And the service. Comm.* 5, 43 (2021).
[37] Miller, S., Yardley, L., Little, P.. Development of an intervention to reduce transmission of respiratory infections and pandemic flu: measuring and predicting hand-washing intentions. *Psychol Health Med.* 2012;17 (1):59-81.

[38] Halbesleben JR, Rathert C, Bennett SF. Measuring nursing workarounds: tests of the reliability and validity of a tool. *J Nurs Adm.* 2013;43(1):50-55.

[39] Ford EW., Boyer BT., Menachemi N., and Huerta, TR., I ncreasing Hand Washing Compliance With a Simple Visual Cue . *American Journal of Public Health*, Vol 104, No. 10, pg 1851-1856 (2014).

[40] Samidah, I., Murwati & Sulastri. The Influence of Health Education in Complying with the Covid-19 Health Protocol in Pondok Batu Village of Mukomuko Regency in 2020. *Jnph* 9, 35–39 (2021).

[41] Howard, G., Bartram, J., Brocklehurst, C., Colford, J.M., Costa, F., Cunliffe, D., Dreibelbis, R., Eisenberg, J.N.S., Evans, B., Girones, R., Hrudey, S., Willetts, J. & Wright, C.Y. COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics. *J. Water Health* **18**, 613–630 (2020).

[42] Alexander CC, Shrestha S, Tounkara MD, Cooper S, Hunt L, Hoj TH, Dearden K, Kezakubi D, Atugonza V, West J., Media access is associated with knowledge of optimal water, sanitation and hygiene practices in Tanzania. *Int J Env Res Public Health* 16: 1963 (2019).

[43] Tjoa, E., Mahendra, C., Suryanto, S., Theresia, S., Wirjanata, M., & Soeselo, A., Hand hygiene knowledge , perception , and compliance among healthcare workers. *International Journal of Public Health Science (IJPHS)*, *11*(2), 405–416 (2022). https://doi.org/10.11591/ijphs.v11i2.21263.

[44] Wiedarti, P., Laksono, K., Retnaningdyah, P., Dewayani, S., Muldian, W., Sufyadi, S., Roosaria, D.R., Sulastri, Rahmawan, N., Rahayu, E.S., Yusuf, A. & Antoro, B. *Master Design of the School Literacy Movement. vol. 1* (Directorate General of Primary and Secondary Education of the Ministry of Education and Culture, 2016).

[45] Mukminah, N., Istiarti, V. T., Syamsulhuda & BM. Factors Related to Hand Washing Practices Using Soap in Elementary School Students in the Working Area of Banyuurip Purworejo Health Center. *J. Kesehat. Masy*. 4, 354–360 (2016).

[46] Situmorang, D. A.C. *Application of Hand Washing Using Soap in the Elderly In Preventing COVID-19 Analyse In Nursing Home Winners Of Medan City*, (2021).

[47] Ministry of Health. Ministry of Health No. HK.01.07/MENKES/382/2020 On Public Health Protocols in Places and Public Facilities in the Framework of Prevention and Control of Corona Virus Disease 2019 (COVID-19). 8–15 (2020).

BIOGRAPHY OF AUTHORS

Musfirah, S.Si., M.Kes. is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. Author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email : musfirah@ikm.uad.ac.id

Ahmad Faizal Rangkuti, SKM., M.Kes. is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email : faizal.rangkuti@ikm.uad.ac.id

Fenni Nurul Khotimah is Bachelor Degree Graduated on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest on environmental health aspect with focused health tourism. She can be contacted at email : fenninurulkhotimah11@gmail.com

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Ahmad Dahlan University Yogyakarta
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NO. KARTU : 627427XXXXXXXX0269

NO. REK : 801211013XXX

NILAI : RP 3.850.000

KEPADA

BANK : BANK CIMB NIAGA

NO. REK : 760164155700

NAMA : LINA HANDAYANI

NO REF :

TRANSAKSI BERHASIL

MOHON RESI INI DISIMPAN SEBAGAI

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BAYAR TIKET GARUDA, KERETA API, PLN,

TELEPON, PDAM, BPJS, ISI PULSA HP,

PAJAK KENDARAAN, PBB & MPNG2

hasil-Factors Influencing Hand Washing With Soap Compliance Level Among Beach Tourism Workers

by Ahmad Faizal Rangkuti

Submission date: 23-Apr-2022 12:46PM (UTC+0700)
Submission ID: 1817952523
File name: 21720-42376-1-ED_cam_ready.pdf (241.49K)
Word count: 5875
Character count: 32413

International Journal of Public Health Science (IJPHS)
Vol.x, No.x, July 201x, pp. xx~xx
ISSN: 2252-8806

Factors Influencing Hand Washing With Soap Compliance Level Among Beach Tourism Workers

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jun 12th, 201x
Revised Aug 20th, 201x
Accepted Aug 26th, 201x

Keyword:

COVID-19
Compliance level
Beach tourism workers,
Facilities,
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent COVID-19 spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with Hand Washing With Soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers using total sampling technique from September 2021 to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and fisher's tests are used in the analysis. The finding study demonstrates that majority of respondents "support" the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah Musfirah
Faculty of Public Health,
Universitas Ahmad Dahlan
Jl Prof Dr Soepomo, Janturan, Umbulharjo, Yogyakarta 55164, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as COVID-19. COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and education, hand hygiene is an important factor to increase the incidence of Covid 19 [6]. Therefore, facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions and so on. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to

those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within 5 meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1690 respondent used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12] In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a *"new normal"* policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the Covid-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral skin infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to Regional Original Income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but HWWS are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Indonesia.

2. METHOD

2.1. Study setting and design

This study uses quantitative analysis with cross sectional study design to measure the availability of hand washing facilities, health protocol media, and the level of HWWS compliance on beach workers.

2.2. Data Collection

Data collection was carried out on 3 beaches in Bantul Regency, namely Prangtritis Beach, Goa Cemara Beach, and Baru Beach from September, 2021 to November, 2021. The population in this study

were 60 workers who worked on Parangtritis Beach, Goa Cemara Beach and Baru Beach. The sampling technique uses "total sampling" which all members of the population will be the sample and due to the small number of population members. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis Beach, 23 respondents at Baru Beach, and 14 respondents at Goa Cemara Beach. Beach tourism workers in this study are people who participate in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study was used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a *Likert scale* consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "Not Support" category is given for respondent answer < (mean value = 4,7) and "Support" category is given respondent answer ≥ (mean value = 4,7). Assessment of the questionnaire about availability of health protocol media uses the *Guttman scale* which consists of 5 favorable questions where the value of the answer "Yes" is given a score of 1 and the answer "No" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer < (mean value = 14) and "Support" category is given respondent answer ≥ (mean value = 14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the *Guttman scale* which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "No" is given a score of 0, while the 1 unfovarable question answer with the answer "Yes" is given a score of 0 and the answer "No" is given a score of 1. The questionnaire have cutting point "Poor" category is given for respondent answer < (mean value = 9) and "Good" category is given respondent answer ≥ (mean value = 9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari Beach, Gadingsari Village, Sanden District, Bantul Regency, Yogyakarta Special Region which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the *Person Correlation Product Moment*, question items are valid if the test results are known that *r count* ≥ *r table* [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with *Cronbach's Alpha*, the measuring instrument is said to be reliable if the value of *Cronbach's Alpha* constant ≥ (0.6) [26,28].

Based on the results of the validity and reliability tests, there are 1 invalid question item the results obtained on the availability of hand washing facilities variable and 5 valid questions with a reliability test result of (0,618), 2 invalid question items and 5 valid questions on the availability of COVID-19 health protocols media variable with a reliability test result of (0,658), and 2 invalid question items and 10 valid questions on the HWWS compliance variable with a reliability test result of (0,860).

2.3 Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value <5 and a significant level of 5%. Fisher's test is an alternative to the Chi-Square test and also non-parametric test.

2.4 Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the Research Ethics Committee Universitas Ahmad Dahlan as a category of health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including SARS, H1N1 influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Tabel 1. Characteristics of Respondent at Beach Tourism Place, Bantul, Indonesia (n = 60)

Variables	n	Percentage (%)
Gender		
Male	42	70,0
Female	18	30,0
Age		
<45	34	56,7
46-79	26	43,3
Education Level		
Low	15	25,0
High	45	75,0

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged <45 years as many as 34 (56,7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73,3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Tabel 1. The Availability of Hand Washing Facilities, Availability of Health Protocols Media for COVID-19, and HWWS Compliance Level among Beach Tourism Workers in Bantul, Indonesia

Variables	n	Percentage (%)
Availability of Hand Washing Facilities		
Not Support	16	26,7
Support	44	73,3
Availability of Health Protocols Media for COVID-19		
Not Support	7	11,7
Support	53	88,3
HWWS Compliance Level		
Poor	10	16,7
Good	50	83,3

Several hand washing facilities in Bantul Beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria / viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: 36% mouth, 31% nose, 27% eyes, and 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The

CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88,3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category "good" compliance as much as 83,3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22,4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance is a public health effort [38]. It has also been investigated whether the use hand washing compliance (HWC) visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communication or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will mak a person feel responsible for his health [40].

Table 3. Correlation between Availability of Hand Washing Facilities and Availability of COVID-19 Health Protocols Media with HWWS Compliance Level among Beach Tourism Workers in Bantul, Indonesia

Variables	HWWS Compliance Level		Total number	RP (95% CI)	*P Value*
	Poor	Good			
	n (%)	n (%)	N (%)		
Availability of Hand Washing Facilities					
Not Support	6 (10)	10 (16,7)	16 (26,7)	6	0,017
Support	4 (6,7)	40 (66,7)	44 (73,3)	(1,418 -25,387)	
Availability of COVID-19 Health Protocols Media					
Not Support	1 (1,7)	6 (10)	7 (11,7)	0,8	1,000
Support	9 (15)	44 (73,3)	53 (88,3)	(0,087-7,617)	

Bivariate analysis in this study was used to look at the relationship between independet variables and dependent variables distribution based using the *fisher's test*. Based on Table 3, it can be seen that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 (p <0.05) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% Confidence Interval (CI) value (1,418 -25,387) and a Prevalence Ratio (RP) value of 6, meaning that

respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of Covid-19 health protocols media variable obtained a p-value of 1.000 (p>0.05), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

The previous studies support this study which reported that there a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [34]. The scientific proof for the implications of mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to UNESCO's findings, the reading habits of Indonesian people low category, only 1 in 1000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study were consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30,8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed , so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46] [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers .

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in “support” category and the beach workers have “good” compliance level of HWWS. In addition, our finding study highlighted that the availability of hand washing facilities was relationship with HWWS compliance level among beach tourism workers. The government's role for beach tourism workers is required by monitoring and evaluating health behavior practice and already increasing the availability of HWWS facilities and adjusting to relevant Covid 19 health protocols media in an effort to reduce the transmission rate of COVID-19 in public facilities.

ACKNOWLEDGEMENTS

The authors would like to thank all the participants for their sincere cooperation. This study was funded by the Universitas Ahmad Dahlan, Indonesia, with an ID contract (PD-248/SP3/LPPM-UAD/VI/2021).

REFERENCES

[1] World Health Organization .2021. *WHO Coronavirus (COVID-19) Dashboard*.www.covid19.who.int. Availabled on https://covid19.who.int/region/searo/country/id [Accessed November 21, 2021].

[2] Ministry of Health. *The Latest Situation of The Development of Coronavirus Disease (COVID-19)* March 21, 2021. www.Kemkes.go.id (2021).

[3] Karyono, Rohadin, Indriyani, D. & et al. Handling and Prevention of Corona Virus Outbreak Pandemic (COVID-19). *A. Conflict Resolution Coliaboration* 2, 162–173 (2020).

[4] [4] Yanti, E., Fridalni, N., Hermawati & et al. Prevent Transmission of Coronavirus. *J. Abdimas Saintika* 2, 7 (2020).
[5] Izzaty. Government Policy in Overcoming Panic Buying Due to Covid-19. *Short Info XII*, 19–30 (2020).
[6] Lamichhane, D. K., Shrestha, S., & Kim, H.-C. District-Level Risk Factors for COVID-19 Incidence and Mortality in Nepal. *International Journal of Environmental Research and Public Health*, *19*(5), 2659, (2022). MDPI AG. Retrieved from http://dx.doi.org/10.3390/ijerph19052659.
[7] World Health Organization. *United Nations Children's Fund. Water, Sanitation, Hygiene, and Waste Management for the COVID-19 Virus: Interim Guidance*, (2020). Available online: https://apps.who.int/iris/handle/10665/331499.
[8] Jefferson, T., Del Mar, C.B., Dooley, L., Ferroni, E., Al-Ansary, L.A., Bawazeer, G.A., Van Driel, M.L., Jones, M.A., Thorning, S., Beller, E.M., Clark, J., Hoffmann, T.C., Glasziou, P.P., Conly, J.M., (2020). Physical interventions to interrupt or reduce the spread of respiratory viruses. *Cochrane Database Syst Rev.* 11(11):CD006207. doi: 10.1002/14651858.CD006207.
[9] Sharif, N., Alzahrani, K.J., Ahmed, S.N., Opu, R.R., Ahmed, N., Talukder, A., Nunia, R, Chowdhury M.S., Nodi I.J., Saha T., Zhang M., Dey S.K., Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study. *PLoS ONE* 16(11): e0260287 (2021). https://doi.org/10.1371/journal. pone.0260287.
[10] Khedmat, L. New Coronavirus (2019-nCoV): An Insight Toward Preventive Actions and Natural Medicine. *Int. J. Travel Med. Glob. Heal.* 8, 44–45 (2020).
[11] Prastiwi, D. & Anindhita, M. A. Education of Covid-19 Prevention Health Protocol in the New Normal Era in Karangtaruna Pemuda Pahlawan In Kacreaten Batang. *ABDIMAS 2*, 25–29 (2021).
[12] Nuriati, Y. et al. Employee Perception of The Availability of COVID-19 Facilities and Means of Handling in the Workplace Is Related to Compliance. *J. Kesehat. Masy. 9*, 566–575 (2021).
[13] Kasim, F., Satria, B., Wasliati, B., Sitepu, K., Nur, I. & Sihite, H.G.R., Factors Related to Community Compliance With the Covid-19 Health Protocol. *Kesmas And Nutrition 3*, 207–212 (2021).
[14] Pulungan, M. S. The Role of Students in Socializing the Covid-19 Health Protocol Through the KKL DR IAIN Padangsidimpuan Program. *J. At-Taghyir 2*, 291–308 (2020).
[15] Suprihatin, W. Analysis of Consumer Behavior of Tourists era Covid-19 Pandemic (Tourism Case Study in West Nusa Tenggara). *J. Bestari 19*, 56–66 (2020).
[16] Karlina, N., Muhafidin, D., Elisa & Susanti. Implementation of the Covid-19 Protocol in the Management of Ecorourism-Based Agrotourism Areas in the Pandemic Period. *J. Service. Masy. The wasters. Sos. Village and Masy.* 2, 28–36 (2021).
[17] Ma QX, Shan H, Zhang HL, Li GM, Yang RM, Chen JM, Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2. *J Med Virol* 92: 1567–1571 (2020).
[18] Freeman MC., Greene LE, Dreibelbis R, Saboori S, Muga R, Brumback B, Rheingans R., (2012). Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza province, Kenya: a clusterrandomized trial. *Trop Med Int Health 17*: 380–391.
[19] Przekwas A. & Chen Z. Washing hands and the face may reduce COVID-19 infection. *Medical Hypotheses 144* (2020) 110261. doi.org/10.1016/j.mehy.2020.110261.
[20] Analysis of Favorite Tourist Attractions Based on Number of Visitors in Yogyakarta Special Region. *J. Travel Media* 15, 555–567 (2017).
[21] Damasdino, F. Study of Characteristics of Tourists and Development Efforts, Thematic Tourism Products in Goa Cemara Beach, Kuwaru Beach, and Pandansimo Baru Beach Bantul Regency. *J. Travel Media* 13, 308–320 (2015).
[22] Bantul Health Service 2021. *Bantul Prepadness to Covid-19*. Bantul government. Available on https://corona.bantulkab.go.id/ [Accessed July 17, 2021].
[23] Zielinski, S., & Botero, C. M. (2020). Beach Tourism in Times of COVID-19 Pandemic: Critical Issues, Knowledge Gaps and Research Opportunities. *International journal of environmental research and public health,* 17(19), 7288. https://doi.org/10.3390/ijerph17197288.
[24] Hillier MD. Using effective hand hygiene practice to prevent and control infection. *Nurs Stand*. 2020 Apr 29;35(5):45-50. doi: 10.7748/ns.2020.e1552. Epub 2020 Apr 27.
[25] Notoatmodjo, S., *Health Research Methodology*. Jakarta: Rineka Cipta, (2014).
[26] Riyanto, A. *Application of Health Methodology*. 1 ed. Yogyakarta: Nuha Medika, (2011).
[27] Wong, J. S. W. & Lee, J. K. F. he common missed handwashing instances and areas ater 15 years of hand-hygiene education. *J. Environ. Public Health* 2019, 5928924 (2019).
[28] James, P. T., Kunoor, A. & Rakesh, P. S. Awareness of health care workerss, patients and visitors regarding air borne infection control: A descriptive study from a Tertiary Care Centre in Kerala, southern India. *Indian J. Tuberc.* 65, 168–171 (2018).
[29] Al-Wutayd, Ali E. Mansour, Ahmad Hamad Aldosary, Hamdan Z. Hamdan, Manal A. Al-Batanony. 2021. Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study. *Scientiic Reports : Nature* (2021) 11:16769. https://doi.org/10.1038/s41598-021-96393-6.
[30] Kusmiyati, Sinaga, E. R., Wanti & Et al. Hand Washing Habits, Condition of Hand Washing Facilities and The Presence of E.Coli on The Hands of Food Vendors in Restaurants in the Oebobo Kupang Health Center Work Area in 2012. *J. Kesehat info.* 11, 419–427 (2013).
[31] Kwong LH, Ercumen A, Pickering AJ, Unicomb L, Davis J, Luby SP., Age-related changes to environmental exposure: variation in the frequency that young children place hands and objects in their mouths. *J Exp Sci Environ Epidemiol* 30: 205–216 (2020).
[32] Kwok YLA, Gralton J, McLaws M-L. Face touching: a frequent habit that has implications for hand hygiene. *Am J Infect Control* ;43:112–4 (2015).
[33] CDC, 2020. *Show Me the Science - How to Wash Your Hands*. Available at: https://www.cdc.gov/handwashing/ show-me-the-science-handwashing.html, [Accessed Dec 5, 2021]..
[34] Islam, M., Sultana , J.B.C.S ., Unicom, L., Alam, M., Rahman, M., Ercumen A., and Luby, S.P., Effectiveness of Mass Media Campaigns to Improve Handwashing-Related Behavior, Knowledge, and Practices in Rural Bangladesh. *Am. J. Trop. Med. Hyg.*, 104(4), pp. 1546–1553 (2021). doi:10.4269/ajtmh.20-1154.
[35] Hikmawati, F. (2011). *Counseling guidance*. Jakarta: King Grafindo Persada.
[36] Mulyawan, A., Sekarsari, R., Nuraini, N. & Budi, E. Overview of Community Compliance Level in The Implementation of Post Vaccination Health Protocol Covid-19. *Edu Dharma J.. Res. And the service. Comm.* 5, 43 (2021).
[37] Miller, S., Yardley, L., Little, P.. Development of an intervention to reduce transmission of respiratory infections and pandemic flu: measuring and predicting hand-washing intentions. *Psychol Health Med.* 2012;17 (1):59-81.

[38] Halbesleben JR, Rathert C, Bennett SF. Measuring nursing workarounds: tests of the reliability and validity of a tool. *J Nurs Adm*. 2013;43(1):50-55.

[39] Ford EW., Boyer BT., Menachemi N., and Huerta, TR., I ncreasing Hand Washing Compliance With a Simple Visual Cue . *American Journal of Public Health*, Vol 104, No. 10, pg 1851-1856 (2014).

[40] Samidah, I., Murwati & Sulastri. The Influence of Health Education in Complying with the Covid-19 Health Protocol in Pondok Batu Village of Mukomuko Regency in 2020. *Jnph* 9, 35–39 (2021).

[41] Howard, G., Bartram, J., Brocklehurst, C., Colford, J.M., Costa, F., Cunliffe, D., Dreibelbis, R., Eisenberg, J.N.S., Evans, B., Girones, R., Hrudey, S., Willetts, J. & Wright, C.Y. COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics. *J. Water Health* **18**, 613–630 (2020).

[42] Alexander CC, Shrestha S, Tounkara MD, Cooper S, Hunt L, Hoj TH, Dearden K, Kezakubi D, Atugonza V, West J., Media access is associated with knowledge of optimal water, sanitation and hygiene practices in Tanzania. *Int J Env Res Public Health* 16: 1963 (2019).

[43] Tjoa, E., Mahendra, C., Suryanto, S., Theresia, S., Wirjanata, M., & Soeselo, A., Hand hygiene knowledge , perception , and compliance among healthcare workers. *International Journal of Public Health Science (IJPHS)*. *11*(2), 405–416 (2022). https://doi.org/10.11591/ijphs.v11i2.21263.

[44] Wiedarti, P., Laksono, K., Retnaningdyah, P., Dewayani, S., Muldian, W., Sufyadi, S., Roosaria, D.R., Sulastri, Rahmawan, N., Rahayu, E.S., Yusuf, A. & Antoro, B. *Master Design of the School Literacy Movement*. *vol. 1* (Directorate General of Primary and Secondary Education of the Ministry of Education and Culture, 2016).

[45] Mukminah, N., Istiarti, V. T., Syamsulhuda & BM. Factors Related to Hand Washing Practices Using Soap in Elementary School Students in the Working Area of Banyuurip Purworejo Health Center. *J. Kesehat. Masy*. 4, 354–360 (2016).

[46] Situmorang, D. A.C. *Application of Hand Washing Using Soap in the Elderly In Preventing COVID-19 Analyse In Nursing Home Winners Of Medan City*, (2021).

[47] Ministry of Health. Ministry of Health No. HK.01.07/MENKES/382/2020 On Public Health Protocols in Places and Public Facilities in the Framework of Prevention and Control of Corona Virus Disease 2019 (COVID-19). 8–15 (2020).

BIOGRAPHY OF AUTHORS

Musfirah, S.Si., M.Kes. is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. Author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email : musfirah@ikm.uad.ac.id

Ahmad Faizal Rangkuti, SKM., M.Kes. is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email : faizal.rangkuti@ikm.uad.ac.id

Fenni Nurul Khotimah is Bachelor Degree Graduated on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest on environmental health aspect with focused health tourism. She can be contacted at email : fenninurulkhotimah11@gmail.com

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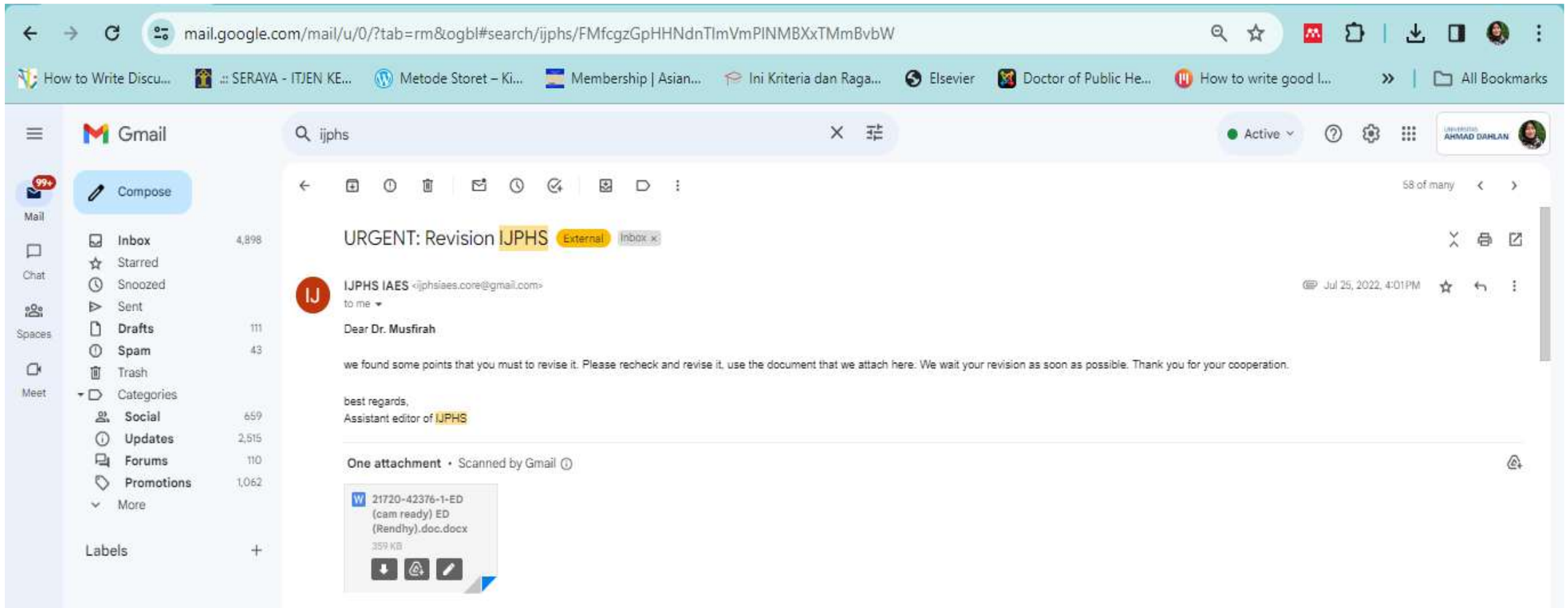

International Journal of Public Health Science (IJPHS)
Vol. 11, No. 4, December 2022, pp. 1~1x
ISSN: 2252-8806, DOI: 10.11591/ijphs.v11i4.paperID

Factors influencing hand washing with soap compliance level among beach tourism workers

Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received month dd, yyyy
Revised month dd, yyyy
Accepted month dd, yyyy

Keywords:

Beach tourism workers,
Compliance level
COVID-19
Facilities,
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent coronavirus disease 2019 (COVID-19) spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with hand washing with soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers using total sampling technique from September 2021 to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and fisher's tests are used in the analysis. The finding study demonstrates that majority of respondents "support" the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan
Jl Prof Dr Soepomo, Janturan, Umbulharjo, Yogyakarta, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as coronavirus disease 2019 (COVID-19). COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and education, hand hygiene is an important factor to increase the incidence of COVID 19 [6]. Therefore,

facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions and so on. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within 5 meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12]. In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a “new normal” policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the COVID-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to regional original income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but hand washing with soap (HWWS) are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Indonesia.

2. RESEARCH METHOD

2.1. Study setting and design

This study uses quantitative analysis with cross sectional study design to measure the availability of hand washing facilities, health protocol media, and the level of HWWS compliance on beach workers.

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2.2. Data collection

Data collection was carried out on 3 beaches in Bantul Regency, namely Prangtritis beach, Goa Cemara beach, and Baru beach from September, 2021 to November, 2021. The population in this study were 60 workers who worked on Parangtritis beach, Goa Cemara beach and Baru beach. The sampling technique uses "total sampling" which all members of the population will be the sample and due to the small number of population members. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis beach, 23 respondents at Baru beach, and 14 respondents at Goa Cemara beach. Beach tourism workers in this study are people who participate in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study was used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a Likert scale consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "not Support" category is given for respondent answer<(mean value=4.7) and "support" category is given respondent answer≥(mean value=4.7). Assessment of the questionnaire about availability of health protocol media uses the Guttman scale which consists of 5 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer<(mean value=14) and "support" category is given respondent answer≥(mean value=14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the Guttman scale which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while the 1 unfovarable question answer with the answer "yes" is given a score of 0 and the answer "no" is given a score of 1. The questionnaire have cutting point "poor" category is given for respondent answer<(mean value=9) and "good" category is given respondent answer≥(mean value=9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari beach, Gadingsari village, Sanden district, Bantul Regency, Special Region of Yogyakarta which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the Person correlation product moment, question items are valid if the test results are known that r count≥r table [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with Cronbach's alpha, the measuring instrument is said to be reliable if the value of Cronbach's alpha constant≥(0.6) [26].

Based on the results of the validity and reliability tests, there are 1 invalid question item the results obtained on the availability of hand washing facilities variable and 5 valid questions with a reliability test result of (0.618), 2 invalid question items and 5 valid questions on the availability of COVID-19 health protocols media variable with a reliability test result of (0.658), and 2 invalid question items and 10 valid questions on the HWWS compliance variable with a reliability test result of (0.860).

2.3. Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value<5 and a significant level of 5%. Fisher's test is an alternative to the chi-square test and also non-parametric test.

2.4. Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the research ethics committee Universitas Ahmad Dahlan. As a category of health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including severe acute respiratory syndrome (SARS), hemagglutinin tipe 1 dan neuraminidase tipe 1 (H1N1) influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Table 1. Characteristics of respondent at beach tourism place, Bantul, Indonesia (n=60)

Variables	n	Percentage (%)
Gender		
Male	42	70.0
Female	18	30.0
Age		
<45	34	56.7
46-79	26	43.3
Education level		
Low	15	25.0
High	45	75.0

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged<45 years as many as 34 (56.7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73.3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Table 2. The availability of hand washing facilities, availability of health protocols media for COVID-19, and HWWS compliance level among beach tourism workers in Bantul, Indonesia

Variables	n	Percentage (%)
Availability of hand washing facilities		
Not support	16	26.7
Support	44	73.3
Availability of health protocols media for COVID-19		
Not support	7	11.7
Support	53	88.3
HWWS compliance level		
Poor	10	16.7
Good	50	83.3

Several hand washing facilities in Bantul beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria/viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: i) 36% mouth; ii) 31% nose; iii) 27% eyes; and iv) 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88.3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83.3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22.4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance (HWC) is a public health effort [38]. It has also been investigated whether the use HWC visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will mak a person feel responsible for his health [40].

Table 3. Correlation between availability of hand washing facilities and availability of COVID-19 health protocols media with HWWS compliance level among beach tourism workers in Bantul, Indonesia

Variables	HWWS compliance level		Total number	RP (95% CI)	*P Value*
	Poor n (%)	Good n (%)	N (%)		
Availability of hand washing facilities					
Not support	6 (10)	10 (16.7)	16 (26.7)	6 (1.418-25.387)	0.017
Support	4 (6.7)	40 (66.7)	44 (73.3)		
Availability of COVID-19 health protocols media					
Not support	1 (1.7)	6 (10)	7 (11.7)	0.8 (0.087-7.617)	1.000
Support	9 (15)	44 (73.3)	53 (88.3)		

Bivariate analysis in this study was used to look at the relationship between independet variables and dependent variables distribution based using the Fisher’s test. Based on Table 3, it can be seen that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p<0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% confidence interval (CI) value (1.418-25.387) and a prevalence ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of COVID-19 health protocols media variable obtained a p-value of 1,000 ($p>0.05$), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

The previous studies support this study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing

facilities and cleansing agents [34]. The scientific proof for the implications of mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to the united nations educational scientific and cultural organization (UNESCO) findings, the reading habits of Indonesian people in low category, only 1 in 1,000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study were consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30.8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed , so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46], [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers.

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in “support” category and the beach workers have “good” compliance level of HWWS. In addition, our finding study highlighted that the availability of hand washing facilities was relationship with HWWS compliance level among beach tourism workers. The government's role for beach tourism workers is required by monitoring and evaluating health behavior practice and already increasing the availability of HWWS facilities and adjusting to relevant COVID-19 health protocols media in an effort to reduce the transmission rate of COVID-19 in public facilities.

ACKNOWLEDGEMENTS

The authors would like to thank all the participants for their sincere cooperation. This study was funded by the Universitas Ahmad Dahlan, Indonesia, with an identity (ID) contract (PD-248/SP3/LPPM-UAD/VI/2021).

REFERENCES

[1] World Health Organization, “WHO coronavirus (COVID-19) dashboard,” *World Health Organization*, 2021. https://covid19.who.int/region/searo/country/id (accessed Nov. 21, 2021).

[2] Ministry of Health, “The latest situation of the development of coronavirus disease (COVID-19) March 21, 2021,” *Ministry of Health*, 2021. www.Kemkes.go.id (accessed Nov. 21, 2021).

[3] K. Karyono, R. Rohadin, and D. Indriyani, “Handling and prevention of the corona virus outbreak (COVID-19) in Indramayu Regency,” *Jurnal Kolaborasi Resolusi Konflik*, vol. 2, no. 2, pp. 164–173, Aug. 2020, doi: 10.24198/jkrk.v2i2.29127.

[4] E. Yanti, N. Fridalni, and H. Harmawati, “Prevent transmission of coronavirus,” *Jurnal Abdimas Saintika*, vol. 2, no. 1, pp. 33–39, 2020, doi: 10.30633/jas.v2i1.553.

[5] I. Izzaty, “Government policy in handling panic buying due to COVID-19,” *Info Singkat*, vol. 12, no. 5, pp. 19–24, 2020, [Online]. Available: https://berkas.dpr.go.id/sipinter/files/sipinter-624-478-20200707164632.pdf

[6] D. K. Lamichhane, S. Shrestha, and H.-C. Kim, “District-level risk factors for COVID-19 incidence and mortality in Nepal,” *International Journal of Environmental Research and Public Health*, vol. 19, no. 5, pp. 2659–2672, Feb. 2022, doi: 10.3390/ijerph19052659.

[7] World Health Organization, “Water, sanitation, hygiene and waste management for the COVID-19 virus,” *World Health Organisation*, 2020. https://apps.who.int/iris/handle/10665/331499 (accessed Nov. 21, 2021).

[8] T. Jefferson *et al.*, “Interventions for the interruption or reduction of the spread of respiratory viruses,” in *Cochrane Database of Systematic Reviews*, no. 4, T. Jefferson, Ed. Chichester: John Wiley & Sons, Ltd, 2007, pp. 1465–1858. doi: 10.1002/14651858.CD006207.pub2.

[9] N. Sharif *et al.*, "Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study," *PLoS ONE*, vol. 16, no. 11, pp. 1–13, Nov. 2021, doi: 10.1371/journal.pone.0260287.

[10] L. Khedmat, "New coronavirus (2019-nCoV): An insight toward preventive actions and natural medicine," *International Journal of Travel Medicine and Global Health*, vol. 8, no. 1, pp. 44–45, Mar. 2020, doi: 10.34172/ijtmgh.2020.07.

[11] D. Prastiwi and M. A. Anindhita, "Education on covid-19 prevention health protocols in the new normal era at youth youth organizations in Batang Regency," *Abdimas,* vol. 2, no. 1, pp. 25–29, 2021, [Online]. Available: https://jurnal.unikal.ac.id/index.php/abdimas/article/view/1292

[12] Y. Nuriati, A. Heryana, I. S. Mustikawati, and N. W. Sangadji, "Employee perception of the availability of COVID-19 facilities and means of handling in the workplace is related to compliance," *Jurnal Kesehatan Masyarakat*, vol. 9, no. 4, pp. 566–575, 2021, doi: 10.14710/jkm.v9i4.30224.

[13] F. Kasim, B. Satria, B. Wasliati, K. Sitepu, I. N. Saputri, and H. G. Sihite, "Factors relating to public compliance with the COVID-19 health protocol," *Jurnal Kesmas Dan Gizi (Jkg)*, vol. 3, no. 2, pp. 207–212, Apr. 2021, doi: 10.35451/jkg.v3i2.687.

[14] M. S. Pulungan, "The role of students in socializing the COVID-19 health protocol through the KKL DR IAIN Padangsidimpuan program," *Jurnal At-Taghyir*, vol. 2, no. 2, pp. 291–308, 2020, doi: 10.24952/taghyir.v2i2.2727.

[15] W. Suprihatin, "Analysis of consumer behavior of tourists era cCOVID-19 pandemic (tourism case study in West Nusa Tenggara)," *Jurnal Bestari*, vol. 1, no. 1, pp. 56–66, 2020, [Online]. Available: https://jurnalbestari.ntbprov.go.id/index.php/bestari1/article/view/9

[16] N. Karlina, D. Muhafidin, and E. Susanti, "Implementation of the COVID-19 protocol in ecotourism-based agrotourism management in the pandemic period," *Sawala : Jurnal pengabdian Masyarakat Pembangunan Sosial, Desa dan Masyarakat*, vol. 2, no. 1, pp. 28–36, Jan. 2021, doi: 10.24198/sawala.v2i1.29921.

[17] Q. X. Ma, H. Shan, H. L. Zhang, G. M. Li, R. M. Yang, and J. M. Chen, "Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2," *Journal of Medical Virology*, vol. 92, no. 9, pp. 1567–1571, 2020, doi: 10.1002/jmv.25805.

[18] M. C. Freeman *et al.*, "Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza Province, Kenya: A cluster-randomized trial," *Tropical Medicine & International Health*, vol. 17, no. 3, pp. 380–391, Dec. 2012, doi: 10.1111/j.1365-3156.2011.02927.x.

[19] A. Przekwas and Z. Chen, "Washing hands and the face may reduce COVID-19 infection," *Medical Hypotheses*, vol. 144, p. 110261, Nov. 2020, doi: 10.1016/j.mehy.2020.110261.

[20] A. Yulianto, "Analysis of favorite tourist sttractions based on number of visitors in the Special Region of Yogyakarta," *Media Wisata*, vol. 15, no. 2, pp. 555–567, Jun. 2021, doi: 10.36276/mws.v15i2.109.

[21] F. Damasdino, "Study of characteristics of tourists and development efforts, thematic tourism products in Goa Cemara beach, Kuwaru Beach, and Pandansimo Baru beach Bantul Regency," *Media Wisata*, vol. 13, no. 2, pp. 308–320, Sep. 2021, doi: 10.36276/mws.v13i2.224.

[22] Bantul Health Service, "Bantul prepadness to COVID-19," *Bantul government*, 2021. https://corona.bantulkab.go.id/ (accessed Jul. 17, 2021).

[23] S. Zielinski and C. M. Botero, "Beach tourism in times of COVID-19 pandemic: Critical issues, knowledge gaps and research opportunities," *International Journal of Environmental Research and Public Health*, vol. 17, no. 19, pp. 1–19, Oct. 2020, doi: 10.3390/ijerph17197288.

[24] M. D. Hillier, "Using effective hand hygiene practice to prevent and control infection," *Nursing Standard*, vol. 35, no. 5, pp. 45–50, Apr. 2020, doi: 10.7748/ns.2020.e11552.

[25] S. Notoatmodjo, *Health research methodology*. Jakarta: Rineka Cipta, 2014.

[26] A. Riyanto, *Application of health methodology*, Edisi 1. Yogyakarta: Nuha Medika, 2011.

[27] J. S. W. Wong and J. K. F. Lee, "The common missed handwashing instances and areas after 15 years of hand-hygiene education," *Journal of Environmental and Public Health*, pp. 1–7, Aug. 2019, doi: 10.1155/2019/5928924.

[28] P. T. James, A. Kunoor, and P. S. Rakesh, "Awareness of health care workers, patients and visitors regarding air borne infection control–a descriptive study from a tertiary care centre in Kerala, Southern India," *Indian Journal of Tuberculosis*, vol. 65, no. 2, pp. 168–171, Apr. 2018, doi: 10.1016/j.ijtb.2017.08.028.

[29] O. Al-Wutayd, A. E. Mansour, A. H. Aldosary, H. Z. Hamdan, and M. A. Al-Batanony, "Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study," *Scientific Reports*, vol. 11, no. 1, pp. 1–12, Dec. 2021, doi: 10.1038/s41598-021-96393-6.

[30] K. Kusmiyati, E. R. Sinaga, and W. Wanti, "Hand washing habits, condition of hand washing facilities and the presence of E.Coli on the hands of food vendors in restaurants in the Oebobo Kupang health center work area in 2012," *Jurnal Info Kesehatan*, vol. 11, no. 2, pp. 417–427, 2012, [Online]. Available: https://jurnal.poltekeskupang.ac.id/index.php/infokes/article/view/27

[31] L. H. Kwong, A. Ercumen, A. J. Pickering, L. Unicomb, J. Davis, and S. P. Luby, "Age-related changes to environmental exposure: Variation in the frequency that young children place hands and objects in their mouths," *Journal of Exposure Science and Environmental Epidemiology*, vol. 30, no. 1, pp. 205–216, 2020, doi: 10.1038/s41370-019-0115-8.

[32] Y. L. A. Kwok, J. Gralton, and M. L. McLaws, "Face touching: A frequent habit that has implications for hand hygiene," *American Journal of Infection Control*, vol. 43, no. 2, pp. 112–114, 2015, doi: 10.1016/j.ajic.2014.10.015.

[33] Centers for Disease Control and Prevention, "Show me the science–how to wash your hands," *CDC*, 2020. https://www.cdc.gov/handwashing/show-me-the-science-handwashing.html (accessed Dec. 05, 2021).

[34] M. Islam *et al.*, "Effectiveness of mass media campaigns to improve handwashing-related behavior, knowledge, and practices in Rural Bangladesh," *American Journal of Tropical Medicine and Hygiene*, vol. 104, no. 4, pp. 1546–1553, Apr. 2021, doi: 10.4269/ajtmh.20-1154.

[35] F. Hikmawati, *Counseling guidance*. Jakarta: King Grafindo Persada, 2011.

[36] A. Mulyawan, R. Sekarsari, N. Nuraini, and E. Budi, "Overview of community compliance level in the implementation of post vaccination health protocol COVID-19," *Edu Dharma Journal: Jurnal penelitian dan pengabdian masyarakat*, vol. 5, no. 2, pp. 43–51, Sep. 2021, doi: 10.52031/edj.v5i2.175.

[37] S. Miller, L. Yardley, and P. Little, "Development of an intervention to reduce transmission of respiratory infections and pandemic flu: Measuring and predicting hand-washing intentions," *Psychology, Health & Medicine*, vol. 17, no. 1, pp. 59–81, Jan. 2012, doi: 10.1080/13548506.2011.564188.

[38] J. R. B. Halbesleben, C. Rathert, and S. F. Bennett, "Measuring nursing workarounds," *JONA: The Journal of Nursing Administration*, vol. 43, no. 1, pp. 50–55, Jan. 2013, doi: 10.1097/NNA.0b013e31827860ff.

[39] E. W. Ford, B. T. Boyer, N. Menachemi, and T. R. Huerta, "Increasing hand washing compliance with a simple visual cue," *American Journal of Public Health*, vol. 104, no. 10, pp. 1851–1856, Oct. 2014, doi: 10.2105/AJPH.2013.301477.

[40] I. Samidah, M. Murwati, and S. Sulastri, "The influence of health education in complying with the COVID-19 health protocol in Pondok Batu village of Mukomuko Regency in 2020," *Journal of Nursing and Public Health*, vol. 9, no. 1, pp. 35–39, Jun. 2021, doi: 10.37676/jnph.v9i1.1434.
[41] G. Howard *et al.*, "COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics," *Journal of Water and Health*, vol. 18, no. 5, pp. 613–630, Oct. 2020, doi: 10.2166/wh.2020.162.
[42] C. C. Alexander *et al.*, "Media access is associated with knowledge of optimalwater, sanitation and hygiene practices in Tanzania," *International Journal of Environmental Research and Public Health*, vol. 16, no. 11, pp. 1–10, Jun. 2019, doi: 10.3390/ijerph16111963.
[43] E. Tjoa, C. Mahendra, S. Suryanto, S. Theresia, M. Wirjanata, and D. A. Soeselo, "Hand hygiene knowledge, perception, and compliance among healthcare workers," *International Journal of Public Health Science (IJPHS)*, vol. 11, no. 2, pp. 405–416, Jun. 2022, doi: 10.11591/ijphs.v11i2.21263.
[44] P. Wiedarti *et al.*, *School literacy movement master design*. Jakarta: Directorate General of Primary and Secondary Education, Ministry of Education and Culture, 2018.
[45] N. Mukminah, V. T. Istiarti, and S. BM, "Factors related to hand washing practices using soap in elementary school students in the working area of Banyuurip Purworejo health center," *Jurnal Kesehatan Masyarakat*, vol. 4, no. 5, pp. 354–361, 2016, doi: 10.14710/jkm.v4i5.14628.
[46] D. A. C. Situmorang, "Application of hand washing using soap in the elderly in preventing COVID-19 analyse in nursing home winners Of Medan city," M.S. thesis, Dept. Public Health, Univ., Sumatera Utara, Medan, Indonesia, 2021. [Online]. Available: https://repositori.usu.ac.id/handle/123456789/31778
[47] Ministry of Health, "Ministry of health No. HK.01.07/MENKES/382/2020 on public health protocols in places and public facilities in the framework of prevention and control of corona virus disease 2019 (COVID-19)." Ministry of Health, Jakarta, pp. 8–15, 2020.

BIOGRAPHY OF AUTHORS

Musfirah, S.Si., M.Kes. is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. Author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email: musfirah@ikm.uad.ac.id.

Ahmad Faizal Rangkuti, SKM., M.Kes. is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email: faizal.rangkuti@ikm.uad.ac.id.

Fenni Nurul Khotimah is bachelor degree graduated on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest on environmental health aspect with focused health tourism. She can be contacted at email: fenninurulkhotimah11@gmail.com.

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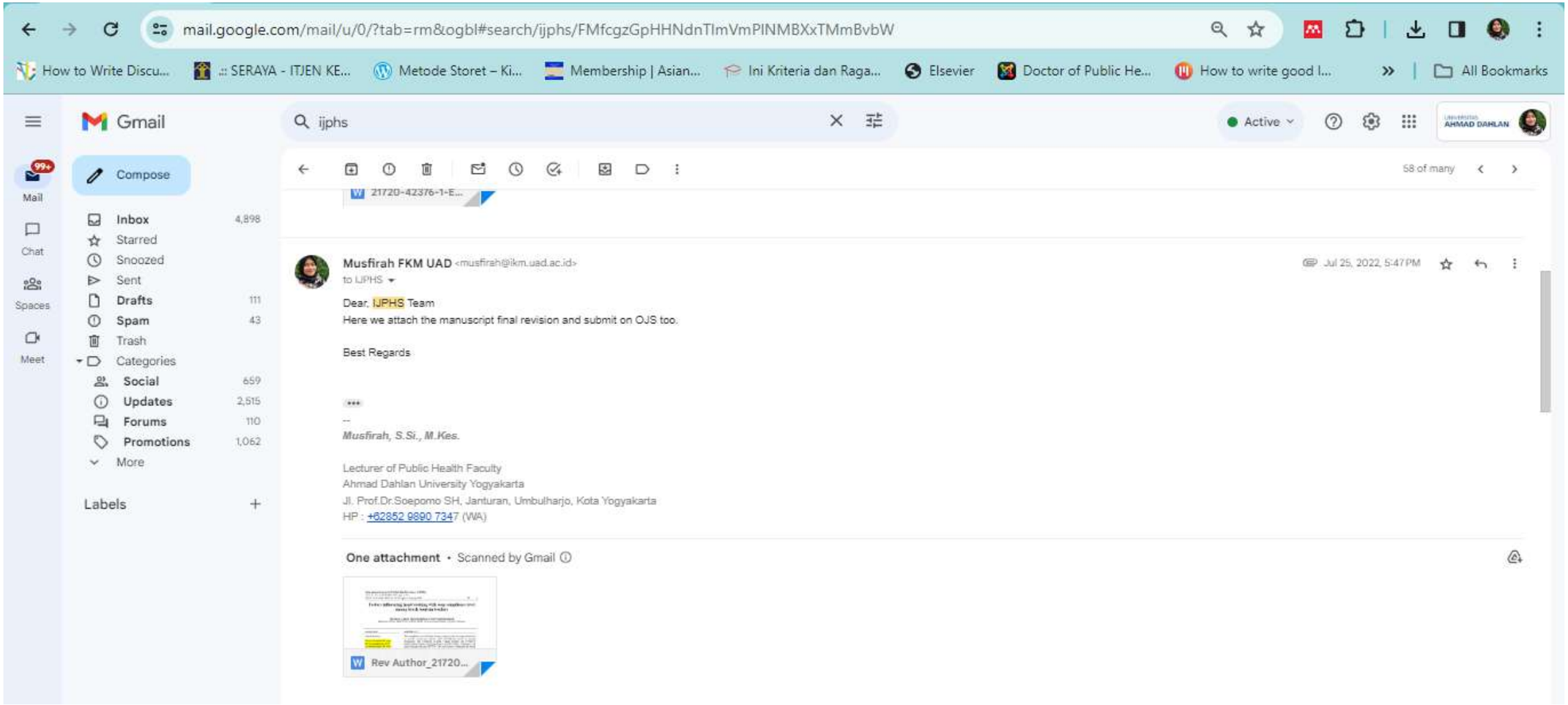


International Journal of Public Health Science (IJPHS)
Vol. 11, No. 4, December 2022, pp. 1~1x
ISSN: 2252-8806, DOI: 10.11591/ijphs.v11i4.paperID

Factors influencing hand washing with soap compliance level among beach tourism workers

Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received month dd, yyyy
Revised month dd, yyyy
Accepted month dd, yyyy

Keywords:

Beach tourism workers,
Compliance level
COVID-19
Facilities,
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent coronavirus disease 2019 (COVID-19) spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with hand washing with soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers using total sampling technique from September 2021 to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and fisher's tests are used in the analysis. The finding study demonstrates that majority of respondents "support" the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan
Jl Prof Dr Soepomo, Janturan, Umbulharjo, Yogyakarta, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as coronavirus disease 2019 (COVID-19). COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and education, hand hygiene is an important factor to increase the incidence of COVID 19 [6]. Therefore,

facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions and so on. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within 5 meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12]. In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a "new normal" policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the COVID-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to regional original income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but hand washing with soap (HWWS) are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Indonesia.

2. RESEARCH METHOD

2.1. Study setting and design

The type of study is quantitative analysis. A descriptive cross-sectional design was used. This study measure the availability of hand washing facilities, health protocol media, and the level of HWWS compliance on beach workers.

2.2. Data collection

Data collection was carried out on 3 beaches in Bantul Regency, namely Prangtritis beach, Goa Cemara beach, and Baru beach from September, 2021 to November, 2021. The population in this study were 60 workers who worked on Parangtritis beach, Goa Cemara beach and Baru beach. The sampling technique uses "total sampling" which all members of the population will be the sample and due to the small number of population members. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis beach, 23 respondents at Baru beach, and 14 respondents at Goa Cemara beach. Beach tourism workers in this study are people who participate in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study was used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a Likert scale consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "not Support" category is given for respondent answer<(mean value=4.7) and "support" category is given respondent answer≥(mean value=4.7). Assessment of the questionnaire about availability of health protocol media uses the Guttman scale which consists of 5 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer<(mean value=14) and "support" category is given respondent answer≥(mean value=14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the Guttman scale which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while the 1 unfovarable question answer with the answer "yes" is given a score of 0 and the answer "no" is given a score of 1. The questionnaire have cutting point "poor" category is given for respondent answer<(mean value=9) and "good" category is given respondent answer≥(mean value=9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari beach, Gadingsari village, Sanden district, Bantul Regency, Special Region of Yogyakarta which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the Person correlation product moment, question items are valid if the test results are known that r count≥r table [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with Cronbach's alpha, the measuring instrument is said to be reliable if the value of Cronbach's alpha constant≥(0.6) [26].

Based on the results of the validity and reliability tests, there are 1 invalid question item the results obtained on the availability of hand washing facilities variable and 5 valid questions with a reliability test result of (0.618), 2 invalid question items and 5 valid questions on the availability of COVID-19 health protocols media variable with a reliability test result of (0.658), and 2 invalid question items and 10 valid questions on the HWWS compliance variable with a reliability test result of (0.860).

2.3. Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value<5 and a significant level of 5%. Fisher's test is an alternative to the chi-square test and also non-parametric test.

2.4. Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the research ethics committee Universitas Ahmad Dahlan. As a category of health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including severe acute respiratory syndrome (SARS), hemagglutinin tipe 1 dan neuraminidase tipe 1 (H1N1) influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Table 1. Characteristics of respondent at beach tourism place, Bantul, Indonesia (n=60)

Variables	n	Percentage (%)
Gender		
Male	42	70.0
Female	18	30.0
Age		
<45	34	56.7
46-79	26	43.3
Education level		
Low	15	25.0
High	45	75.0

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged<45 years as many as 34 (56.7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73.3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Table 2. The availability of hand washing facilities, availability of health protocols media for COVID-19, and HWWS compliance level among beach tourism workers in Bantul, Indonesia

Variables	n	Percentage (%)
Availability of hand washing facilities		
Not support	16	26.7
Support	44	73.3
Availability of health protocols media for COVID-19		
Not support	7	11.7
Support	53	88.3
HWWS compliance level		
Poor	10	16.7
Good	50	83.3

Several hand washing facilities in Bantul beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria/viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: i) 36% mouth; ii) 31% nose; iii) 27% eyes; and iv) 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88.3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83.3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22.4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance (HWC) is a public health effort [38]. It has also been investigated whether the use HWC visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will mak a person feel responsible for his health [40].

Table 3. Correlation between availability of hand washing facilities and availability of COVID-19 health protocols media with HWWS compliance level among beach tourism workers in Bantul, Indonesia

Variables	HWWS compliance level		Total number	RP (95% CI)	*P Value*
	Poor n (%)	Good n (%)	N (%)		
Availability of hand washing facilities					
Not support	6 (10)	10 (16.7)	16 (26.7)	6 (1.418-25.387)	0.017
Support	4 (6.7)	40 (66.7)	44 (73.3)		
Availability of COVID-19 health protocols media				0.8	
Not support	1 (1.7)	6 (10)	7 (11.7)	(0.087-7.617)	1.000
Support	9 (15)	44 (73.3)	53 (88.3)		

Bivariate analysis in this study was used to look at the relationship between independet variables and dependent variables distribution based using the Fisher’s test. Based on Table 3, it can be seen that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p<0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% confidence interval (CI) value (1.418-25.387) and a prevalence ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of COVID-19 health protocols media variable obtained a p-value of 1,000 ($p>0.05$), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

The previous studies support this study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing

facilities and cleansing agents [34]. The scientific proof for the implications of mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to the united nations educational scientific and cultural organization (UNESCO) findings, the reading habits of Indonesian people in low category, only 1 in 1,000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study were consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30.8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed , so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46], [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers.

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in “support” category and the beach workers have “good” compliance level of HWWS. In addition, our finding study highlighted that the availability of hand washing facilities was relationship with HWWS compliance level among beach tourism workers. The government's role for beach tourism workers is required by monitoring and evaluating health behavior practice and already increasing the availability of HWWS facilities and adjusting to relevant COVID-19 health protocols media in an effort to reduce the transmission rate of COVID-19 in public facilities.

ACKNOWLEDGEMENTS

The authors would like to thank all the participants for their sincere cooperation. This study was funded by the Universitas Ahmad Dahlan, Indonesia, with an identity (ID) contract (PD-248/SP3/LPPM-UAD/VI/2021).

REFERENCES

[1] World Health Organization, “WHO coronavirus (COVID-19) dashboard,” *World Health Organization*, 2021. https://covid19.who.int/region/searo/country/id (accessed Nov. 21, 2021).

[2] Ministry of Health, “The latest situation of the development of coronavirus disease (COVID-19) March 21, 2021,” *Ministry of Health*, 2021. www.Kemkes.go.id (accessed Nov. 21, 2021).

[3] K. Karyono, R. Rohadin, and D. Indriyani, “Handling and prevention of the corona virus outbreak (COVID-19) in Indramayu Regency,” *Jurnal Kolaborasi Resolusi Konflik*, vol. 2, no. 2, pp. 164–173, Aug. 2020, doi: 10.24198/jkrk.v2i2.29127.

[4] E. Yanti, N. Fridalni, and H. Harmawati, “Prevent transmission of coronavirus,” *Jurnal Abdimas Saintika*, vol. 2, no. 1, pp. 33–39, 2020, doi: 10.30633/jas.v2i1.553.

[5] I. Izzaty, “Government policy in handling panic buying due to COVID-19,” *Info Singkat*, vol. 12, no. 5, pp. 19–24, 2020, [Online]. Available: https://berkas.dpr.go.id/sipinter/files/sipinter-624-478-20200707164632.pdf

[6] D. K. Lamichhane, S. Shrestha, and H.-C. Kim, “District-level risk factors for COVID-19 incidence and mortality in Nepal,” *International Journal of Environmental Research and Public Health*, vol. 19, no. 5, pp. 2659–2672, Feb. 2022, doi: 10.3390/ijerph19052659.

[7] World Health Organization, “Water, sanitation, hygiene and waste management for the COVID-19 virus,” *World Health Organisation*, 2020. https://apps.who.int/iris/handle/10665/331499 (accessed Nov. 21, 2021).

[8] T. Jefferson *et al.*, “Interventions for the interruption or reduction of the spread of respiratory viruses,” in *Cochrane Database of Systematic Reviews*, no. 4, T. Jefferson, Ed. Chichester: John Wiley & Sons, Ltd, 2007, pp. 1465–1858. doi: 10.1002/14651858.CD006207.pub2.

[9] N. Sharif *et al.*, "Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study," *PLoS ONE*, vol. 16, no. 11, pp. 1–13, Nov. 2021, doi: 10.1371/journal.pone.0260287.
[10] L. Khedmat, "New coronavirus (2019-nCoV): An insight toward preventive actions and natural medicine," *International Journal of Travel Medicine and Global Health*, vol. 8, no. 1, pp. 44–45, Mar. 2020, doi: 10.34172/ijtmgh.2020.07.
[11] D. Prastiwi and M. A. Anindhita, "Education on covid-19 prevention health protocols in the new normal era at youth youth organizations in Batang Regency," *Abdimas*, vol. 2, no. 1, pp. 25–29, 2021, [Online]. Available: https://jurnal.unikal.ac.id/index.php/abdimas/article/view/1292
[12] Y. Nuriati, A. Heryana, I. S. Mustikawati, and N. W. Sangadji, "Employee perception of the availability of COVID-19 facilities and means of handling in the workplace is related to compliance," *Jurnal Kesehatan Masyarakat*, vol. 9, no. 4, pp. 566–575, 2021, doi: 10.14710/jkm.v9i4.30224.
[13] F. Kasim, B. Satria, B. Wasliati, K. Sitepu, I. N. Saputri, and H. G. Sihite, "Factors relating to public compliance with the COVID-19 health protocol," *Jurnal Kesmas Dan Gizi (Jkg)*, vol. 3, no. 2, pp. 207–212, Apr. 2021, doi: 10.35451/jkg.v3i2.687.
[14] M. S. Pulungan, "The role of students in socializing the COVID-19 health protocol through the KKL DR IAIN Padangsidimpuan program," *Jurnal At-Taghyir*, vol. 2, no. 2, pp. 291–308, 2020, doi: 10.24952/taghyir.v2i2.2727.
[15] W. Suprihatin, "Analysis of consumer behavior of tourists era cCOVID-19 pandemic (tourism case study in West Nusa Tenggara)," *Jurnal Bestari*, vol. 1, no. 1, pp. 56–66, 2020, [Online]. Available: https://jurnalbestari.ntbprov.go.id/index.php/bestari1/article/view/9
[16] N. Karlina, D. Muhafidin, and E. Susanti, "Implementation of the COVID-19 protocol in ecotourism-based agrotourism management in the pandemic period," *Sawala : Jurnal pengabdian Masyarakat Pembangunan Sosial, Desa dan Masyarakat*, vol. 2, no. 1, pp. 28–36, Jan. 2021, doi: 10.24198/sawala.v2i1.29921.
[17] Q. X. Ma, H. Shan, H. L. Zhang, G. M. Li, R. M. Yang, and J. M. Chen, "Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2," *Journal of Medical Virology*, vol. 92, no. 9, pp. 1567–1571, 2020, doi: 10.1002/jmv.25805.
[18] M. C. Freeman *et al.*, "Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza Province, Kenya: A cluster-randomized trial," *Tropical Medicine & International Health*, vol. 17, no. 3, pp. 380–391, Dec. 2012, doi: 10.1111/j.1365-3156.2011.02927.x.
[19] A. Przekwas and Z. Chen, "Washing hands and the face may reduce COVID-19 infection," *Medical Hypotheses*, vol. 144, p. 110261, Nov. 2020, doi: 10.1016/j.mehy.2020.110261.
[20] A. Yulianto, "Analysis of favorite tourist sttractions based on number of visitors in the Special Region of Yogyakarta," *Media Wisata*, vol. 15, no. 2, pp. 555–567, Jun. 2021, doi: 10.36276/mws.v15i2.109.
[21] F. Damasdino, "Study of characteristics of tourists and development efforts, thematic tourism products in Goa Cemara beach, Kuwaru Beach, and Pandansimo Baru beach Bantul Regency," *Media Wisata*, vol. 13, no. 2, pp. 308–320, Sep. 2021, doi: 10.36276/mws.v13i2.224.
[22] Bantul Health Service, "Bantul prepadness to COVID-19," *Bantul government*, 2021. https://corona.bantulkab.go.id/ (accessed Jul. 17, 2021).
[23] S. Zielinski and C. M. Botero, "Beach tourism in times of COVID-19 pandemic: Critical issues, knowledge gaps and research opportunities," *International Journal of Environmental Research and Public Health*, vol. 17, no. 19, pp. 1–19, Oct. 2020, doi: 10.3390/ijerph17197288.
[24] M. D. Hillier, "Using effective hand hygiene practice to prevent and control infection," *Nursing Standard*, vol. 35, no. 5, pp. 45–50, Apr. 2020, doi: 10.7748/ns.2020.e11552.
[25] S. Notoatmodjo, *Health research methodology*. Jakarta: Rineka Cipta, 2014.
[26] A. Riyanto, *Application of health methodology*, Edisi 1. Yogyakarta: Nuha Medika, 2011.
[27] J. S. W. Wong and J. K. F. Lee, "The common missed handwashing instances and areas after 15 years of hand-hygiene education," *Journal of Environmental and Public Health*, pp. 1–7, Aug. 2019, doi: 10.1155/2019/5928924.
[28] P. T. James, A. Kunoor, and P. S. Rakesh, "Awareness of health care workers, patients and visitors regarding air borne infection control–a descriptive study from a tertiary care centre in Kerala, Southern India," *Indian Journal of Tuberculosis*, vol. 65, no. 2, pp. 168–171, Apr. 2018, doi: 10.1016/j.ijtb.2017.08.028.
[29] O. Al-Wutayd, A. E. Mansour, A. H. Aldosary, H. Z. Hamdan, and M. A. Al-Batanony, "Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study," *Scientific Reports*, vol. 11, no. 1, pp. 1–12, Dec. 2021, doi: 10.1038/s41598-021-96393-6.
[30] K. Kusmiyati, E. R. Sinaga, and W. Wanti, "Hand washing habits, condition of hand washing facilities and the presence of E.Coli on the hands of food vendors in restaurants in the Oebobo Kupang health center work area in 2012," *Jurnal Info Kesehatan*, vol. 11, no. 2, pp. 417–427, 2012, [Online]. Available: https://jurnal.poltekeskupang.ac.id/index.php/infokes/article/view/27
[31] L. H. Kwong, A. Ercumen, A. J. Pickering, L. Unicomb, J. Davis, and S. P. Luby, "Age-related changes to environmental exposure: Variation in the frequency that young children place hands and objects in their mouths," *Journal of Exposure Science and Environmental Epidemiology*, vol. 30, no. 1, pp. 205–216, 2020, doi: 10.1038/s41370-019-0115-8.
[32] Y. L. A. Kwok, J. Gralton, and M. L. McLaws, "Face touching: A frequent habit that has implications for hand hygiene," *American Journal of Infection Control*, vol. 43, no. 2, pp. 112–114, 2015, doi: 10.1016/j.ajic.2014.10.015.
[33] Centers for Disease Control and Prevention, "Show me the science–how to wash your hands," *CDC*, 2020. https://www.cdc.gov/handwashing/show-me-the-science-handwashing.html (accessed Dec. 05, 2021).
[34] M. Islam *et al.*, "Effectiveness of mass media campaigns to improve handwashing-related behavior, knowledge, and practices in Rural Bangladesh," *American Journal of Tropical Medicine and Hygiene*, vol. 104, no. 4, pp. 1546–1553, Apr. 2021, doi: 10.4269/ajtmh.20-1154.
[35] F. Hikmawati, *Counseling guidance*. Jakarta: King Grafindo Persada, 2011.
[36] A. Mulyawan, R. Sekarsari, N. Nuraini, and E. Budi, "Overview of community compliance level in the implementation of post vaccination health protocol COVID-19," *Edu Dharma Journal: Jurnal penelitian dan pengabdian masyarakat*, vol. 5, no. 2, pp. 43–51, Sep. 2021, doi: 10.52031/edj.v5i2.175.
[37] S. Miller, L. Yardley, and P. Little, "Development of an intervention to reduce transmission of respiratory infections and pandemic flu: Measuring and predicting hand-washing intentions," *Psychology, Health & Medicine*, vol. 17, no. 1, pp. 59–81, Jan. 2012, doi: 10.1080/13548506.2011.564188.
[38] J. R. B. Halbesleben, C. Rathert, and S. F. Bennett, "Measuring nursing workarounds," *JONA: The Journal of Nursing Administration*, vol. 43, no. 1, pp. 50–55, Jan. 2013, doi: 10.1097/NNA.0b013e31827860ff.
[39] E. W. Ford, B. T. Boyer, N. Menachemi, and T. R. Huerta, "Increasing hand washing compliance with a simple visual cue," *American Journal of Public Health*, vol. 104, no. 10, pp. 1851–1856, Oct. 2014, doi: 10.2105/AJPH.2013.301477.

[40] I. Samidah, M. Murwati, and S. Sulastri, "The influence of health education in complying with the COVID-19 health protocol in Pondok Batu village of Mukomuko Regency in 2020," *Journal of Nursing and Public Health*, vol. 9, no. 1, pp. 35–39, Jun. 2021, doi: 10.37676/jnph.v9i1.1434.
[41] G. Howard *et al.*, "COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics," *Journal of Water and Health*, vol. 18, no. 5, pp. 613–630, Oct. 2020, doi: 10.2166/wh.2020.162.
[42] C. C. Alexander *et al.*, "Media access is associated with knowledge of optimalwater, sanitation and hygiene practices in Tanzania," *International Journal of Environmental Research and Public Health*, vol. 16, no. 11, pp. 1–10, Jun. 2019, doi: 10.3390/ijerph16111963.
[43] E. Tjoa, C. Mahendra, S. Suryanto, S. Theresia, M. Wirjanata, and D. A. Soeselo, "Hand hygiene knowledge, perception, and compliance among healthcare workers," *International Journal of Public Health Science (IJPHS)*, vol. 11, no. 2, pp. 405–416, Jun. 2022, doi: 10.11591/ijphs.v11i2.21263.
[44] P. Wiedarti *et al.*, *School literacy movement master design*. Jakarta: Directorate General of Primary and Secondary Education, Ministry of Education and Culture, 2018.
[45] N. Mukminah, V. T. Istiarti, and S. BM, "Factors related to hand washing practices using soap in elementary school students in the working area of Banyuurip Purworejo health center," *Jurnal Kesehatan Masyarakat*, vol. 4, no. 5, pp. 354–361, 2016, doi: 10.14710/jkm.v4i5.14628.
[46] D. A. C. Situmorang, "Application of hand washing using soap in the elderly in preventing COVID-19 analyse in nursing home winners Of Medan city," M.S. thesis, Dept. Public Health, Univ., Sumatera Utara, Medan, Indonesia, 2021. [Online]. Available: https://repositori.usu.ac.id/handle/123456789/31778
[47] Ministry of Health, "Ministry of health No. HK.01.07/MENKES/382/2020 on public health protocols in places and public facilities in the framework of prevention and control of corona virus disease 2019 (COVID-19)." Ministry of Health, Jakarta, pp. 8–15, 2020.

BIOGRAPHY OF AUTHORS

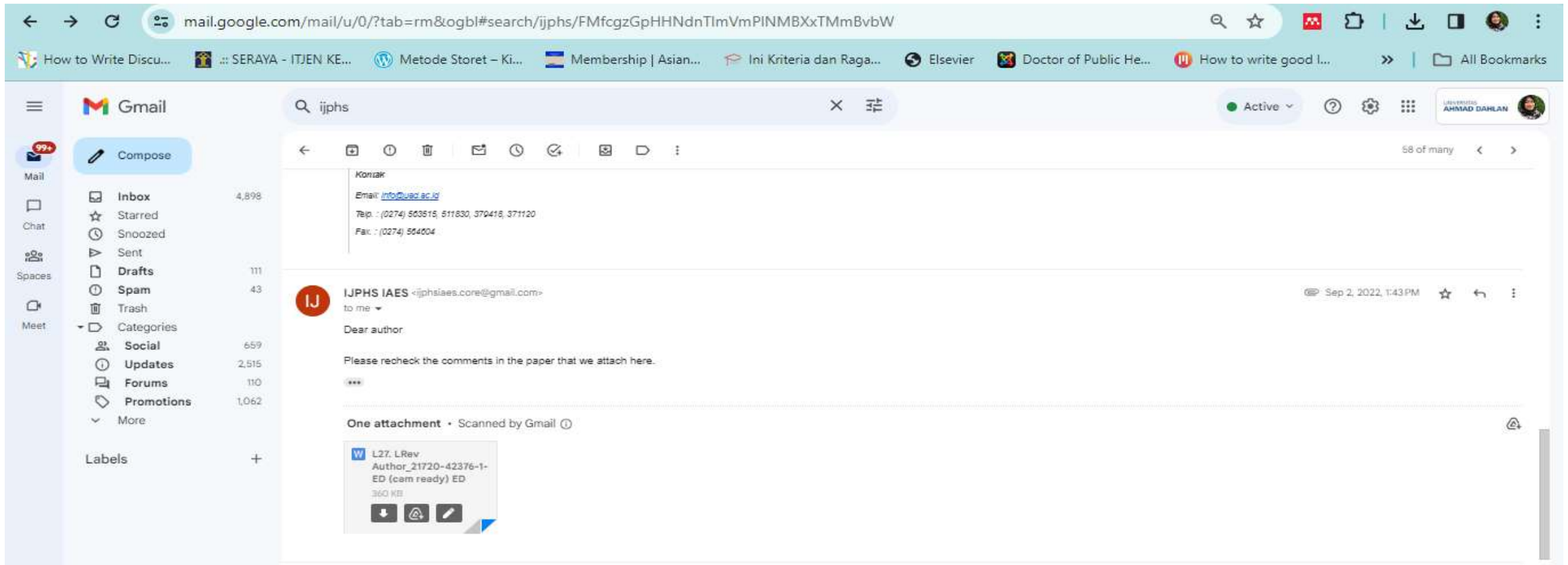
Musfirah, S.Si., M.Kes. is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. Author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email: musfirah@ikm.uad.ac.id.

Ahmad Faizal Rangkuti, SKM., M.Kes. is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email: faizal.rangkuti@ikm.uad.ac.id.

Fenni Nurul Khotimah is bachelor degree graduated on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest on environmental health aspect with focused health tourism. She can be contacted at email: fenninurulkhotimah11@gmail.com.

9. Permintaan Pengecekan/Proofreading Ke-1 manuskrip (siap publish) oleh pengelola jurnal

Bukti Email :



9. Hasil Review Proofreading ke-1 (siap publish) manuskrip oleh pengelola jurnal

International Journal of Public Health Science (IJPHS)
Vol. 11, No. 4, December 2022, pp. 1~1x
ISSN: 2252-8806, DOI: 10.11591/ijphs.v11i4.paperID

Factors influencing hand washing with soap compliance level among beach tourism workers

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jan 08, 2022
Revised June 30, 2022
Accepted month dd, yyyy

Keywords:

Beach tourism workers
Compliance level
COVID-19
Facilities
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent coronavirus disease 2019 (COVID-19) spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with hand washing with soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers recruited using total sampling technique from September to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and Fisher's tests are used in the analysis. The findings demonstrated that majority of respondents support the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan
Jl. Prof. Dr. Soepomo, Janturan, Umbulharjo, Yogyakarta, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as coronavirus disease 2019 (COVID-19). COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and

education, hand hygiene is an important factor to increase the incidence of COVID 19 [6]. Therefore, facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within five meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12]. In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a “new normal” policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the COVID-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to regional original income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but hand washing with soap (HWWS) are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Special Region of Yogyakarta, Indonesia.

2. RESEARCH METHOD

2.1. Study design and data collection

This was cross-sectional study employed quantitative analysis. This study measured the availability of hand washing facilities, health protocol media, and the level of HWWS compliance among beach workers. Data collection was carried out on three beaches in Bantul Regency, namely Prangtritis beach, Goa Cemara beach, and Baru beach from September, 2021 to November, 2021.

The population in this study were 60 workers who worked on Parangtritis beach, Goa Cemara beach and Baru beach. The sampling technique was"total sampling" due to the small number of population. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis beach, 23 respondents at Baru beach, and 14 respondents at Goa Cemara beach. Beach tourism workers in this study were people who participated in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a Likert scale consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "not Support" category is given for respondent answer<(mean value=4.7) and "support" category is given respondent answer≥(mean value=4.7). Assessment of the questionnaire about availability of health protocol media uses the Guttman scale which consists of 5 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer<(mean value=14) and "support" category is given respondent answer≥(mean value=14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the Guttman scale which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while the 1 unfovarable question answer with the answer "yes" is given a score of 0 and the answer "no" is given a score of 1. The questionnaire has cutting point "poor" category is given for respondent answer<(mean value=9) and "good" category is given respondent answer≥(mean value=9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari beach, Gadingsari village, Sanden district, Bantul Regency, Special Region of Yogyakarta which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the Person correlation product moment, question items are valid if the test results are known that r count≥r table [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with Cronbach's alpha, the measuring instrument is said to be reliable if the value of Cronbach's alpha constant≥(0.6) [26].

Based on the results of the validity and reliability tests, there are 1 invalid question item the results obtained on the availability of hand washing facilities variable and 5 valid questions with a reliability test result of (0.618), 2 invalid question items and 5 valid questions on the availability of COVID-19 health protocols media variable with a reliability test result of (0.658), and 2 invalid question items and 10 valid questions on the HWWS compliance variable with a reliability test result of (0.860).

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2.3. Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value<5 and a significant level of 5%. Fisher's test is an alternative to the Chi-square test and also non-parametric test.

2.4. Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the research ethics committee Universitas Ahmad Dahlan. It was categorized as health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including severe acute respiratory syndrome (SARS), hemagglutinin tipe 1 dan neuraminidase tipe 1 (H1N1) influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Table 1. Characteristics of respondent

Variables	n	Percentage (%)
Gender		
Male	42	70.0
Female	18	30.0
Age		
<45	34	56.7
46-79	26	43.3
Education level		
Low	15	25.0
High	45	75.0

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged<45 years as many as 34 (56.7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73.3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Table 2. The availability of hand washing facilities, availability of health protocols media for COVID-19, and HWWS compliance level among beach tourism workers

Variables	n	Percentage (%)
Availability of hand washing facilities		
Not support	16	26.7
Support	44	73.3
Availability of health protocols media for COVID-19		
Not support	7	11.7
Support	53	88.3
HWWS compliance level		
Poor	10	16.7
Good	50	83.3

Several hand washing facilities in Bantul beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria/viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: i) 36% mouth; ii) 31% nose; iii) 27% eyes; and iv) 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88.3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83.3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22.4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance (HWC) is a public health effort [38]. It has also been investigated whether the use HWC visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will make a person feel responsible for his/her health [40].

Table 3. Correlation between availability of hand washing facilities and availability of COVID-19 health protocols media with HWWS compliance level among beach tourism workers

Variables	HWWS compliance level		Total number	RP (95% CI)	P Value
	Poor n (%)	Good n (%)	N (%)		
Availability of hand washing facilities					
Not support	6 (10)	10 (16.7)	16 (26.7)	6 (1.418-25.387)	0.017
Support	4 (6.7)	40 (66.7)	44 (73.3)		
Availability of COVID-19 health protocols media				0.8 (0.087-7.617)	
Not support	1 (1.7)	6 (10)	7 (11.7)		1.000
Support	9 (15)	44 (73.3)	53 (88.3)		

Bivariate analysis (Fisher’s test) in this study was used to determine the relationship between independet variables and dependent variables. Table 3 shows that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p<0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% confidence interval (CI) value (1.418-25.387) and a prevalence ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of COVID-19 health protocols media variable obtained a p-value of 1,000 ($p>0.05$), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

The previous study is similar with this current study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [34]. The scientific proof for the implications of

mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to the united nations educational scientific and cultural organization (UNESCO) findings, the reading habits of Indonesian people in low category, only 1 in 1,000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study is consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30.8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed, so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46], [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers.

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in "support" category and the beach workers have "good" compliance level of HWWS. In addition, our finding highlighted that the availability of hand washing facilities was related to HWWS compliance level among beach tourism workers. The government's role for beach tourism workers is required by monitoring and evaluating health behavior practice and increasing the availability of HWWS facilities and adjusting to relevant COVID-19 health protocols media in an effort to reduce the transmission rate of COVID-19 in public facilities.

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ACKNOWLEDGEMENTS

This study was funded by the Universitas Ahmad Dahlan, Indonesia, with contract no. PD-248/SP3/LPPM-UAD/VI/2021.

REFERENCES

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[1] World Health Organization, "WHO coronavirus (COVID-19) dashboard," *World Health Organization*, 2021. https://covid19.who.int/region/searo/country/id (accessed Nov. 21, 2021).

[2] Ministry of Health, "The latest situation of the development of coronavirus disease (COVID-19) March 21, 2021," *Ministry of Health*, 2021. www.Kemkes.go.id (accessed Nov. 21, 2021).

[3] K. Karyono, R. Rohadin, and D. Indriyani, "Handling and prevention of the corona virus outbreak (COVID-19) in Indramayu Regency," *Jurnal Kolaborasi Resolusi Konflik*, vol. 2, no. 2, pp. 164–173, Aug. 2020, doi: 10.24198/jkrk.v2i2.29127.

[4] E. Yanti, N. Fridalni, and H. Harmawati, "Prevent transmission of coronavirus," *Jurnal Abdimas Saintika*, vol. 2, no. 1, pp. 33–39, 2020, doi: 10.30633/jas.v2i1.553.

[5] I. Izzaty, "Government policy in handling panic buying due to COVID-19," *Info Singkat*, vol. 12, no. 5, pp. 19–24, 2020, [Online]. Available: https://berkas.dpr.go.id/sipinter/files/sipinter-624-478-20200707164632.pdf

[6] D. K. Lamichhane, S. Shrestha, and H.-C. Kim, "District-level risk factors for COVID-19 incidence and mortality in Nepal," *International Journal of Environmental Research and Public Health*, vol. 19, no. 5, pp. 2659–2672, Feb. 2022, doi: 10.3390/ijerph19052659.

[7] World Health Organization, "Water, sanitation, hygiene and waste management for the COVID-19 virus," *World Health Organisation*, 2020. https://apps.who.int/iris/handle/10665/331499 (accessed Nov. 21, 2021).

[8] T. Jefferson *et al.*, "Interventions for the interruption or reduction of the spread of respiratory viruses," in *Cochrane Database of Systematic Reviews*, no. 4, T. Jefferson, Ed. Chichester: John Wiley & Sons, Ltd, 2007, pp. 1465–1858. doi: 10.1002/14651858.CD006207.pub2.

[9] N. Sharif *et al.*, "Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study," *PLoS ONE*, vol. 16, no. 11, pp. 1–13, Nov. 2021, doi: 10.1371/journal.pone.0260287.

[10] L. Khedmat, "New coronavirus (2019-nCoV): An insight toward preventive actions and natural medicine," *International Journal of Travel Medicine and Global Health*, vol. 8, no. 1, pp. 44–45, Mar. 2020, doi: 10.34172/ijtmgh.2020.07.
[11] D. Prastiwi and M. A. Anindhita, "Education on covid-19 prevention health protocols in the new normal era at youth youth organizations in Batang Regency," *Abdimas*, vol. 2, no. 1, pp. 25–29, 2021, [Online]. Available: https://jurnal.unikal.ac.id/index.php/abdimas/article/view/1292
[12] Y. Nuriati, A. Heryana, I. S. Mustikawati, and N. W. Sangadji, "Employee perception of the availability of COVID-19 facilities and means of handling in the workplace is related to compliance," *Jurnal Kesehatan Masyarakat*, vol. 9, no. 4, pp. 566–575, 2021, doi: 10.14710/jkm.v9i4.30224.
[13] F. Kasim, B. Satria, B. Wasliati, K. Sitepu, I. N. Saputri, and H. G. Sihite, "Factors relating to public compliance with the COVID-19 health protocol," *Jurnal Kesmas Dan Gizi (Jkg)*, vol. 3, no. 2, pp. 207–212, Apr. 2021, doi: 10.35451/jkg.v3i2.687.
[14] M. S. Pulungan, "The role of students in socializing the COVID-19 health protocol through the KKL DR IAIN Padangsidimpuan program," *Jurnal At-Taghyir*, vol. 2, no. 2, pp. 291–308, 2020, doi: 10.24952/taghyir.v2i2.2727.
[15] W. Suprihatin, "Analysis of consumer behavior of tourists era cCOVID-19 pandemic (tourism case study in West Nusa Tenggara)," *Jurnal Bestari*, vol. 1, no. 1, pp. 56–66, 2020, [Online]. Available: https://jurnalbestari.ntbprov.go.id/index.php/bestari1/article/view/9
[16] N. Karlina, D. Muhafidin, and E. Susanti, "Implementation of the COVID-19 protocol in ecotourism-based agrotourism management in the pandemic period," *Sawala : Jurnal pengabdian Masyarakat Pembangunan Sosial, Desa dan Masyarakat*, vol. 2, no. 1, pp. 28–36, Jan. 2021, doi: 10.24198/sawala.v2i1.29921.
[17] Q. X. Ma, H. Shan, H. L. Zhang, G. M. Li, R. M. Yang, and J. M. Chen, "Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2," *Journal of Medical Virology*, vol. 92, no. 9, pp. 1567–1571, 2020, doi: 10.1002/jmv.25805.
[18] M. C. Freeman *et al.*, "Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza Province, Kenya: A cluster-randomized trial," *Tropical Medicine & International Health*, vol. 17, no. 3, pp. 380–391, Dec. 2012, doi: 10.1111/j.1365-3156.2011.02927.x.
[19] A. Przekwas and Z. Chen, "Washing hands and the face may reduce COVID-19 infection," *Medical Hypotheses*, vol. 144, p. 110261, Nov. 2020, doi: 10.1016/j.mehy.2020.110261.
[20] A. Yulianto, "Analysis of favorite tourist sttractions based on number of visitors in the Special Region of Yogyakarta," *Media Wisata*, vol. 15, no. 2, pp. 555–567, Jun. 2021, doi: 10.36276/mws.v15i2.109.
[21] F. Damasdino, "Study of characteristics of tourists and development efforts, thematic tourism products in Goa Cemara beach, Kuwaru Beach, and Pandansimo Baru beach Bantul Regency," *Media Wisata*, vol. 13, no. 2, pp. 308–320, Sep. 2021, doi: 10.36276/mws.v13i2.224.
[22] Bantul Health Service, "Bantul prepadness to COVID-19," *Bantul government*, 2021. https://corona.bantulkab.go.id/ (accessed Jul. 17, 2021).
[23] S. Zielinski and C. M. Botero, "Beach tourism in times of COVID-19 pandemic: Critical issues, knowledge gaps and research opportunities," *International Journal of Environmental Research and Public Health*, vol. 17, no. 19, pp. 1–19, Oct. 2020, doi: 10.3390/ijerph17197288.
[24] M. D. Hillier, "Using effective hand hygiene practice to prevent and control infection," *Nursing Standard*, vol. 35, no. 5, pp. 45–50, Apr. 2020, doi: 10.7748/ns.2020.e11552.
[25] S. Notoatmodjo, *Health research methodology*. Jakarta: Rineka Cipta, 2014.
[26] A. Riyanto, *Application of health methodology*, Edisi 1. Yogyakarta: Nuha Medika, 2011.
[27] J. S. W. Wong and J. K. F. Lee, "The common missed handwashing instances and areas after 15 years of hand-hygiene education," *Journal of Environmental and Public Health*, pp. 1–7, Aug. 2019, doi: 10.1155/2019/5928924.
[28] P. T. James, A. Kunoor, and P. S. Rakesh, "Awareness of health care workers, patients and visitors regarding air borne infection control–a descriptive study from a tertiary care centre in Kerala, Southern India," *Indian Journal of Tuberculosis*, vol. 65, no. 2, pp. 168–171, Apr. 2018, doi: 10.1016/j.ijtb.2017.08.028.
[29] O. Al-Wutayd, A. E. Mansour, A. H. Aldosary, H. Z. Hamdan, and M. A. Al-Batanony, "Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study," *Scientific Reports*, vol. 11, no. 1, pp. 1–12, Dec. 2021, doi: 10.1038/s41598-021-96393-6.
[30] K. Kusmiyati, E. R. Sinaga, and W. Wanti, "Hand washing habits, condition of hand washing facilities and the presence of E.Coli on the hands of food vendors in restaurants in the Oebobo Kupang health center work area in 2012," *Jurnal Info Kesehatan*, vol. 11, no. 2, pp. 417–427, 2012, [Online]. Available: https://jurnal.poltekeskupang.ac.id/index.php/infokes/article/view/27
[31] L. H. Kwong, A. Ercumen, A. J. Pickering, L. Unicomb, J. Davis, and S. P. Luby, "Age-related changes to environmental exposure: Variation in the frequency that young children place hands and objects in their mouths," *Journal of Exposure Science and Environmental Epidemiology*, vol. 30, no. 1, pp. 205–216, 2020, doi: 10.1038/s41370-019-0115-8.
[32] Y. L. A. Kwok, J. Gralton, and M. L. McLaws, "Face touching: A frequent habit that has implications for hand hygiene," *American Journal of Infection Control*, vol. 43, no. 2, pp. 112–114, 2015, doi: 10.1016/j.ajic.2014.10.015.
[33] Centers for Disease Control and Prevention, "Show me the science–how to wash your hands," *CDC*, 2020. https://www.cdc.gov/handwashing/show-me-the-science-handwashing.html (accessed Dec. 05, 2021).
[34] M. Islam *et al.*, "Effectiveness of mass media campaigns to improve handwashing-related behavior, knowledge, and practices in Rural Bangladesh," *American Journal of Tropical Medicine and Hygiene*, vol. 104, no. 4, pp. 1546–1553, Apr. 2021, doi: 10.4269/ajtmh.20-1154.
[35] F. Hikmawati, *Counseling guidance*. Jakarta: King Grafindo Persada, 2011.
[36] A. Mulyawan, R. Sekarsari, N. Nuraini, and E. Budi, "Overview of community compliance level in the implementation of post vaccination health protocol COVID-19," *Edu Dharma Journal: Jurnal penelitian dan pengabdian masyarakat*, vol. 5, no. 2, pp. 43–51, Sep. 2021, doi: 10.52031/edj.v5i2.175.
[37] S. Miller, L. Yardley, and P. Little, "Development of an intervention to reduce transmission of respiratory infections and pandemic flu: Measuring and predicting hand-washing intentions," *Psychology, Health & Medicine*, vol. 17, no. 1, pp. 59–81, Jan. 2012, doi: 10.1080/13548506.2011.564188.
[38] J. R. B. Halbesleben, C. Rathert, and S. F. Bennett, "Measuring nursing workarounds," *JONA: The Journal of Nursing Administration*, vol. 43, no. 1, pp. 50–55, Jan. 2013, doi: 10.1097/NNA.0b013e31827860ff.
[39] E. W. Ford, B. T. Boyer, N. Menachemi, and T. R. Huerta, "Increasing hand washing compliance with a simple visual cue," *American Journal of Public Health*, vol. 104, no. 10, pp. 1851–1856, Oct. 2014, doi: 10.2105/AJPH.2013.301477.
[40] I. Samidah, M. Murwati, and S. Sulastri, "The influence of health education in complying with the COVID-19 health protocol in Pondok Batu village of Mukomuko Regency in 2020," *Journal of Nursing and Public Health*, vol. 9, no. 1, pp. 35–39, Jun.

2021, doi: 10.37676/jnph.v9i1.1434.
[41] G. Howard *et al.*, "COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics," *Journal of Water and Health*, vol. 18, no. 5, pp. 613–630, Oct. 2020, doi: 10.2166/wh.2020.162.
[42] C. C. Alexander *et al.*, "Media access is associated with knowledge of optimalwater, sanitation and hygiene practices in Tanzania," *International Journal of Environmental Research and Public Health*, vol. 16, no. 11, pp. 1–10, Jun. 2019, doi: 10.3390/ijerph16111963.
[43] E. Tjoa, C. Mahendra, S. Suryanto, S. Theresia, M. Wirjanata, and D. A. Soeselo, "Hand hygiene knowledge, perception, and compliance among healthcare workers," *International Journal of Public Health Science (IJPHS)*, vol. 11, no. 2, pp. 405–416, Jun. 2022, doi: 10.11591/ijphs.v11i2.21263.
[44] P. Wiedarti *et al.*, *School literacy movement master design*. Jakarta: Directorate General of Primary and Secondary Education, Ministry of Education and Culture, 2018.
[45] N. Mukminah, V. T. Istiarti, and S. BM, "Factors related to hand washing practices using soap in elementary school students in the working area of Banyuurip Purworejo health center," *Jurnal Kesehatan Masyarakat*, vol. 4, no. 5, pp. 354–361, 2016, doi: 10.14710/jkm.v4i5.14628.
[46] D. A. C. Situmorang, "Application of hand washing using soap in the elderly in preventing COVID-19 analyse in nursing home winners Of Medan city," M.S. thesis, Dept. Public Health, Univ., Sumatera Utara, Medan, Indonesia, 2021. [Online]. Available: https://repositori.usu.ac.id/handle/123456789/31778
[47] Ministry of Health, "Ministry of health No. HK.01.07/MENKES/382/2020 on public health protocols in places and public facilities in the framework of prevention and control of corona virus disease 2019 (COVID-19)." Ministry of Health, Jakarta, pp. 8–15, 2020.

BIOGRAPHY OF AUTHORS

Musfirah is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. She is author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email: musfirah@ikm.uad.ac.id.

Ahmad Faizal Rangkuti is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email: faizal.rangkuti@ikm.uad.ac.id.

Fenni Nurul Khotimah is bachelor degree graduated from Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest is environmental health aspect with focused health tourism. She can be contacted at email: fenninurulkhotimah11@gmail.com.

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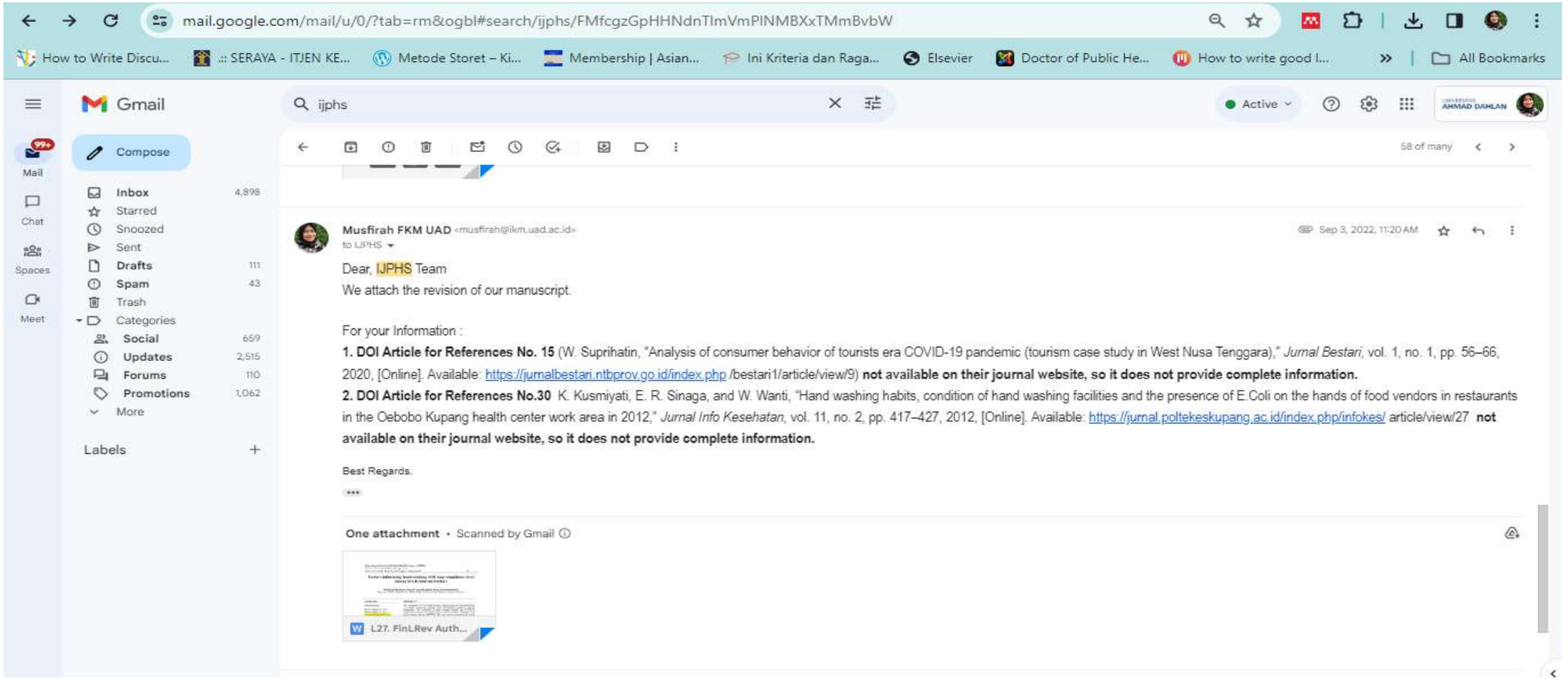

International Journal of Public Health Science (IJPHS)
Vol. 11, No. 4, December 2022, pp. 1~1x
ISSN: 2252-8806, DOI: 10.11591/ijphs.v11i4.paperID

Factors influencing hand washing with soap compliance level among beach tourism workers

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jan 08, 2022
Revised June 30, 2022
Accepted month dd, yyyy

Keywords:

Beach tourism workers
Compliance level
COVID-19
Facilities
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent coronavirus disease 2019 (COVID-19) spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with hand washing with soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers recruited using total sampling technique from September to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and Fisher's tests are used in the analysis. The findings demonstrated that majority of respondents support the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan
Jl. Prof. Dr. Soepomo, Janturan, Umbulharjo, Yogyakarta, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as coronavirus disease 2019 (COVID-19). COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and

education, hand hygiene is an important factor to increase the incidence of COVID 19 [6]. Therefore, facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within five meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12]. In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a “new normal” policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the COVID-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to regional original income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but hand washing with soap (HWWS) are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Special Region of Yogyakarta, Indonesia.

2. RESEARCH METHOD

2.1. Study design and data collection

This was cross-sectional study employed quantitative analysis. This study measured the availability of hand washing facilities, health protocol media, and the level of HWWS compliance among beach workers. Data collection was carried out on three beaches in Bantul Regency, namely Prangtritis beach, Goa Cemara beach, and Baru beach from September, 2021 to November, 2021.

The population in this study were 60 workers who worked on Parangtritis beach, Goa Cemara beach and Baru beach. The sampling technique was"total sampling" due to the small number of population. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis beach, 23 respondents at Baru beach, and 14 respondents at Goa Cemara beach. Beach tourism workers in this study were people who participated in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a Likert scale consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "not Support" category is given for respondent answer<(mean value=4.7) and "support" category is given respondent answer≥(mean value=4.7). Assessment of the questionnaire about availability of health protocol media uses the Guttman scale which consists of 5 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer<(mean value=14) and "support" category is given respondent answer≥(mean value=14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the Guttman scale which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while the 1 unfovarable question answer with the answer "yes" is given a score of 0 and the answer "no" is given a score of 1. The questionnaire has cutting point "poor" category is given for respondent answer<(mean value=9) and "good" category is given respondent answer≥(mean value=9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari beach, Gadingsari village, Sanden district, Bantul Regency, Special Region of Yogyakarta which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the Person correlation product moment, question items are valid if the test results are known that r count≥r table [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with Cronbach's alpha, the measuring instrument is said to be reliable if the value of Cronbach's alpha constant≥(0.6) [26].

Based on the validity and reliability tests, there are 1 invalid and 5 valid question items on the availability of hand washing facilities variable with a reliability test result of (0.618). the availability of COVID-19 health protocols media variable have 2 invalid and 5 valid question items with a reliability test result of (0.658). Then, there are 2 invalid and 10 valid question items on the HWWS compliance variable with a reliability test result of (0.860).

2.3. Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value<5 and a significant level of 5%. Fisher's test is an alternative to the Chi-square test and also non-parametric test.

2.4. Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the research ethics committee Universitas Ahmad Dahlan. It was categorized as health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including severe acute respiratory syndrome (SARS), hemagglutinin tipe 1 dan neuraminidase tipe 1 (H1N1) influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Table 1. Characteristics of respondent

Variables	n	Percentage (%)
Gender		
Male	42	70.0
Female	18	30.0
Age		
<45	34	56.7
46-79	26	43.3
Education level		
Low	15	25.0
High	45	75.0

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged<45 years as many as 34 (56.7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73.3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Table 2. The availability of hand washing facilities, availability of health protocols media for COVID-19, and HWWS compliance level among beach tourism workers

Variables	n	Percentage (%)
Availability of hand washing facilities		
Not support	16	26.7
Support	44	73.3
Availability of health protocols media for COVID-19		
Not support	7	11.7
Support	53	88.3
HWWS compliance level		
Poor	10	16.7
Good	50	83.3

Several hand washing facilities in Bantul beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria/viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: i) 36% mouth; ii) 31% nose; iii) 27% eyes; and iv) 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88.3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83.3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22.4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance (HWC) is a public health effort [38]. It has also been investigated whether the use HWC visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will make a person feel responsible for his/her health [40].

Table 3. Correlation between availability of hand washing facilities and availability of COVID-19 health protocols media with HWWS compliance level among beach tourism workers

Variables	HWWS compliance level		Total number	RP (95% CI)	P Value
	Poor	Good			
	n (%)	n (%)	N (%)		
Availability of hand washing facilities					
Not support	6 (10)	10 (16.7)	16 (26.7)	6 (1.418-25.387)	0.017
Support	4 (6.7)	40 (66.7)	44 (73.3)		
Availability of COVID-19 health protocols media					
Not support	1 (1.7)	6 (10)	7 (11.7)	0.8 (0.087-7.617)	1.000
Support	9 (15)	44 (73.3)	53 (88.3)		

Bivariate analysis (Fisher’s test) in this study was used to determine the relationship between independet variables and dependent variables. Table 3 shows that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p<0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% confidence interval (CI) value (1.418-25.387) and a prevalence ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of COVID-19 health protocols media variable obtained a p-value of 1,000 ($p>0.05$), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

The previous study is similar with this current study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [34]. The scientific proof for the implications of

mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to the united nations educational scientific and cultural organization (UNESCO) findings, the reading habits of Indonesian people in low category, only 1 in 1,000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study is consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30.8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed, so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46], [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers.

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in "support" category and the beach workers have "good" compliance level of HWWS. In addition, our finding highlighted that the availability of hand washing facilities was related to HWWS compliance level among beach tourism workers. In order to reduce the transmission rate of COVID-19 in public facilities, the government should monitor and evaluate health behavior practices, enhance the availability of HWWS facilities, and adjust to relevant COVID-19 health protocols media.

ACKNOWLEDGEMENTS

This study was funded by the Universitas Ahmad Dahlan, Indonesia, with contract no. PD-248/SP3/LPPM-UAD/VI/2021.

REFERENCES

[1] World Health Organization, "WHO coronavirus (COVID-19) dashboard," *World Health Organization*, 2021. https://covid19.who.int/region/searo/country/id (accessed Nov. 21, 2021).

[2] Ministry of Health, "The latest situation of the development of coronavirus disease (COVID-19) March 21, 2021," *Ministry of Health*, 2021. www.Kemkes.go.id (accessed Nov. 21, 2021).

[3] K. Karyono, R. Rohadin, and D. Indriyani, "Handling and prevention of the corona virus outbreak (COVID-19) in Indramayu Regency," *Jurnal Kolaborasi Resolusi Konflik*, vol. 2, no. 2, pp. 164–173, Aug. 2020, doi: 10.24198/jkrk.v2i2.29127.

[4] E. Yanti, N. Fridalni, and H. Harmawati, "Prevent transmission of coronavirus," *Jurnal Abdimas Saintika*, vol. 2, no. 1, pp. 33–39, 2020, doi: 10.30633/jas.v2i1.553.

[5] I. Izzaty, "Government policy in handling panic buying due to COVID-19," *Info Singkat*, vol. 12, no. 5, pp. 19–24, 2020, [Online]. Available: https://berkas.dpr.go.id/sipinter/files/sipinter-624-478-20200707164632.pdf

[6] D. K. Lamichhane, S. Shrestha, and H.-C. Kim, "District-level risk factors for COVID-19 incidence and mortality in Nepal," *International Journal of Environmental Research and Public Health*, vol. 19, no. 5, pp. 2659–2672, Feb. 2022, doi: 10.3390/ijerph19052659.

[7] World Health Organization, "Water, sanitation, hygiene and waste management for the COVID-19 virus," *World Health Organisation*, 2020. https://apps.who.int/iris/handle/10665/331499 (accessed Nov. 21, 2021).

[8] T. Jefferson *et al.*, "Interventions for the interruption or reduction of the spread of respiratory viruses," in *Cochrane Database of Systematic Reviews*, no. 4, T. Jefferson, Ed. Chichester: John Wiley & Sons, Ltd, 2007, pp. 1465–1858. doi: 10.1002/14651858.CD006207.pub2.

[9] N. Sharif *et al.*, "Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study," *PLoS ONE*, vol. 16, no. 11, pp. 1–13, Nov. 2021, doi: 10.1371/journal.pone.0260287.

[10] L. Khedmat, "New coronavirus (2019-nCoV): An insight toward preventive actions and natural medicine," *International Journal of Travel Medicine and Global Health*, vol. 8, no. 1, pp. 44–45, Mar. 2020, doi: 10.34172/ijtmgh.2020.07.

[11] D. Prastiwi and M. A. Anindhita, "Education on covid-19 prevention health protocols in the new normal era at youth youth organizations in Batang Regency," *Abdimas*, vol. 2, no. 1, pp. 25–29, 2021, [Online]. Available: https://jurnal.unikal.ac.id/index.php/abdimas/article/view/1292
[12] Y. Nuriati, A. Heryana, I. S. Mustikawati, and N. W. Sangadji, "Employee perception of the availability of COVID-19 facilities and means of handling in the workplace is related to compliance," *Jurnal Kesehatan Masyarakat*, vol. 9, no. 4, pp. 566–575, 2021, doi: 10.14710/jkm.v9i4.30224.
[13] F. Kasim, B. Satria, B. Wasliati, K. Sitepu, I. N. Saputri, and H. G. Sihite, "Factors relating to public compliance with the COVID-19 health protocol," *Jurnal Kesmas Dan Gizi (Jkg)*, vol. 3, no. 2, pp. 207–212, Apr. 2021, doi: 10.35451/jkg.v3i2.687.
[14] M. S. Pulungan, "The role of students in socializing the COVID-19 health protocol through the KKL DR IAIN Padangsidimpuan program," *Jurnal At-Taghyir*, vol. 2, no. 2, pp. 291–308, 2020, doi: 10.24952/taghyir.v2i2.2727.
[15] W. Suprihatin, "Analysis of consumer behavior of tourists era cCOVID-19 pandemic (tourism case study in West Nusa Tenggara)," *Jurnal Bestari*, vol. 1, no. 1, pp. 56–66, 2020, [Online]. Available: https://jurnalbestari.ntbprov.go.id/index.php/bestari1/article/view/9
[16] N. Karlina, D. Muhafidin, and E. Susanti, "Implementation of the COVID-19 protocol in ecotourism-based agrotourism management in the pandemic period," *Sawala : Jurnal pengabdian Masyarakat Pembangunan Sosial, Desa dan Masyarakat*, vol. 2, no. 1, pp. 28–36, Jan. 2021, doi: 10.24198/sawala.v2i1.29921.
[17] Q. X. Ma, H. Shan, H. L. Zhang, G. M. Li, R. M. Yang, and J. M. Chen, "Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2," *Journal of Medical Virology*, vol. 92, no. 9, pp. 1567–1571, 2020, doi: 10.1002/jmv.25805.
[18] M. C. Freeman *et al.*, "Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza Province, Kenya: A cluster-randomized trial," *Tropical Medicine & International Health*, vol. 17, no. 3, pp. 380–391, Dec. 2012, doi: 10.1111/j.1365-3156.2011.02927.x.
[19] A. Przekwas and Z. Chen, "Washing hands and the face may reduce COVID-19 infection," *Medical Hypotheses*, vol. 144, p. 110261, Nov. 2020, doi: 10.1016/j.mehy.2020.110261.
[20] A. Yulianto, "Analysis of favorite tourist sttractions based on number of visitors in the Special Region of Yogyakarta," *Media Wisata*, vol. 15, no. 2, pp. 555–567, Jun. 2021, doi: 10.36276/mws.v15i2.109.
[21] F. Damasdino, "Study of characteristics of tourists and development efforts, thematic tourism products in Goa Cemara beach, Kuwaru Beach, and Pandansimo Baru beach Bantul Regency," *Media Wisata*, vol. 13, no. 2, pp. 308–320, Sep. 2021, doi: 10.36276/mws.v13i2.224.
[22] Bantul Health Service, "Bantul prepadness to COVID-19," *Bantul government*, 2021. https://corona.bantulkab.go.id/ (accessed Jul. 17, 2021).
[23] S. Zielinski and C. M. Botero, "Beach tourism in times of COVID-19 pandemic: Critical issues, knowledge gaps and research opportunities," *International Journal of Environmental Research and Public Health*, vol. 17, no. 19, pp. 1–19, Oct. 2020, doi: 10.3390/ijerph17197288.
[24] M. D. Hillier, "Using effective hand hygiene practice to prevent and control infection," *Nursing Standard*, vol. 35, no. 5, pp. 45–50, Apr. 2020, doi: 10.7748/ns.2020.e11552.
[25] S. Notoatmodjo, *Health research methodology*. Jakarta: Rineka Cipta, 2014.
[26] A. Riyanto, *Application of health methodology*, Edisi 1. Yogyakarta: Nuha Medika, 2011.
[27] J. S. W. Wong and J. K. F. Lee, "The common missed handwashing instances and areas after 15 years of hand-hygiene education," *Journal of Environmental and Public Health*, pp. 1–7, Aug. 2019, doi: 10.1155/2019/5928924.
[28] P. T. James, A. Kunoor, and P. S. Rakesh, "Awareness of health care workers, patients and visitors regarding air borne infection control–a descriptive study from a tertiary care centre in Kerala, Southern India," *Indian Journal of Tuberculosis*, vol. 65, no. 2, pp. 168–171, Apr. 2018, doi: 10.1016/j.ijtb.2017.08.028.
[29] O. Al-Wutayd, A. E. Mansour, A. H. Aldosary, H. Z. Hamdan, and M. A. Al-Batanony, "Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study," *Scientific Reports*, vol. 11, no. 1, pp. 1–12, Dec. 2021, doi: 10.1038/s41598-021-96393-6.
[30] K. Kusmiyati, E. R. Sinaga, and W. Wanti, "Hand washing habits, condition of hand washing facilities and the presence of E.Coli on the hands of food vendors in restaurants in the Oebobo Kupang health center work area in 2012," *Jurnal Info Kesehatan*, vol. 11, no. 2, pp. 417–427, 2012, [Online]. Available: https://jurnal.poltekeskupang.ac.id/index.php/infokes/article/view/27
[31] L. H. Kwong, A. Ercumen, A. J. Pickering, L. Unicomb, J. Davis, and S. P. Luby, "Age-related changes to environmental exposure: Variation in the frequency that young children place hands and objects in their mouths," *Journal of Exposure Science and Environmental Epidemiology*, vol. 30, no. 1, pp. 205–216, 2020, doi: 10.1038/s41370-019-0115-8.
[32] Y. L. A. Kwok, J. Gralton, and M. L. McLaws, "Face touching: A frequent habit that has implications for hand hygiene," *American Journal of Infection Control*, vol. 43, no. 2, pp. 112–114, 2015, doi: 10.1016/j.ajic.2014.10.015.
[33] Centers for Disease Control and Prevention, "Show me the science–how to wash your hands," *CDC*, 2020. https://www.cdc.gov/handwashing/show-me-the-science-handwashing.html (accessed Dec. 05, 2021).
[34] M. Islam *et al.*, "Effectiveness of mass media campaigns to improve handwashing-related behavior, knowledge, and practices in Rural Bangladesh," *American Journal of Tropical Medicine and Hygiene*, vol. 104, no. 4, pp. 1546–1553, Apr. 2021, doi: 10.4269/ajtmh.20-1154.
[35] F. Hikmawati, *Counseling guidance*. Jakarta: King Grafindo Persada, 2011.
[36] A. Mulyawan, R. Sekarsari, N. Nuraini, and E. Budi, "Overview of community compliance level in the implementation of post vaccination health protocol COVID-19," *Edu Dharma Journal: Jurnal penelitian dan pengabdian masyarakat*, vol. 5, no. 2, pp. 43–51, Sep. 2021, doi: 10.52031/edj.v5i2.175.
[37] S. Miller, L. Yardley, and P. Little, "Development of an intervention to reduce transmission of respiratory infections and pandemic flu: Measuring and predicting hand-washing intentions," *Psychology, Health & Medicine*, vol. 17, no. 1, pp. 59–81, Jan. 2012, doi: 10.1080/13548506.2011.564188.
[38] J. R. B. Halbesleben, C. Rathert, and S. F. Bennett, "Measuring nursing workarounds," *JONA: The Journal of Nursing Administration*, vol. 43, no. 1, pp. 50–55, Jan. 2013, doi: 10.1097/NNA.0b013e31827860ff.
[39] E. W. Ford, B. T. Boyer, N. Menachemi, and T. R. Huerta, "Increasing hand washing compliance with a simple visual cue," *American Journal of Public Health*, vol. 104, no. 10, pp. 1851–1856, Oct. 2014, doi: 10.2105/AJPH.2013.301477.
[40] I. Samidah, M. Murwati, and S. Sulastri, "The influence of health education in complying with the COVID-19 health protocol in Pondok Batu village of Mukomuko Regency in 2020," *Journal of Nursing and Public Health*, vol. 9, no. 1, pp. 35–39, Jun. 2021, doi: 10.37676/jnph.v9i1.1434.
[41] G. Howard *et al.*, "COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and

future pandemics," *Journal of Water and Health*, vol. 18, no. 5, pp. 613–630, Oct. 2020, doi: 10.2166/wh.2020.162.
[42] C. C. Alexander *et al.*, "Media access is associated with knowledge of optimalwater, sanitation and hygiene practices in Tanzania," *International Journal of Environmental Research and Public Health*, vol. 16, no. 11, pp. 1–10, Jun. 2019, doi: 10.3390/ijerph16111963.
[43] E. Tjoa, C. Mahendra, S. Suryanto, S. Theresia, M. Wirjanata, and D. A. Soeselo, "Hand hygiene knowledge, perception, and compliance among healthcare workers," *International Journal of Public Health Science (IJPHS)*, vol. 11, no. 2, pp. 405–416, Jun. 2022, doi: 10.11591/ijphs.v11i2.21263.
[44] P. Wiedarti *et al.*, *School literacy movement master design*. Jakarta: Directorate General of Primary and Secondary Education, Ministry of Education and Culture, 2018.
[45] N. Mukminah, V. T. Istiarti, and S. BM, "Factors related to hand washing practices using soap in elementary school students in the working area of Banyuurip Purworejo health center," *Jurnal Kesehatan Masyarakat*, vol. 4, no. 5, pp. 354–361, 2016, doi: 10.14710/jkm.v4i5.14628.
[46] D. A. C. Situmorang, "Application of hand washing using soap in the elderly in preventing COVID-19 analyse in nursing home winners Of Medan city," M.S. thesis, Dept. Public Health, Univ., Sumatera Utara, Medan, Indonesia, 2021. [Online]. Available: https://repositori.usu.ac.id/handle/123456789/31778
[47] Ministry of Health, "Ministry of health No. HK.01.07/MENKES/382/2020 on public health protocols in places and public facilities in the framework of prevention and control of corona virus disease 2019 (COVID-19)." Ministry of Health, Jakarta, pp. 8–15, 2020.

BIOGRAPHY OF AUTHORS

Musfirah is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. She is author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email: musfirah@ikm.uad.ac.id.

Ahmad Faizal Rangkuti is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email: faizal.rangkuti@ikm.uad.ac.id.

Fenni Nurul Khotimah is bachelor degree graduated from Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest is environmental health aspect with focused health tourism. She can be contacted at email: fenninurulkhotimah11@gmail.com.

11. *Proofreading* Ke-2 : *Re-check*

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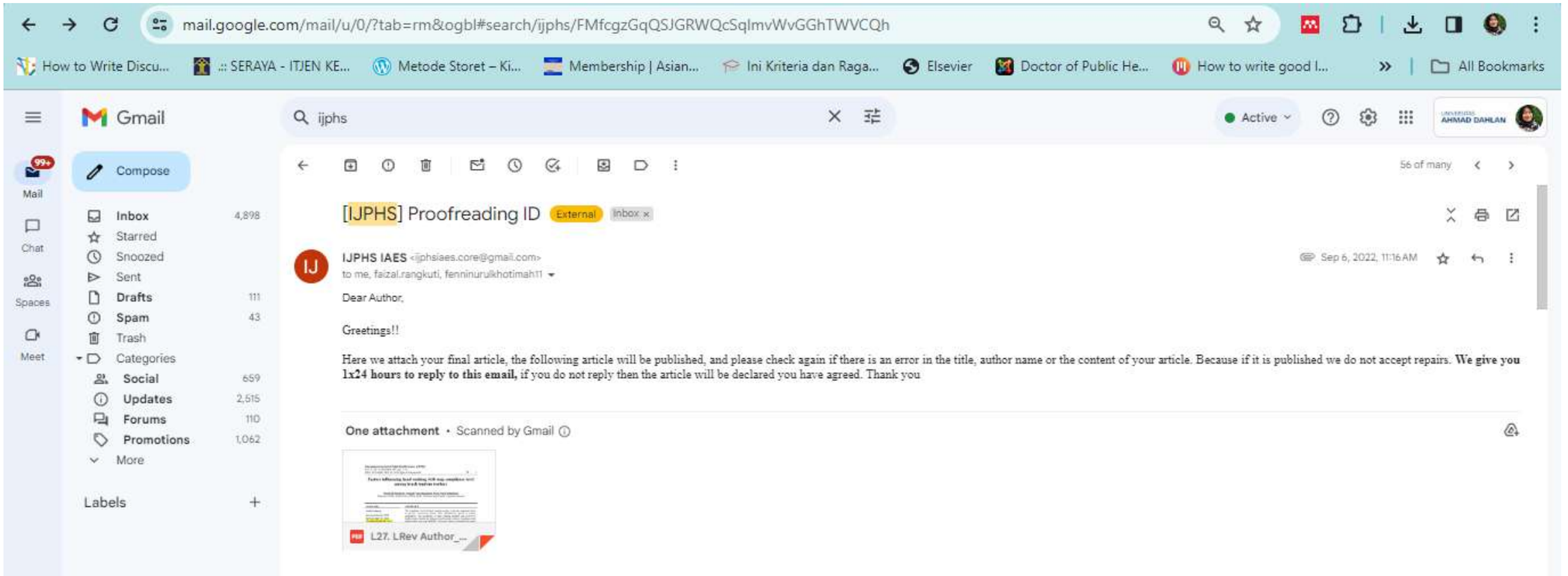

International Journal of Public Health Science (IJPHS)
Vol. 11, No. 4, December 2022, pp. 1~1x
ISSN: 2252-8806, DOI: 10.11591/ijphs.v11i4.paperID

Factors influencing hand washing with soap compliance level among beach tourism workers

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jan 08, 2022
Revised June 30, 2022
Accepted month dd, yyyy

Keywords:

Beach tourism workers
Compliance level
COVID-19
Facilities
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent coronavirus disease 2019 (COVID-19) spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with hand washing with soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers recruited using total sampling technique from September to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and Fisher's tests are used in the analysis. The findings demonstrated that majority of respondents support the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan
Jl. Prof. Dr. Soepomo, Janturan, Umbulharjo, Yogyakarta, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as coronavirus disease 2019 (COVID-19). COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and

education, hand hygiene is an important factor to increase the incidence of COVID 19 [6]. Therefore, facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within five meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12]. In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a “new normal” policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the COVID-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to regional original income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but hand washing with soap (HWWS) are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Special Region of Yogyakarta, Indonesia.

2. RESEARCH METHOD

2.1. Study design and data collection

This was cross-sectional study employed quantitative analysis. This study measured the availability of hand washing facilities, health protocol media, and the level of HWWS compliance among beach workers. Data collection was carried out on three beaches in Bantul Regency, namely Prangtritis beach, Goa Cemara beach, and Baru beach from September, 2021 to November, 2021.

The population in this study were 60 workers who worked on Parangtritis beach, Goa Cemara beach and Baru beach. The sampling technique was"total sampling" due to the small number of population. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis beach, 23 respondents at Baru beach, and 14 respondents at Goa Cemara beach. Beach tourism workers in this study were people who participated in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a Likert scale consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "not Support" category is given for respondent answer<(mean value=4.7) and "support" category is given respondent answer≥(mean value=4.7). Assessment of the questionnaire about availability of health protocol media uses the Guttman scale which consists of 5 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer<(mean value=14) and "support" category is given respondent answer≥(mean value=14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the Guttman scale which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while the 1 unfovarable question answer with the answer "yes" is given a score of 0 and the answer "no" is given a score of 1. The questionnaire has cutting point "poor" category is given for respondent answer<(mean value=9) and "good" category is given respondent answer≥(mean value=9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari beach, Gadingsari village, Sanden district, Bantul Regency, Special Region of Yogyakarta which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the Person correlation product moment, question items are valid if the test results are known that r count≥r table [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with Cronbach's alpha, the measuring instrument is said to be reliable if the value of Cronbach's alpha constant≥(0.6) [26].

Based on the validity and reliability tests, there are 1 invalid and 5 valid question items on the availability of hand washing facilities variable with a reliability test result of (0.618). The availability of COVID-19 health protocols media variable have 2 invalid and 5 valid question items with a reliability test result of (0.658). Then, there are 2 invalid and 10 valid question items on the HWWS compliance variable with a reliability test result of (0.860).

2.3. Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value<5 and a significant level of 5%. Fisher's test is an alternative to the Chi-square test and also non-parametric test.

2.4. Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the research ethics committee Universitas Ahmad Dahlan. It was categorized as health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including severe acute respiratory syndrome (SARS), hemagglutinin tipe 1 dan neuraminidase tipe 1 (H1N1) influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Table 1. Characteristics of respondent

Variables	n	Percentage (%)
Gender		
Male	42	70.0
Female	18	30.0
Age		
<45	34	56.7
46-79	26	43.3
Education level		
Low	15	25.0
High	45	75.0

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged<45 years as many as 34 (56.7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73.3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Table 2. The availability of hand washing facilities, availability of health protocols media for COVID-19, and HWWS compliance level among beach tourism workers

Variables	n	Percentage (%)
Availability of hand washing facilities		
Not support	16	26.7
Support	44	73.3
Availability of health protocols media for COVID-19		
Not support	7	11.7
Support	53	88.3
HWWS compliance level		
Poor	10	16.7
Good	50	83.3

Several hand washing facilities in Bantul beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria/viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: i) 36% mouth; ii) 31% nose; iii) 27% eyes; and iv) 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88.3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83.3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22.4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance (HWC) is a public health effort [38]. It has also been investigated whether the use HWC visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will make a person feel responsible for his/her health [40].

Table 3. Correlation between availability of hand washing facilities and availability of COVID-19 health protocols media with HWWS compliance level among beach tourism workers

Variables	HWWS compliance level		Total number	RP (95% CI)	P Value
	Poor n (%)	Good n (%)	N (%)		
Availability of hand washing facilities					
Not support	6 (10)	10 (16.7)	16 (26.7)	6 (1.418-25.387)	0.017
Support	4 (6.7)	40 (66.7)	44 (73.3)		
Availability of COVID-19 health protocols media				0.8 (0.087-7.617)	
Not support	1 (1.7)	6 (10)	7 (11.7)		1.000
Support	9 (15)	44 (73.3)	53 (88.3)		

Bivariate analysis (Fisher’s test) in this study was used to determine the relationship between independet variables and dependent variables. Table 3 shows that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p<0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% confidence interval (CI) value (1.418-25.387) and a prevalence ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of COVID-19 health protocols media variable obtained a p-value of 1,000 ($p>0.05$), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

The previous study is similar with this current study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [34]. The scientific proof for the implications of

mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to the united nations educational scientific and cultural organization (UNESCO) findings, the reading habits of Indonesian people in low category, only 1 in 1,000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study is consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30.8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed, so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46], [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers.

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in "support" category and the beach workers have "good" compliance level of HWWS. In addition, our finding highlighted that the availability of hand washing facilities was related to HWWS compliance level among beach tourism workers. In order to reduce the transmission rate of COVID-19 in public facilities, the government should monitor and evaluate health behavior practices, enhance the availability of HWWS facilities, and adjust to relevant COVID-19 health protocols media.

ACKNOWLEDGEMENTS

This study was funded by the Universitas Ahmad Dahlan, Indonesia, with contract no. PD-248/SP3/LPPM-UAD/VI/2021.

REFERENCES

[1] World Health Organization, "WHO coronavirus (COVID-19) dashboard," *World Health Organization*, 2021. https://covid19.who.int/region/searo/country/id (accessed Nov. 21, 2021).

[2] Ministry of Health, "The latest situation of the development of coronavirus disease (COVID-19) March 21, 2021," *Ministry of Health*, 2021. www.Kemkes.go.id (accessed Nov. 21, 2021).

[3] K. Karyono, R. Rohadin, and D. Indriyani, "Handling and prevention of the corona virus outbreak (COVID-19) in Indramayu Regency," *Jurnal Kolaborasi Resolusi Konflik*, vol. 2, no. 2, pp. 164–173, Aug. 2020, doi: 10.24198/jkrk.v2i2.29127.

[4] E. Yanti, N. Fridalni, and H. Harmawati, "Prevent transmission of coronavirus," *Jurnal Abdimas Saintika*, vol. 2, no. 1, pp. 33–39, 2020, doi: 10.30633/jas.v2i1.553.

[5] I. Izzaty, "Government policy in handling panic buying due to COVID-19," *Info Singkat*, vol. 12, no. 5, pp. 19–24, 2020, [Online]. Available: https://berkas.dpr.go.id/sipinter/files/sipinter-624-478-20200707164632.pdf

[6] D. K. Lamichhane, S. Shrestha, and H.-C. Kim, "District-level risk factors for COVID-19 incidence and mortality in Nepal," *International Journal of Environmental Research and Public Health*, vol. 19, no. 5, pp. 2659–2672, Feb. 2022, doi: 10.3390/ijerph19052659.

[7] World Health Organization, "Water, sanitation, hygiene and waste management for the COVID-19 virus," *World Health Organisation*, 2020. https://apps.who.int/iris/handle/10665/331499 (accessed Nov. 21, 2021).

[8] T. Jefferson *et al.*, "Interventions for the interruption or reduction of the spread of respiratory viruses," in *Cochrane Database of Systematic Reviews*, no. 4, T. Jefferson, Ed. Chichester: John Wiley & Sons, Ltd, 2007, pp. 1465–1858. doi: 10.1002/14651858.CD006207.pub2.

[9] N. Sharif *et al.*, "Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study," *PLoS ONE*, vol. 16, no. 11, pp. 1–13, Nov. 2021, doi: 10.1371/journal.pone.0260287.

[10] L. Khedmat, "New coronavirus (2019-nCoV): An insight toward preventive actions and natural medicine," *International Journal of Travel Medicine and Global Health*, vol. 8, no. 1, pp. 44–45, Mar. 2020, doi: 10.34172/ijtmgh.2020.07.

[11] D. Prastiwi and M. A. Anindhita, "Education on covid-19 prevention health protocols in the new normal era at youth youth organizations in Batang Regency," *Abdimas*, vol. 2, no. 1, pp. 25–29, 2021, [Online]. Available: https://jurnal.unikal.ac.id/index.php/abdimas/article/view/1292
[12] Y. Nuriati, A. Heryana, I. S. Mustikawati, and N. W. Sangadji, "Employee perception of the availability of COVID-19 facilities and means of handling in the workplace is related to compliance," *Jurnal Kesehatan Masyarakat*, vol. 9, no. 4, pp. 566–575, 2021, doi: 10.14710/jkm.v9i4.30224.
[13] F. Kasim, B. Satria, B. Wasliati, K. Sitepu, I. N. Saputri, and H. G. Sihite, "Factors relating to public compliance with the COVID-19 health protocol," *Jurnal Kesmas Dan Gizi (Jkg)*, vol. 3, no. 2, pp. 207–212, Apr. 2021, doi: 10.35451/jkg.v3i2.687.
[14] M. S. Pulungan, "The role of students in socializing the COVID-19 health protocol through the KKL DR IAIN Padangsidimpuan program," *Jurnal At-Taghyir*, vol. 2, no. 2, pp. 291–308, 2020, doi: 10.24952/taghyir.v2i2.2727.
[15] W. Suprihatin, "Analysis of consumer behavior of tourists era cCOVID-19 pandemic (tourism case study in West Nusa Tenggara)," *Jurnal Bestari*, vol. 1, no. 1, pp. 56–66, 2020, [Online]. Available: https://jurnalbestari.ntbprov.go.id/index.php/bestari1/article/view/9
[16] N. Karlina, D. Muhafidin, and E. Susanti, "Implementation of the COVID-19 protocol in ecotourism-based agrotourism management in the pandemic period," *Sawala : Jurnal pengabdian Masyarakat Pembangunan Sosial, Desa dan Masyarakat*, vol. 2, no. 1, pp. 28–36, Jan. 2021, doi: 10.24198/sawala.v2i1.29921.
[17] Q. X. Ma, H. Shan, H. L. Zhang, G. M. Li, R. M. Yang, and J. M. Chen, "Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2," *Journal of Medical Virology*, vol. 92, no. 9, pp. 1567–1571, 2020, doi: 10.1002/jmv.25805.
[18] M. C. Freeman *et al.*, "Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza Province, Kenya: A cluster-randomized trial," *Tropical Medicine & International Health*, vol. 17, no. 3, pp. 380–391, Dec. 2012, doi: 10.1111/j.1365-3156.2011.02927.x.
[19] A. Przekwas and Z. Chen, "Washing hands and the face may reduce COVID-19 infection," *Medical Hypotheses*, vol. 144, p. 110261, Nov. 2020, doi: 10.1016/j.mehy.2020.110261.
[20] A. Yulianto, "Analysis of favorite tourist sttractions based on number of visitors in the Special Region of Yogyakarta," *Media Wisata*, vol. 15, no. 2, pp. 555–567, Jun. 2021, doi: 10.36276/mws.v15i2.109.
[21] F. Damasdino, "Study of characteristics of tourists and development efforts, thematic tourism products in Goa Cemara beach, Kuwaru Beach, and Pandansimo Baru beach Bantul Regency," *Media Wisata*, vol. 13, no. 2, pp. 308–320, Sep. 2021, doi: 10.36276/mws.v13i2.224.
[22] Bantul Health Service, "Bantul prepadness to COVID-19," *Bantul government*, 2021. https://corona.bantulkab.go.id/ (accessed Jul. 17, 2021).
[23] S. Zielinski and C. M. Botero, "Beach tourism in times of COVID-19 pandemic: Critical issues, knowledge gaps and research opportunities," *International Journal of Environmental Research and Public Health*, vol. 17, no. 19, pp. 1–19, Oct. 2020, doi: 10.3390/ijerph17197288.
[24] M. D. Hillier, "Using effective hand hygiene practice to prevent and control infection," *Nursing Standard*, vol. 35, no. 5, pp. 45–50, Apr. 2020, doi: 10.7748/ns.2020.e11552.
[25] S. Notoatmodjo, *Health research methodology*. Jakarta: Rineka Cipta, 2014.
[26] A. Riyanto, *Application of health methodology*, Edisi 1. Yogyakarta: Nuha Medika, 2011.
[27] J. S. W. Wong and J. K. F. Lee, "The common missed handwashing instances and areas after 15 years of hand-hygiene education," *Journal of Environmental and Public Health*, pp. 1–7, Aug. 2019, doi: 10.1155/2019/5928924.
[28] P. T. James, A. Kunoor, and P. S. Rakesh, "Awareness of health care workers, patients and visitors regarding air borne infection control–a descriptive study from a tertiary care centre in Kerala, Southern India," *Indian Journal of Tuberculosis*, vol. 65, no. 2, pp. 168–171, Apr. 2018, doi: 10.1016/j.ijtb.2017.08.028.
[29] O. Al-Wutayd, A. E. Mansour, A. H. Aldosary, H. Z. Hamdan, and M. A. Al-Batanony, "Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study," *Scientific Reports*, vol. 11, no. 1, pp. 1–12, Dec. 2021, doi: 10.1038/s41598-021-96393-6.
[30] K. Kusmiyati, E. R. Sinaga, and W. Wanti, "Hand washing habits, condition of hand washing facilities and the presence of E.Coli on the hands of food vendors in restaurants in the Oebobo Kupang health center work area in 2012," *Jurnal Info Kesehatan*, vol. 11, no. 2, pp. 417–427, 2012, [Online]. Available: https://jurnal.poltekeskupang.ac.id/index.php/infokes/ article/view/27
[31] L. H. Kwong, A. Ercumen, A. J. Pickering, L. Unicomb, J. Davis, and S. P. Luby, "Age-related changes to environmental exposure: Variation in the frequency that young children place hands and objects in their mouths," *Journal of Exposure Science and Environmental Epidemiology*, vol. 30, no. 1, pp. 205–216, 2020, doi: 10.1038/s41370-019-0115-8.
[32] Y. L. A. Kwok, J. Gralton, and M. L. McLaws, "Face touching: A frequent habit that has implications for hand hygiene," *American Journal of Infection Control*, vol. 43, no. 2, pp. 112–114, 2015, doi: 10.1016/j.ajic.2014.10.015.
[33] Centers for Disease Control and Prevention, "Show me the science–how to wash your hands," *CDC*, 2020. https://www.cdc.gov/handwashing/show-me-the-science-handwashing.html (accessed Dec. 05, 2021).
[34] M. Islam *et al.*, "Effectiveness of mass media campaigns to improve handwashing-related behavior, knowledge, and practices in Rural Bangladesh," *American Journal of Tropical Medicine and Hygiene*, vol. 104, no. 4, pp. 1546–1553, Apr. 2021, doi: 10.4269/ajtmh.20-1154.
[35] F. Hikmawati, *Counseling guidance*. Jakarta: King Grafindo Persada, 2011.
[36] A. Mulyawan, R. Sekarsari, N. Nuraini, and E. Budi, "Overview of community compliance level in the implementation of post vaccination health protocol COVID-19," *Edu Dharma Journal: Jurnal penelitian dan pengabdian masyarakat*, vol. 5, no. 2, pp. 43–51, Sep. 2021, doi: 10.52031/edj.v5i2.175.
[37] S. Miller, L. Yardley, and P. Little, "Development of an intervention to reduce transmission of respiratory infections and pandemic flu: Measuring and predicting hand-washing intentions," *Psychology, Health & Medicine*, vol. 17, no. 1, pp. 59–81, Jan. 2012, doi: 10.1080/13548506.2011.564188.
[38] J. R. B. Halbesleben, C. Rathert, and S. F. Bennett, "Measuring nursing workarounds," *JONA: The Journal of Nursing Administration*, vol. 43, no. 1, pp. 50–55, Jan. 2013, doi: 10.1097/NNA.0b013e31827860ff.
[39] E. W. Ford, B. T. Boyer, N. Menachemi, and T. R. Huerta, "Increasing hand washing compliance with a simple visual cue," *American Journal of Public Health*, vol. 104, no. 10, pp. 1851–1856, Oct. 2014, doi: 10.2105/AJPH.2013.301477.
[40] I. Samidah, M. Murwati, and S. Sulastri, "The influence of health education in complying with the COVID-19 health protocol in Pondok Batu village of Mukomuko Regency in 2020," *Journal of Nursing and Public Health*, vol. 9, no. 1, pp. 35–39, Jun. 2021, doi: 10.37676/jnph.v9i1.1434.
[41] G. Howard *et al.*, "COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics," *Journal of Water and Health*, vol. 18, no. 5, pp. 613–630, Oct. 2020, doi: 10.2166/wh.2020.162.
[42] C. C. Alexander *et al.*, "Media access is associated with knowledge of optimalwater, sanitation and hygiene practices in

Tanzania," *International Journal of Environmental Research and Public Health*, vol. 16, no. 11, pp. 1–10, Jun. 2019, doi: 10.3390/ijerph16111963.
[43] E. Tjoa, C. Mahendra, S. Suryanto, S. Theresia, M. Wirjanata, and D. A. Soeselo, "Hand hygiene knowledge, perception, and compliance among healthcare workers," *International Journal of Public Health Science (IJPHS)*, vol. 11, no. 2, pp. 405–416, Jun. 2022, doi: 10.11591/ijphs.v11i2.21263.
[44] P. Wiedarti *et al.*, *School literacy movement master design*. Jakarta: Directorate General of Primary and Secondary Education, Ministry of Education and Culture, 2018.
[45] N. Mukminah, V. T. Istiarti, and S. BM, "Factors related to hand washing practices using soap in elementary school students in the working area of Banyuurip Purworejo health center," *Jurnal Kesehatan Masyarakat*, vol. 4, no. 5, pp. 354–361, 2016, doi: 10.14710/jkm.v4i5.14628.
[46] D. A. C. Situmorang, "Application of hand washing using soap in the elderly in preventing COVID-19 analyse in nursing home winners Of Medan city," M.S. thesis, Dept. Public Health, Univ., Sumatera Utara, Medan, Indonesia, 2021. [Online]. Available: https://repositori.usu.ac.id/handle/123456789/31778
[47] Ministry of Health, "Ministry of health No. HK.01.07/MENKES/382/2020 on public health protocols in places and public facilities in the framework of prevention and control of corona virus disease 2019 (COVID-19)." Ministry of Health, Jakarta, pp. 8–15, 2020.

BIOGRAPHY OF AUTHORS

Musfirah is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. She is author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email: musfirah@ikm.uad.ac.id.

Ahmad Faizal Rangkuti is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email: faizal.rangkuti@ikm.uad.ac.id.

Fenni Nurul Khotimah is bachelor degree graduated from Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest is environmental health aspect with focused health tourism. She can be contacted at email: fenninurulkhotimah11@gmail.com.

International Journal of Public Health Science (IJPHS)
Vol. 11, No. 4, December 2022, pp. 1~1x
ISSN: 2252-8806, DOI: 10.11591/ijphs.v11i4.paperID

Factors influencing hand washing with soap compliance level among beach tourism workers

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jan 08, 2022
Revised June 30, 2022
Accepted month dd, yyyy

Keywords:

Beach tourism workers
Compliance level
COVID-19
Facilities
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent coronavirus disease 2019 (COVID-19) spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with hand washing with soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers recruited using total sampling technique from September to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and Fisher's tests are used in the analysis. The findings demonstrated that majority of respondents support the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah Musfirah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan
Jl. Prof. Dr. Soepomo, Janturan, Umbulharjo, Yogyakarta, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as coronavirus disease 2019 (COVID-19). COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and

education, hand hygiene is an important factor to increase the incidence of COVID 19 [6]. Therefore, facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within five meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12]. In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a “new normal” policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the COVID-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to regional original income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but hand washing with soap (HWWS) are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Special Region of Yogyakarta, Indonesia.

2. RESEARCH METHOD

2.1. Study design and data collection

This was a cross-sectional study employed quantitative analysis. This study measured the availability of hand washing facilities, health protocol media, and the level of HWWS compliance among beach workers. Data collection was carried out on three beaches in Bantul Regency, namely Prangtritis beach,
Goa Cemara beach, and Baru beach from September, 2021 to November, 2021.

The population in this study were 60 workers who worked on Parangtritis beach, Goa Cemara beach and Baru beach. The sampling technique was"total sampling" due to the small number of population. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis beach, 23 respondents at Baru beach, and 14 respondents at Goa Cemara beach. Beach tourism workers in this study were people who participated in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a Likert scale consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "not Support" category is given for respondent answer<(mean value=4.7) and "support" category is given respondent answer≥(mean value=4.7). Assessment of the questionnaire about availability of health protocol media uses the Guttman scale which consists of 5 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer<(mean value=14) and "support" category is given respondent answer≥(mean value=14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the Guttman scale which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while the 1 unfovarable question answer with the answer "yes" is given a score of 0 and the answer "no" is given a score of 1. The questionnaire has cutting point "poor" category is given for respondent answer<(mean value=9) and "good" category is given respondent answer≥(mean value=9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari beach, Gadingsari village, Sanden district, Bantul Regency, Special Region of Yogyakarta which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the Person correlation product moment, question items are valid if the test results are known that r count≥r table [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with Cronbach's alpha, the measuring instrument is said to be reliable if the value of Cronbach's alpha constant≥(0.6) [26].

Based on the validity and reliability tests, there are 1 invalid and 5 valid question items on the availability of hand washing facilities variable with a reliability test result of (0.618). the availability of COVID-19 health protocols media variable have 2 invalid and 5 valid question items with a reliability test result of (0.658). Then, there are 2 invalid and 10 valid question items on the HWWS compliance variable with a reliability test result of (0.860).

2.3. Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value<5 and a significant level of 5%. Fisher's test is an alternative to the Chi-square test and also non-parametric test.

2.4. Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the research ethics committee Universitas Ahmad Dahlan. It was categorized as health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including severe acute respiratory syndrome (SARS), hemagglutinin tipe 1 dan neuraminidase tipe 1 (H1N1) influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Table 1. Characteristics of respondent

Variables	n	Percentage (%)
Gender		
Male	42	70.0
Female	18	30.0
Age		
<45	34	56.7
46-79	26	43.3
Education level		
Low	15	25.0
High	45	75.0

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged<45 years as many as 34 (56.7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73.3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Table 2. The availability of hand washing facilities, availability of health protocols media for COVID-19, and HWWS compliance level among beach tourism workers

Variables	n	Percentage (%)
Availability of hand washing facilities		
Not support	16	26.7
Support	44	73.3
Availability of health protocols media for COVID-19		
Not support	7	11.7
Support	53	88.3
HWWS compliance level		
Poor	10	16.7
Good	50	83.3

Several hand washing facilities in Bantul beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria/viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: i) 36% mouth; ii) 31% nose; iii) 27% eyes; and iv) 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on

other body parts such as hands [19]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88.3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83.3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77,6% and the category of poor-compliance in washing hands was 22.4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance (HWC) is a public health effort [38]. It has also been investigated whether the use HWC visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will make a person feel responsible for his/her health [40].

Table 3. Correlation between availability of hand washing facilities and availability of COVID-19 health protocols media with HWWS compliance level among beach tourism workers

Variables	HWWS compliance level		Total number	RP (95% CI)	P Value
	Poor	Good			
	n (%)	n (%)	N (%)		
Availability of hand washing facilities					
Not support	6 (10)	10 (16.7)	16 (26.7)	6 (1.418-25.387)	0.017
Support	4 (6.7)	40 (66.7)	44 (73.3)		
Availability of COVID-19 health protocols media					
Not support	1 (1.7)	6 (10)	7 (11.7)	0.8 (0.087-7.617)	1.000
Support	9 (15)	44 (73.3)	53 (88.3)		

Bivariate analysis (Fisher’s test) in this study was used to determine the relationship between independet variables and dependent variables. Table 3 shows that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p<0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul , Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% confidence interval (CI) value (1.418-25.387) and a prevalence ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of COVID-19 health protocols media variable obtained a p-value of 1,000 ($p>0.05$), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

The previous study is similar with this current study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was

measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [34]. The scientific proof for the implications of mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to the united nations educational scientific and cultural organization (UNESCO) findings, the reading habits of Indonesian people in low category, only 1 in 1,000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study is consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30.8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed, so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46], [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers.

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in “support” category and the beach workers have “good” compliance level of HWWS. In addition, our finding highlighted that the availability of hand washing facilities was related to HWWS compliance level among beach tourism workers. In order to reduce the transmission rate of COVID-19 in public facilities, the government should monitor and evaluate health behavior practices, enhance the availability of HWWS facilities, and adjust to relevant COVID-19 health protocols media.

ACKNOWLEDGEMENTS

This study was funded by the Universitas Ahmad Dahlan, Indonesia, with contract no. PD-248/SP3/LPPM-UAD/VI/2021.

REFERENCES

[1] World Health Organization, “WHO coronavirus (COVID-19) dashboard,” *World Health Organization*, 2021. https://covid19.who.int/region/searo/country/id (accessed Nov. 21, 2021).

[2] Ministry of Health, “The latest situation of the development of coronavirus disease (COVID-19) March 21, 2021,” *Ministry of Health*, 2021. www.Kemkes.go.id (accessed Nov. 21, 2021).

[3] K. Karyono, R. Rohadin, and D. Indriyani, “Handling and prevention of the corona virus outbreak (COVID-19) in Indramayu Regency,” *Jurnal Kolaborasi Resolusi Konflik*, vol. 2, no. 2, pp. 164–173, Aug. 2020, doi: 10.24198/jkrk.v2i2.29127.

[4] E. Yanti, N. Fridalni, and H. Harmawati, “Prevent transmission of coronavirus,” *Jurnal Abdimas Saintika*, vol. 2, no. 1, pp. 33–39, 2020, doi: 10.30633/jas.v2i1.553.

[5] I. Izzaty, “Government policy in handling panic buying due to COVID-19,” *Info Singkat*, vol. 12, no. 5, pp. 19–24, 2020, [Online]. Available: https://berkas.dpr.go.id/sipinter/files/sipinter-624-478-20200707164632.pdf

[6] D. K. Lamichhane, S. Shrestha, and H.-C. Kim, “District-level risk factors for COVID-19 incidence and mortality in Nepal,” *International Journal of Environmental Research and Public Health*, vol. 19, no. 5, pp. 2659–2672, Feb. 2022, doi: 10.3390/ijerph19052659.

[7] World Health Organization, “Water, sanitation, hygiene and waste management for the COVID-19 virus,” *World Health Organisation*, 2020. https://apps.who.int/iris/handle/10665/331499 (accessed Nov. 21, 2021).

[8] T. Jefferson *et al.*, “Interventions for the interruption or reduction of the spread of respiratory viruses,” in *Cochrane Database of Systematic Reviews*, no. 4, T. Jefferson, Ed. Chichester: John Wiley & Sons, Ltd, 2007, pp. 1465–1858. doi: 10.1002/14651858.CD006207.pub2.

[9] N. Sharif *et al.*, “Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study,” *PLoS ONE*, vol. 16, no. 11, pp. 1–13, Nov. 2021, doi: 10.1371/journal.pone.0260287.

[10] L. Khedmat, "New coronavirus (2019-nCoV): An insight toward preventive actions and natural medicine," *International Journal of Travel Medicine and Global Health*, vol. 8, no. 1, pp. 44–45, Mar. 2020, doi: 10.34172/ijtmgh.2020.07.
[11] D. Prastiwi and M. A. Anindhita, "Education on covid-19 prevention health protocols in the new normal era at youth youth organizations in Batang Regency," *Abdimas*, vol. 2, no. 1, pp. 25–29, 2021, [Online]. Available: https://jurnal.unikal.ac.id/index.php/abdimas/article/view/1292
[12] Y. Nuriati, A. Heryana, I. S. Mustikawati, and N. W. Sangadji, "Employee perception of the availability of COVID-19 facilities and means of handling in the workplace is related to compliance," *Jurnal Kesehatan Masyarakat*, vol. 9, no. 4, pp. 566–575, 2021, doi: 10.14710/jkm.v9i4.30224.
[13] F. Kasim, B. Satria, B. Wasliati, K. Sitepu, I. N. Saputri, and H. G. Sihite, "Factors relating to public compliance with the COVID-19 health protocol," *Jurnal Kesmas Dan Gizi (Jkg)*, vol. 3, no. 2, pp. 207–212, Apr. 2021, doi: 10.35451/jkg.v3i2.687.
[14] M. S. Pulungan, "The role of students in socializing the COVID-19 health protocol through the KKL DR IAIN Padangsidimpuan program," *Jurnal At-Taghyir*, vol. 2, no. 2, pp. 291–308, 2020, doi: 10.24952/taghyir.v2i2.2727.
[15] W. Suprihatin, "Analysis of consumer behavior of tourists era cCOVID-19 pandemic (tourism case study in West Nusa Tenggara)," *Jurnal Bestari*, vol. 1, no. 1, pp. 56–66, 2020, [Online]. Available: https://jurnalbestari.ntbprov.go.id/index.php/bestari1/article/view/9
[16] N. Karlina, D. Muhafidin, and E. Susanti, "Implementation of the COVID-19 protocol in ecotourism-based agrotourism management in the pandemic period," *Sawala : Jurnal pengabdian Masyarakat Pembangunan Sosial, Desa dan Masyarakat*, vol. 2, no. 1, pp. 28–36, Jan. 2021, doi: 10.24198/sawala.v2i1.29921.
[17] Q. X. Ma, H. Shan, H. L. Zhang, G. M. Li, R. M. Yang, and J. M. Chen, "Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2," *Journal of Medical Virology*, vol. 92, no. 9, pp. 1567–1571, 2020, doi: 10.1002/jmv.25805.
[18] M. C. Freeman *et al.*, "Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza Province, Kenya: A cluster-randomized trial," *Tropical Medicine & International Health*, vol. 17, no. 3, pp. 380–391, Dec. 2012, doi: 10.1111/j.1365-3156.2011.02927.x.
[19] A. Przekwas and Z. Chen, "Washing hands and the face may reduce COVID-19 infection," *Medical Hypotheses*, vol. 144, p. 110261, Nov. 2020, doi: 10.1016/j.mehy.2020.110261.
[20] A. Yulianto, "Analysis of favorite tourist sttractions based on number of visitors in the Special Region of Yogyakarta," *Media Wisata*, vol. 15, no. 2, pp. 555–567, Jun. 2021, doi: 10.36276/mws.v15i2.109.
[21] F. Damasdino, "Study of characteristics of tourists and development efforts, thematic tourism products in Goa Cemara beach, Kuwaru Beach, and Pandansimo Baru beach Bantul Regency," *Media Wisata*, vol. 13, no. 2, pp. 308–320, Sep. 2021, doi: 10.36276/mws.v13i2.224.
[22] Bantul Health Service, "Bantul prepadness to COVID-19," *Bantul government*, 2021. https://corona.bantulkab.go.id/ (accessed Jul. 17, 2021).
[23] S. Zielinski and C. M. Botero, "Beach tourism in times of COVID-19 pandemic: Critical issues, knowledge gaps and research opportunities," *International Journal of Environmental Research and Public Health*, vol. 17, no. 19, pp. 1–19, Oct. 2020, doi: 10.3390/ijerph17197288.
[24] M. D. Hillier, "Using effective hand hygiene practice to prevent and control infection," *Nursing Standard*, vol. 35, no. 5, pp. 45–50, Apr. 2020, doi: 10.7748/ns.2020.e11552.
[25] S. Notoatmodjo, *Health research methodology*. Jakarta: Rineka Cipta, 2014.
[26] A. Riyanto, *Application of health methodology*, Edisi 1. Yogyakarta: Nuha Medika, 2011.
[27] J. S. W. Wong and J. K. F. Lee, "The common missed handwashing instances and areas after 15 years of hand-hygiene education," *Journal of Environmental and Public Health*, pp. 1–7, Aug. 2019, doi: 10.1155/2019/5928924.
[28] P. T. James, A. Kunoor, and P. S. Rakesh, "Awareness of health care workers, patients and visitors regarding air borne infection control–a descriptive study from a tertiary care centre in Kerala, Southern India," *Indian Journal of Tuberculosis*, vol. 65, no. 2, pp. 168–171, Apr. 2018, doi: 10.1016/j.ijtb.2017.08.028.
[29] O. Al-Wutayd, A. E. Mansour, A. H. Aldosary, H. Z. Hamdan, and M. A. Al-Batanony, "Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study," *Scientific Reports*, vol. 11, no. 1, pp. 1–12, Dec. 2021, doi: 10.1038/s41598-021-96393-6.
[30] K. Kusmiyati, E. R. Sinaga, and W. Wanti, "Hand washing habits, condition of hand washing facilities and the presence of E.Coli on the hands of food vendors in restaurants in the Oebobo Kupang health center work area in 2012," *Jurnal Info Kesehatan*, vol. 11, no. 2, pp. 417–427, 2012, [Online]. Available: https://jurnal.poltekeskupang.ac.id/index.php/infokes/article/view/27
[31] L. H. Kwong, A. Ercumen, A. J. Pickering, L. Unicomb, J. Davis, and S. P. Luby, "Age-related changes to environmental exposure: Variation in the frequency that young children place hands and objects in their mouths," *Journal of Exposure Science and Environmental Epidemiology*, vol. 30, no. 1, pp. 205–216, 2020, doi: 10.1038/s41370-019-0115-8.
[32] Y. L. A. Kwok, J. Gralton, and M. L. McLaws, "Face touching: A frequent habit that has implications for hand hygiene," *American Journal of Infection Control*, vol. 43, no. 2, pp. 112–114, 2015, doi: 10.1016/j.ajic.2014.10.015.
[33] Centers for Disease Control and Prevention, "Show me the science–how to wash your hands," *CDC*, 2020. https://www.cdc.gov/handwashing/show-me-the-science-handwashing.html (accessed Dec. 05, 2021).
[34] M. Islam *et al.*, "Effectiveness of mass media campaigns to improve handwashing-related behavior, knowledge, and practices in Rural Bangladesh," *American Journal of Tropical Medicine and Hygiene*, vol. 104, no. 4, pp. 1546–1553, Apr. 2021, doi: 10.4269/ajtmh.20-1154.
[35] F. Hikmawati, *Counseling guidance*. Jakarta: King Grafindo Persada, 2011.
[36] A. Mulyawan, R. Sekarsari, N. Nuraini, and E. Budi, "Overview of community compliance level in the implementation of post vaccination health protocol COVID-19," *Edu Dharma Journal: Jurnal penelitian dan pengabdian masyarakat*, vol. 5, no. 2, pp. 43–51, Sep. 2021, doi: 10.52031/edj.v5i2.175.
[37] S. Miller, L. Yardley, and P. Little, "Development of an intervention to reduce transmission of respiratory infections and pandemic flu: Measuring and predicting hand-washing intentions," *Psychology, Health & Medicine*, vol. 17, no. 1, pp. 59–81, Jan. 2012, doi: 10.1080/13548506.2011.564188.
[38] J. R. B. Halbesleben, C. Rathert, and S. F. Bennett, "Measuring nursing workarounds," *JONA: The Journal of Nursing Administration*, vol. 43, no. 1, pp. 50–55, Jan. 2013, doi: 10.1097/NNA.0b013e31827860ff.
[39] E. W. Ford, B. T. Boyer, N. Menachemi, and T. R. Huerta, "Increasing hand washing compliance with a simple visual cue," *American Journal of Public Health*, vol. 104, no. 10, pp. 1851–1856, Oct. 2014, doi: 10.2105/AJPH.2013.301477.
[40] I. Samidah, M. Murwati, and S. Sulastri, "The influence of health education in complying with the COVID-19 health protocol in Pondok Batu village of Mukomuko Regency in 2020," *Journal of Nursing and Public Health*, vol. 9, no. 1, pp. 35–39, Jun.

2021, doi: 10.37676/jnph.v9i1.1434.
[41] G. Howard *et al.*, "COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics," *Journal of Water and Health*, vol. 18, no. 5, pp. 613–630, Oct. 2020, doi: 10.2166/wh.2020.162.
[42] C. C. Alexander *et al.*, "Media access is associated with knowledge of optimalwater, sanitation and hygiene practices in Tanzania," *International Journal of Environmental Research and Public Health*, vol. 16, no. 11, pp. 1–10, Jun. 2019, doi: 10.3390/ijerph16111963.
[43] E. Tjoa, C. Mahendra, S. Suryanto, S. Theresia, M. Wirjanata, and D. A. Soeselo, "Hand hygiene knowledge, perception, and compliance among healthcare workers," *International Journal of Public Health Science (IJPHS)*, vol. 11, no. 2, pp. 405–416, Jun. 2022, doi: 10.11591/ijphs.v11i2.21263.
[44] P. Wiedarti *et al.*, *School literacy movement master design*. Jakarta: Directorate General of Primary and Secondary Education, Ministry of Education and Culture, 2018.
[45] N. Mukminah, V. T. Istiarti, and S. BM, "Factors related to hand washing practices using soap in elementary school students in the working area of Banyuurip Purworejo health center," *Jurnal Kesehatan Masyarakat*, vol. 4, no. 5, pp. 354–361, 2016, doi: 10.14710/jkm.v4i5.14628.
[46] D. A. C. Situmorang, "Application of hand washing using soap in the elderly in preventing COVID-19 analyse in nursing home winners Of Medan city," M.S. thesis, Dept. Public Health, Univ., Sumatera Utara, Medan, Indonesia, 2021. [Online]. Available: https://repositori.usu.ac.id/handle/123456789/31778
[47] Ministry of Health, "Ministry of health No. HK.01.07/MENKES/382/2020 on public health protocols in places and public facilities in the framework of prevention and control of corona virus disease 2019 (COVID-19)." Ministry of Health, Jakarta, pp. 8–15, 2020.

BIOGRAPHY OF AUTHORS

Musfirah is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. She is author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email: musfirah@ikm.uad.ac.id.

Ahmad Faizal Rangkuti is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email: faizal.rangkuti@ikm.uad.ac.id.

Fenni Nurul Khotimah is bachelor degree graduated from Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest is environmental health aspect with focused health tourism. She can be contacted at email: fenninurulkhotimah11@gmail.com.

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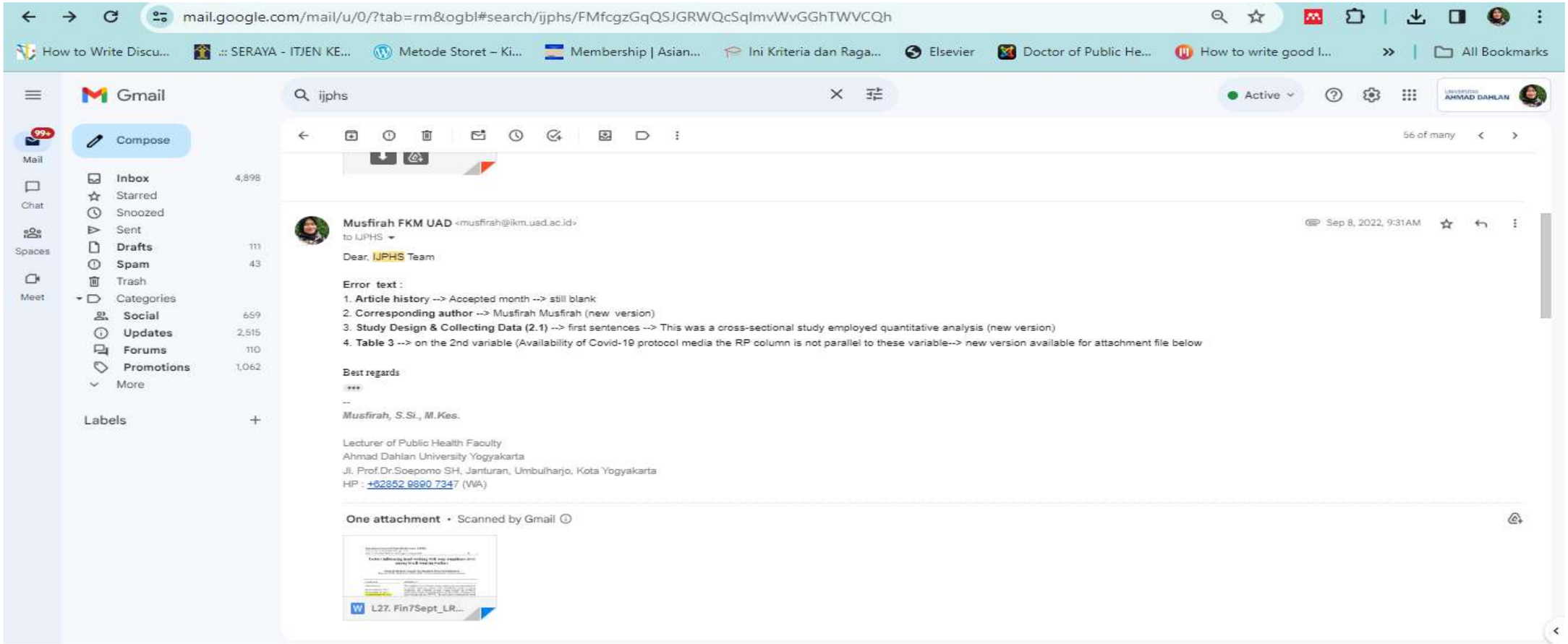

International Journal of Public Health Science (IJPHS)
Vol. 11, No. 4, December 2022, pp. 1~1x
ISSN: 2252-8806, DOI: 10.11591/ijphs.v11i4.21720

Factors influencing hand washing with soap compliance level among beach tourism workers

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jan 8, 2022
Revised Aug 17, 2022
Accepted Sep 6, 2022

Keywords:

Beach tourism workers
Compliance level
COVID-19
Facilities
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent coronavirus disease 2019 (COVID-19) spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with hand washing with soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers recruited using total sampling technique from September to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and Fisher's tests are used in the analysis. The findings demonstrated that majority of respondents support the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah Musfirah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan
Jl. Prof. Dr. Soepomo, Janturan, Umbulharjo, Yogyakarta, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as coronavirus disease 2019 (COVID-19). COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and

education, hand hygiene is an important factor to increase the incidence of COVID 19 [6]. Therefore, facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within five meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1,690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12]. In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a “new normal” policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the COVID-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to regional original income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but hand washing with soap (HWWS) are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Special Region of Yogyakarta, Indonesia.

2. RESEARCH METHOD

2.1. Study design and data collection

This was a cross-sectional study employed quantitative analysis. This study measured the availability of hand washing facilities, health protocol media, and the level of HWWS compliance among beach workers. Data collection was carried out on three beaches in Bantul Regency, namely Prangtritis beach, Goa Cemara beach, and Baru beach from September to November, 2021.

The population in this study were 60 workers who worked on Parangtritis beach, Goa Cemara beach and Baru beach. The sampling technique was"total sampling" due to the small number of population. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis beach, 23 respondents at Baru beach, and 14 respondents at Goa Cemara beach. Beach tourism workers in this study were people who participated in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a Likert scale consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "not Support" category is given for respondent answer <(mean value=4.7) and "support" category is given respondent answer ≥(mean value=4.7). Assessment of the questionnaire about availability of health protocol media uses the Guttman scale which consists of 5 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer <(mean value=14) and "support" category is given respondent answer ≥(mean value=14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the Guttman scale which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while the 1 unfovarable question answer with the answer "yes" is given a score of 0 and the answer "no" is given a score of 1. The questionnaire has cutting point "poor" category is given for respondent answer<(mean value=9) and "good" category is given respondent answer ≥(mean value=9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari beach, Gadingsari village, Sanden district, Bantul Regency, Special Region of Yogyakarta which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the Person correlation product moment, question items are valid if the test results are known that r count ≥r table [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with Cronbach's alpha, the measuring instrument is said to be reliable if the value of Cronbach's alpha constant ≥(0.6) [26].

Based on the validity and reliability tests, there are 1 invalid and 5 valid question items on the availability of hand washing facilities variable with a reliability test result of (0.618). The availability of COVID-19 health protocols media variable have 2 invalid and 5 valid question items with a reliability test result of (0.658). Then, there are 2 invalid and 10 valid question items on the HWWS compliance variable with a reliability test result of (0.860).

2.3. Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value <5 and a significant level of 5%. Fisher's test is an alternative to the Chi-square test and also non-parametric test.

2.4. Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the research ethics committee Universitas Ahmad Dahlan. It was categorized as health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including severe acute respiratory syndrome (SARS), hemagglutinin tipe 1 dan neuraminidase tipe 1 (H1N1) influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged<45 years as many as 34 (56.7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73.3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Table 1. Characteristics of respondent

Variables	n	Percentage (%)
Gender		
Male	42	70.0
Female	18	30.0
Age		
<45	34	56.7
46-79	26	43.3
Education level		
Low	15	25.0
High	45	75.0

Table 2. The availability of hand washing facilities, availability of health protocols media for COVID-19, and HWWS compliance level among beach tourism workers

Variables	n	Percentage (%)
Availability of hand washing facilities		
Not support	16	26.7
Support	44	73.3
Availability of health protocols media for COVID-19		
Not support	7	11.7
Support	53	88.3
HWWS compliance level		
Poor	10	16.7
Good	50	83.3

Several hand washing facilities in Bantul beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria/viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: i) 36% mouth; ii) 31% nose; iii) 27% eyes; and iv) 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88.3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83.3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77.6% and the category of poor-compliance in washing hands was 22.4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance (HWC) is a public health effort [38]. It has also been investigated whether the use HWC visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will make a person feel responsible for his/her health [40].

Bivariate analysis (Fisher’s test) in this study was used to determine the relationship between independet variables and dependent variables. Table 3 shows that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p<0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul, Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% confidence interval (CI) value (1.418-25.387) and a prevalence ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of COVID-19 health protocols media variable obtained a p-value of 1,000 ($p>0.05$), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

Table 3. Correlation between availability of hand washing facilities and availability of COVID-19 health protocols media with HWWS compliance level among beach tourism workers

Variables	HWWS compliance level		Total number	RP (95% CI)	p-value
	Poor	Good			
	n (%)	n (%)	N (%)		
Availability of hand washing facilities					
Not support	6 (10)	10 (16.7)	16 (26.7)	6 (1.418-25.387)	0.017
Support	4 (6.7)	40 (66.7)	44 (73.3)		
Availability of COVID-19 health protocols media					
Not support	1 (1.7)	6 (10)	7 (11.7)	0.8 (0.087-7.617)	1.000
Support	9 (15)	44 (73.3)	53 (88.3)		

The previous study is similar with this current study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [34]. The scientific proof for the implications of

mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to the United Nations Educational Scientific and Cultural Organization (UNESCO) findings, the reading habits of Indonesian people in low category, only 1 in 1,000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study is consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30.8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed, so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46], [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers.

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in "support" category and the beach workers have "good" compliance level of HWWS. In addition, our finding highlighted that the availability of hand washing facilities was related to HWWS compliance level among beach tourism workers. In order to reduce the transmission rate of COVID-19 in public facilities, the government should monitor and evaluate health behavior practices, enhance the availability of HWWS facilities, and adjust to relevant COVID-19 health protocols media.

ACKNOWLEDGEMENTS

This study was funded by the Universitas Ahmad Dahlan, Indonesia, with contract no. PD-248/SP3/LPPM-UAD/VI/2021.

REFERENCES

[1] World Health Organization, "WHO coronavirus (COVID-19) dashboard," *World Health Organization*, 2021. https://covid19.who.int/region/searo/country/id (accessed Nov. 21, 2021).

[2] Ministry of Health, "The latest situation of the development of coronavirus disease (COVID-19) March 21, 2021," *Ministry of Health*, 2021. www.Kemkes.go.id (accessed Nov. 21, 2021).

[3] K. Karyono, R. Rohadin, and D. Indriyani, "Handling and prevention of the corona virus outbreak (COVID-19) in Indramayu Regency," *Jurnal Kolaborasi Resolusi Konflik*, vol. 2, no. 2, pp. 164–173, Aug. 2020, doi: 10.24198/jkrk.v2i2.29127.

[4] E. Yanti, N. Fridalni, and H. Harmawati, "Prevent transmission of coronavirus," *Jurnal Abdimas Saintika*, vol. 2, no. 1, pp. 33–39, 2020, doi: 10.30633/jas.v2i1.553.

[5] I. Izzaty, "Government policy in handling panic buying due to COVID-19," *Info Singkat*, vol. 12, no. 5, pp. 19–24, 2020, [Online]. Available: https://berkas.dpr.go.id/sipinter/files/sipinter-624-478-20200707164632.pdf

[6] D. K. Lamichhane, S. Shrestha, and H.-C. Kim, "District-level risk factors for COVID-19 incidence and mortality in Nepal," *International Journal of Environmental Research and Public Health*, vol. 19, no. 5, pp. 2659–2672, Feb. 2022, doi: 10.3390/ijerph19052659.

[7] World Health Organization, "Water, sanitation, hygiene and waste management for the COVID-19 virus," *World Health Organisation*, 2020. https://apps.who.int/iris/handle/10665/331499 (accessed Nov. 21, 2021).

[8] T. Jefferson *et al.*, "Interventions for the interruption or reduction of the spread of respiratory viruses," in *Cochrane Database of Systematic Reviews*, no. 4, T. Jefferson, Ed. Chichester: John Wiley & Sons, Ltd, 2007, pp. 1465–1858. doi: 10.1002/14651858.CD006207.pub2.

[9] N. Sharif *et al.*, "Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study," *PLoS ONE*, vol. 16, no. 11, pp. 1–13, Nov. 2021, doi: 10.1371/journal.pone.0260287.

[10] L. Khedmat, "New coronavirus (2019-nCoV): An insight toward preventive actions and natural medicine," *International Journal of Travel Medicine and Global Health*, vol. 8, no. 1, pp. 44–45, Mar. 2020, doi: 10.34172/ijtmgh.2020.07.

[11] D. Prastiwi and M. A. Anindhita, "Education on covid-19 prevention health protocols in the new normal era at youth youth organizations in Batang Regency," *Abdimas*, vol. 2, no. 1, pp. 25–29, 2021, [Online]. Available: https://jurnal.unikal.ac.id/index.php/abdimas/article/view/1292
[12] Y. Nuriati, A. Heryana, I. S. Mustikawati, and N. W. Sangadji, "Employee perception of the availability of COVID-19 facilities and means of handling in the workplace is related to compliance," *Jurnal Kesehatan Masyarakat*, vol. 9, no. 4, pp. 566–575, 2021, doi: 10.14710/jkm.v9i4.30224.
[13] F. Kasim, B. Satria, B. Wasliati, K. Sitepu, I. N. Saputri, and H. G. Sihite, "Factors relating to public compliance with the COVID-19 health protocol," *Jurnal Kesmas Dan Gizi (Jkg)*, vol. 3, no. 2, pp. 207–212, Apr. 2021, doi: 10.35451/jkg.v3i2.687.
[14] M. S. Pulungan, "The role of students in socializing the COVID-19 health protocol through the KKL DR IAIN Padangsidimpuan program," *Jurnal At-Taghyir*, vol. 2, no. 2, pp. 291–308, 2020, doi: 10.24952/taghyir.v2i2.2727.
[15] W. Suprihatin, "Analysis of consumer behavior of tourists era cCOVID-19 pandemic (tourism case study in West Nusa Tenggara)," *Jurnal Bestari*, vol. 1, no. 1, pp. 56–66, 2020.
[16] N. Karlina, D. Muhafidin, and E. Susanti, "Implementation of the COVID-19 protocol in ecotourism-based agrotourism management in the pandemic period," *Sawala: Jurnal pengabdian Masyarakat Pembangunan Sosial, Desa dan Masyarakat*, vol. 2, no. 1, pp. 28–36, Jan. 2021, doi: 10.24198/sawala.v2i1.29921.
[17] Q. X. Ma, H. Shan, H. L. Zhang, G. M. Li, R. M. Yang, and J. M. Chen, "Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2," *Journal of Medical Virology*, vol. 92, no. 9, pp. 1567–1571, 2020, doi: 10.1002/jmv.25805.
[18] M. C. Freeman *et al.*, "Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza Province, Kenya: A cluster-randomized trial," *Tropical Medicine & International Health*, vol. 17, no. 3, pp. 380–391, Dec. 2012, doi: 10.1111/j.1365-3156.2011.02927.x.
[19] A. Przekwas and Z. Chen, "Washing hands and the face may reduce COVID-19 infection," *Medical Hypotheses*, vol. 144, p. 110261, Nov. 2020, doi: 10.1016/j.mehy.2020.110261.
[20] A. Yulianto, "Analysis of favorite tourist sttractions based on number of visitors in the Special Region of Yogyakarta," *Media Wisata*, vol. 15, no. 2, pp. 555–567, Jun. 2021, doi: 10.36276/mws.v15i2.109.
[21] F. Damasdino, "Study of characteristics of tourists and development efforts, thematic tourism products in Goa Cemara beach, Kuwaru Beach, and Pandansimo Baru beach Bantul Regency," *Media Wisata*, vol. 13, no. 2, pp. 308–320, Sep. 2021, doi: 10.36276/mws.v13i2.224.
[22] Bantul Health Service, "Bantul prepadness to COVID-19," *Bantul government*, 2021. https://corona.bantulkab.go.id/ (accessed Jul. 17, 2021).
[23] S. Zielinski and C. M. Botero, "Beach tourism in times of COVID-19 pandemic: Critical issues, knowledge gaps and research opportunities," *International Journal of Environmental Research and Public Health*, vol. 17, no. 19, pp. 1–19, Oct. 2020, doi: 10.3390/ijerph17197288.
[24] M. D. Hillier, "Using effective hand hygiene practice to prevent and control infection," *Nursing Standard*, vol. 35, no. 5, pp. 45–50, Apr. 2020, doi: 10.7748/ns.2020.e11552.
[25] S. Notoatmodjo, *Health research methodology*. Jakarta: Rineka Cipta, 2014.
[26] A. Riyanto, *Application of health methodology*, Edisi 1. Yogyakarta: Nuha Medika, 2011.
[27] J. S. W. Wong and J. K. F. Lee, "The common missed handwashing instances and areas after 15 years of hand-hygiene education," *Journal of Environmental and Public Health*, pp. 1–7, Aug. 2019, doi: 10.1155/2019/5928924.
[28] P. T. James, A. Kunoor, and P. S. Rakesh, "Awareness of health care workers, patients and visitors regarding air borne infection control–a descriptive study from a tertiary care centre in Kerala, Southern India," *Indian Journal of Tuberculosis*, vol. 65, no. 2, pp. 168–171, Apr. 2018, doi: 10.1016/j.ijtb.2017.08.028.
[29] O. Al-Wutayd, A. E. Mansour, A. H. Aldosary, H. Z. Hamdan, and M. A. Al-Batanony, "Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study," *Scientific Reports*, vol. 11, no. 1, pp. 1–12, Dec. 2021, doi: 10.1038/s41598-021-96393-6.
[30] K. Kusmiyati, E. R. Sinaga, and W. Wanti, "Hand washing habits, condition of hand washing facilities and the presence of E.Coli on the hands of food vendors in restaurants in the Oebobo Kupang health center work area in 2012," *Jurnal Info Kesehatan*, vol. 11, no. 2, pp. 417–427, 2012.
[31] L. H. Kwong, A. Ercumen, A. J. Pickering, L. Unicomb, J. Davis, and S. P. Luby, "Age-related changes to environmental exposure: Variation in the frequency that young children place hands and objects in their mouths," *Journal of Exposure Science and Environmental Epidemiology*, vol. 30, no. 1, pp. 205–216, 2020, doi: 10.1038/s41370-019-0115-8.
[32] Y. L. A. Kwok, J. Gralton, and M. L. McLaws, "Face touching: A frequent habit that has implications for hand hygiene," *American Journal of Infection Control*, vol. 43, no. 2, pp. 112–114, 2015, doi: 10.1016/j.ajic.2014.10.015.
[33] Centers for Disease Control and Prevention, "Show me the science–how to wash your hands," *CDC*, 2020. https://www.cdc.gov/handwashing/show-me-the-science-handwashing.html (accessed Dec. 05, 2021).
[34] M. Islam *et al.*, "Effectiveness of mass media campaigns to improve handwashing-related behavior, knowledge, and practices in Rural Bangladesh," *American Journal of Tropical Medicine and Hygiene*, vol. 104, no. 4, pp. 1546–1553, Apr. 2021, doi: 10.4269/ajtmh.20-1154.
[35] F. Hikmawati, *Counseling guidance*. Jakarta: King Grafindo Persada, 2011.
[36] A. Mulyawan, R. Sekarsari, N. Nuraini, and E. Budi, "Overview of community compliance level in the implementation of post vaccination health protocol COVID-19," *Edu Dharma Journal: Jurnal penelitian dan pengabdian masyarakat*, vol. 5, no. 2, pp. 43–51, Sep. 2021, doi: 10.52031/edj.v5i2.175.
[37] S. Miller, L. Yardley, and P. Little, "Development of an intervention to reduce transmission of respiratory infections and pandemic flu: Measuring and predicting hand-washing intentions," *Psychology, Health & Medicine*, vol. 17, no. 1, pp. 59–81, Jan. 2012, doi: 10.1080/13548506.2011.564188.
[38] J. R. B. Halbesleben, C. Rathert, and S. F. Bennett, "Measuring nursing workarounds," *JONA: The Journal of Nursing Administration*, vol. 43, no. 1, pp. 50–55, Jan. 2013, doi: 10.1097/NNA.0b013e31827860ff.
[39] E. W. Ford, B. T. Boyer, N. Menachemi, and T. R. Huerta, "Increasing hand washing compliance with a simple visual cue," *American Journal of Public Health*, vol. 104, no. 10, pp. 1851–1856, Oct. 2014, doi: 10.2105/AJPH.2013.301477.
[40] I. Samidah, M. Murwati, and S. Sulastri, "The influence of health education in complying with the COVID-19 health protocol in Pondok Batu village of Mukomuko Regency in 2020," *Journal of Nursing and Public Health*, vol. 9, no. 1, pp. 35–39, Jun. 2021, doi: 10.37676/jnph.v9i1.1434.
[41] G. Howard *et al.*, "COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics," *Journal of Water and Health*, vol. 18, no. 5, pp. 613–630, Oct. 2020, doi: 10.2166/wh.2020.162.
[42] C. C. Alexander *et al.*, "Media access is associated with knowledge of optimalwater, sanitation and hygiene practices in Tanzania," *International Journal of Environmental Research and Public Health*, vol. 16, no. 11, pp. 1–10, Jun. 2019, doi:

10.3390/ijerph16111963.
[43] E. Tjoa, C. Mahendra, S. Suryanto, S. Theresia, M. Wirjanata, and D. A. Soeselo, "Hand hygiene knowledge, perception, and compliance among healthcare workers," *International Journal of Public Health Science (IJPHS)*, vol. 11, no. 2, pp. 405–416, Jun. 2022, doi: 10.11591/ijphs.v11i2.21263.
[44] P. Wiedarti *et al.*, *School literacy movement master design*. Jakarta: Directorate General of Primary and Secondary Education, Ministry of Education and Culture, 2018.
[45] N. Mukminah, V. T. Istiarti, and S. BM, "Factors related to hand washing practices using soap in elementary school students in the working area of Banyuurip Purworejo health center," *Jurnal Kesehatan Masyarakat*, vol. 4, no. 5, pp. 354–361, 2016, doi: 10.14710/jkm.v4i5.14628.
[46] D. A. C. Situmorang, "Application of hand washing using soap in the elderly in preventing COVID-19 analyse in nursing home winners Of Medan city," M.S. *Thesis*, Dept. Public Health, Univ., Sumatera Utara, Medan, Indonesia, 2021. [Online]. Available: https://repositori.usu.ac.id/handle/123456789/31778
[47] Ministry of Health, "Ministry of health No. HK.01.07/MENKES/382/2020 on public health protocols in places and public facilities in the framework of prevention and control of corona virus disease 2019 (COVID-19)." Ministry of Health, Jakarta, pp. 8–15, 2020.

BIOGRAPHY OF AUTHORS

Musfirah is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. She is author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email: musfirah@ikm.uad.ac.id.

Ahmad Faizal Rangkuti is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email: faizal.rangkuti@ikm.uad.ac.id.

Fenni Nurul Khotimah is bachelor degree graduated from Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest is environmental health aspect with focused health tourism. She can be contacted at email: fenninurulkhotimah11@gmail.com.

13. Finishing Manuskrip layout manuskrip

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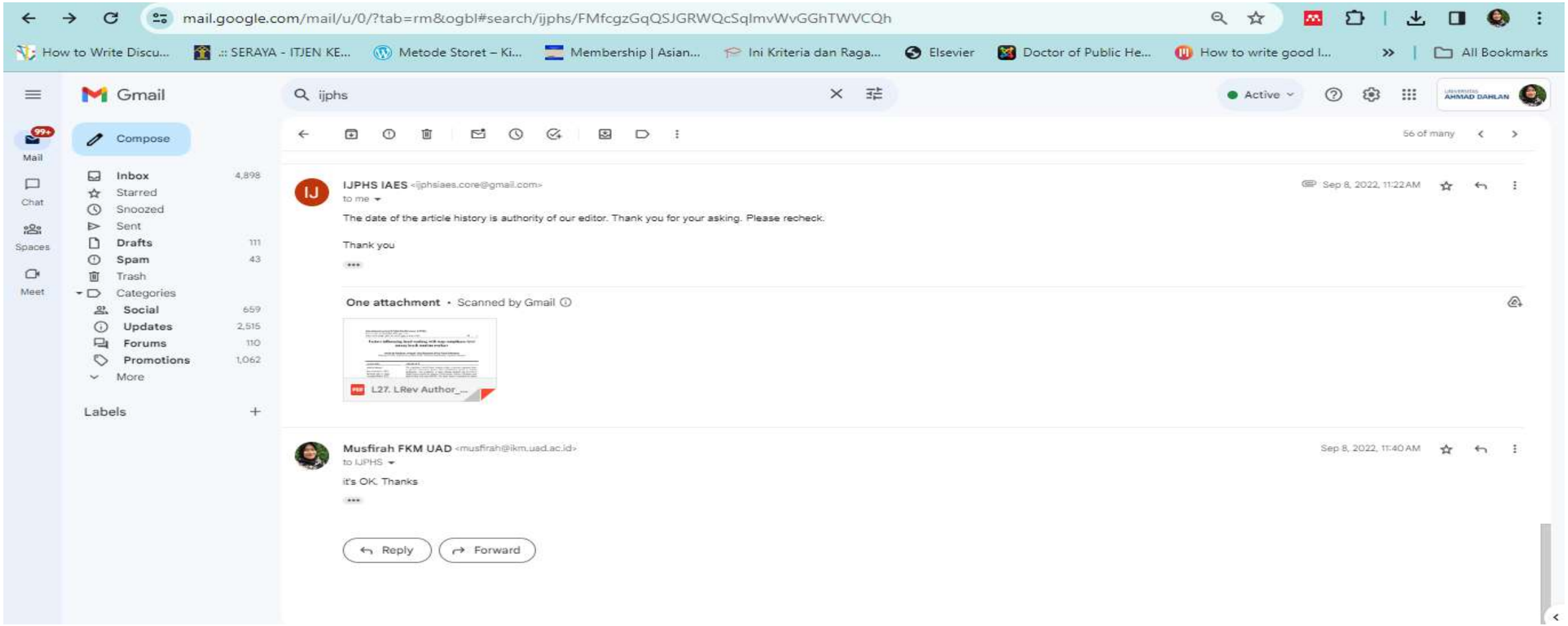

International Journal of Public Health Science (IJPHS)
Vol. 11, No. 4, December 2022, pp. 1391~1398
ISSN: 2252-8806, DOI: 10.11591/ijphs.v11i4.21720

Factors influencing hand washing with soap compliance level among beach tourism workers

Musfirah Musfirah, Ahmad Faizal Rangkuti, Fenni Nurul Khotimah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

Article Info

Article history:

Received Jan 8, 2022
Revised Aug 17, 2022
Accepted Sep 6, 2022

Keywords:

Beach tourism workers
Compliance level
COVID-19
Facilities
Hand washing

ABSTRACT

The compliance level of beach tourism workers is the most important factor to prevent coronavirus disease 2019 (COVID-19) spread in tourism destinations. The availability of hand washing facilities and COVID-19 health protocol media can influence beach tourism workers' compliance with hand washing with soap (HWWS). The study aimed to determine the related factors toward HWWS compliance level among beach tourism workers. A cross-setional study involved 60 beach tourism workers recruited using total sampling technique from September to November 2021. Questionnaires were used to assess the availability of hand washing facilities, health protocol media, and HWWS compliance levels in beach tourism workers. The descriptive and Fisher's tests are used in the analysis. The findings demonstrated that majority of respondents support the availability of hand washing facilities, the COVID-19 health protocols media, and had a good HWWS compliance among beach tourism workers. We concluded that the availability of hand washing facilities as main factor with related to HWWS compliance level among beach tourism workers.

Corresponding Author:

Musfirah Musfirah
Department of Public Health, Faculty of Public Health, Universitas Ahmad Dahlan
Jl. Prof. Dr. Soepomo, Janturan, Umbulharjo, Yogyakarta, Indonesia
Email: musfirah@ikm.uad.ac.id

1. INTRODUCTION

The world is currently experiencing a pandemic caused by the corona virus, known as coronavirus disease 2019 (COVID-19). COVID-19 is a new type of corona virus that was identified in 2019 and has never been infected by humans. Data from WHO the number of people who were confirmed positive for COVID-19 worldwide on March 20, 2021 were 121,969,233 people causing 2,694,094 deaths [1]. The presence of COVID-19 was first identified in Indonesia on March 2, 2020. After this case, the number of cases continued to grow until the number of positive confirmed cases of COVID-19 in Indonesia reached 1,455,788 people and caused 39,447 deaths [2].

Corona virus is a group of viruses which attack the respiratory system. The increase of COVID-19 cases occurred in a short time and required immediate treatment. This is because the transmission of the corona virus between humans spreads quickly [3]. Rapid transmission between humans makes prevention efforts must be carried out carefully [4]. Rapid transmission can also be prevented by living a healthy lifestyle and in accordance with health protocols, especially during the COVID-19 pandemic [5].

Washing hands with soap is one of the important practice for applying the health protocol. Hands are used for various purposes and very susceptible to viruses or bacteria that stick to their hands after activities. Lack of hand washing facilities access potentially related to the rapid development of diseases and it can even lead to death. A study conducted in Nepal showed that apart from population density and

education, hand hygiene is an important factor to increase the incidence of COVID 19 [6]. Therefore, facilities for hand hygiene must be available both at home and in public places such as markets, tourist attractions. Maintaining good and proper hygiene can prevent infection of the COVID-19 virus. The importance of maintaining hand hygiene is not only addressed to people who are active in health care facilities but also to those who are in their homes, schools, and public spaces. The main moments that require washing hands are before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Hand washing facilities equipped with soap and water must be available within five meters from the toilet [7]. Other studies have shown that hand washing activities can reduce virus transmission rates in the respiratory system by 45-55% [8]. The similar study in Bangladesh reported that transmission and case rates were significantly reduced COVID-19 virus when around 70% of the 1,690 respondents used masks properly, washed their hands regularly and avoided crowds [9]. Implementing the habit of washing hands using soap and running water for 20 seconds or more is an effective way to prevent the transmission of COVID-19 [10].

Tourist destinations are high potential places for disease transmission because of the possibility of crowds during tourist visits. Therefore, this place is quite important to be regulated regarding the discipline of health protocols. The government of Indonesia has made regulations regarding the application of health protocols in various public places including tourist areas. However, there are still many people who do not comply with the implementation of the protocol [11]. If viewed more specifically, community compliance is closely related to the availability of facilities and infrastructure to implement the health protocol [12]. In addition, minimal knowledge can also be related to their low compliance [13]. Therefore, the presence of media such as print media, graphic media, and others to convey information related to the COVID-19 health protocol has an important role in increasing public knowledge and compliance [14].

The tourism sector become potentially affected by the COVID-19 pandemic both natural and non-natural tourist destinations and forced to temporarily stop operating. The government finally made a "new normal" policy to guidance the sector which could operate again but they must complied with the COVID-19 health protocol. There was a weakening of tourist needs because people were worried about being exposed to the COVID-19 virus and did not know when the pandemic would end. The motivation to fulfill satisfaction in traveling is still high, but tourists need security aspects in traveling such as hygiene protocols compliance, health and safety for workers and visitors to tourist destinations place as well as policies which have been issued by the local government to response the COVID-19 pandemic [15]. Other studies found that the implementation of the COVID-19 health protocol in several tourist objects has not been fully implemented, this is due to the unpreparedness of tourism workers in supporting these. For example, they are still not obedient in washing their hands with soap, while hand washing facilities are available at tourist destination [16]. Handwashing is a core strategy for preventing the spread of COVID-19 infection [17]. Handwashing with soap is still an inadequate practice [18]. Hand washing and facial cleaning on a regular basis may help to prevent viral self-infection [19].

The Special Region of Yogyakarta is one of the natural beach tourist destination in Indonesia because it has natural beauty such as beach tourism in Bantul Regency [20]. The tourism sector in Bantul Regency is contributes to regional original income. Beaches in Bantul Regency are the largest contributor to regional and local income and becomes natural tourist spot which most visited by tourists [21]. However, the number of cases also quite high because positive confirmed cases of COVID-19 in Bantul Regency were 32,079 people and causing 379 deaths, the data was taken on July 17, 2021 [22]. The economic importance of beach tourism destinasions has led the governments to reopen beach tourism places if infection cases decreased soon [23]. The government will be facing a challenge how to keep regional income stable during this pandemic.

The COVID-19 pandemic has described that hand hygiene more effective as intervention which implemented to prevent the emerging disease [24]. The behavior of workers who have not implemented the protocol properly will certainly have an impact on public safety and health in tourism places. They always wearing mask practice but hand washing with soap (HWWS) are not applied properly so that high potential virus transmission for workers can caused by poor hand hygiene. There is a lack of study to determine of factors influencing the level of compliance of workers in beach tourism place because the majority of study only focus on healthcare workers. Based on these data, the study interested in conducting specifically on how the availability of hand washing facilities and COVID-19 health protocols media had related to HWWS compliance levels with beach tourism workers in Bantul, Special Region of Yogyakarta, Indonesia.

2. RESEARCH METHOD

2.1. Study design and data collection

This was a cross-sectional study employed quantitative analysis. This study measured the availability of hand washing facilities, health protocol media, and the level of HWWS compliance among beach workers. Data collection was carried out on three beaches in Bantul Regency, namely Prangtritis beach, Goa Cemara beach, and Baru beach from September to November, 2021.

The population in this study were 60 workers who worked on Parangtritis beach, Goa Cemara beach and Baru beach. The sampling technique was"total sampling" due to the small number of population. The respondents who work as the beach tourism workers consist of 23 respondents at Parangtritis beach, 23 respondents at Baru beach, and 14 respondents at Goa Cemara beach. Beach tourism workers in this study were people who participated in developing coastal tourism such as food sellers, cleaners, ticket clerk, parking attendance, and administrators of beach tourist destination.

This study used a questionnaire about the availability of hand washing facilities, the availability of health protocol media and the level of HWWS compliance level in beach tourism workers which developed by research group. The assessment of the questionnaire on the availability of hand washing facilities using a Likert scale consisting of 5 favorable questions where the answer value of "always available" was given a score of 3, "rarely" was given a score of 2, and "none" was given a score of 1. The availability of hand washing facilities questionnaire have cutting point "not Support" category is given for respondent answer <(mean value=4.7) and "support" category is given respondent answer ≥(mean value=4.7). Assessment of the questionnaire about availability of health protocol media uses the Guttman scale which consists of 5 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0. The availability of health protocol media questionnaire have cutting point "Not Support" category is given for respondent answer <(mean value=14) and "support" category is given respondent answer ≥(mean value=14). Assessment of the questionnaire about level of HWWS compliance at beach tourism workers uses the Guttman scale which consists of 9 favorable questions where the value of the answer "yes" is given a score of 1 and the answer "no" is given a score of 0, while the 1 unfovarable question answer with the answer "yes" is given a score of 0 and the answer "no" is given a score of 1. The questionnaire has cutting point "poor" category is given for respondent answer<(mean value=9) and "good" category is given respondent answer ≥(mean value=9).

The validity and reliability test of the questionnaire was carried out for beach workers in Pandansari beach, Gadingsari village, Sanden district, Bantul Regency, Special Region of Yogyakarta which similar characteristics as the respondents in this study. In order to obtain a distribution of measurement values close to normal, it is recommended that the number of respondents to validity test at least 20 people [25]. The analysis technique used is the Person correlation product moment, question items are valid if the test results are known that r count ≥r table [26]. Reliability test means is the stability of the measurement, it is said to be reliable if used repeatedly then the value remains the same. In this study, the reliability measurement was carried out in one shot or measured only once. The reliability of this instrument is carried out with Cronbach's alpha, the measuring instrument is said to be reliable if the value of Cronbach's alpha constant ≥(0.6) [26].

Based on the validity and reliability tests, there are 1 invalid and 5 valid question items on the availability of hand washing facilities variable with a reliability test result of (0.618). The availability of COVID-19 health protocols media variable have 2 invalid and 5 valid question items with a reliability test result of (0.658). Then, there are 2 invalid and 10 valid question items on the HWWS compliance variable with a reliability test result of (0.860).

2.3. Data analysis

Univariate analysis to describe respondent characteristics, availability of hand washing facilities, availability of health protocol media, and HWWS compliance of workers data that presented in the frequency distribution table form. The bivariate analysis in this study includes the relationship between the availability of hand washing facilities with HWWS compliance for beach tourism workers, and the availability of health protocol media with HWWS compliance for beach tourism workers in Bantul, Indonesia. The relationship between the independent variable and the dependent variable used statistical analysis with Fisher's test, because there was 1 cell that had an expected count value <5 and a significant level of 5%. Fisher's test is an alternative to the Chi-square test and also non-parametric test.

2.4. Ethical considerations

All respondents provided written informed consent. The protocol was reviewed and it has received ethical approval from the research ethics committee Universitas Ahmad Dahlan. It was categorized as health research using humans as research subjects with number: 012108053.

3. RESULTS AND DISCUSSION

Previous research has looked into hand washing as a preventive measure against a variety of infectious respiratory diseases, including severe acute respiratory syndrome (SARS), hemagglutinin tipe 1 dan neuraminidase tipe 1 (H1N1) influenza, and avian influenza [27]. The scope of previous studies were conducted on healthcare staf [28]. However, the current study was community-based and involved respondents from beach tourism workers in Bantul, Indonesia.

Table 1 describes the respondents' characteristics. The majority of respondents were male as many as 42 respondents (70%) and aged<45 years as many as 34 (56.7%), and high education level as many as 45 (75%). Table 2 shows that 44 respondents supported the majority of the availability of hand washing facilities category (73.3 %). Running water, trash cans, and soap were available for hand washing in the bantul beach tourist condition. The most common type of soap is liquid soap in a bottle. This is a better condition than if the soap was available in the form of a bar. The advantages of liquid soap over solid soap are not easily damaged or dirty, making it more hygienic, easy to carry, easy to store, and the packaging has a distinctive design. Handwashing with soap and water is the simplest and most effective ways to protect oneself and others from the coronavirus [29].

Table 1. Characteristics of respondent

Variables	n	Percentage (%)
Gender		
Male	42	70.0
Female	18	30.0
Age		
<45	34	56.7
46-79	26	43.3
Education level		
Low	15	25.0
High	45	75.0

Table 2. The availability of hand washing facilities, availability of health protocols media for COVID-19, and HWWS compliance level among beach tourism workers

Variables	n	Percentage (%)
Availability of hand washing facilities		
Not support	16	26.7
Support	44	73.3
Availability of health protocols media for COVID-19		
Not support	7	11.7
Support	53	88.3
HWWS compliance level		
Poor	10	16.7
Good	50	83.3

Several hand washing facilities in Bantul beach tourist were discovered to be lacking in tissues as a hand dryer, even though workers use towels or cloth wipes. This condition is frequently hazardous to hand hygiene because repeated use of towels or cloth wipes can cause bacteria/viruses, rendering the hands unsanitary. Tissue paper and automatic hand dryers are more sanitary than towels or cloth wipes because they reduce the risk of transferring bacteria and viruses through one person to another [30]. Pathogens can cause respiratory infections, which are spread by contaminated hands and objects [31]. Therefore, it is necessary to apply good and correct hand washing using soap practice to minimize the transmission of the COVID-19 virus that happening today.

A potential infection route has been identified as touching contaminated surfaces followed by hand-to-face transfer. Since humans involuntarily touch their faces more than 20 times per hour, it is recommended that they wash their hands with soap and water to avoid hand-to-face transmission [19]. Its roughly equivalent percentages of facial mucosal touches are as follows: i) 36% mouth; ii) 31% nose; iii) 27% eyes; and iv) 6% face touches involving a combination of these [32]. Because of the more oily, warmer, and humid conditions on the face around the nose, enveloped viruses such as influenza and coronavirus may find human facial regions a favorable environment for survival, possibly better than on other body parts such as hands [19]. The CDC recommends frequent handwashing with soap and water for 20 seconds to prevent virus transmission [33].

Promotional strategies in the mitigation of COVID-19 transmission would be implemented, including the installation of banners, posters, and announcements over loudspeakers, among other things, to socialize and educate workerss and visitors about the prevention of COVID-19 transmission. The most of the COVID-19 health protocols media available in the category "supports" as many as 53 respondents (88.3 %). Following a large scale promotional strategy, in out findings show enhanced handwashing knowledge and behaviors [34]. The COVID-19 health protocol media conditions at the study area revealed that the majority of respondents decided category "support" in a strategic location media installed, easy to read, and the message conveyed. Health promotion media is said to be effective if the media used is easily understood and contained ideas within it must be accepted, as well as visual attention and will be memorized longer [35].

The results of this study showed that HWWS compliance levels of beach tourism workers were in the category “good” compliance as much as 83.3%. Most beach tourism workers of Bantul have a behavior which obeys the recommendations of the COVID-19 health protocol, HWWS practices to avoid COVID-19 transmission. It is accordance with previous study which reported that people obeyed 77.6% and the category of poor-compliance in washing hands was 22.4% [36]. The consequences of not pursuing hand hygiene guidelines are severe [37]. Promoting hand washing compliance (HWC) is a public health effort [38]. It has also been investigated whether the use HWC visual cues can raise HWC practice in public facilities [39].

The advantage to the public of creating a small, unobtrusive cue for healthier living behaviors is that it is an ideal public health intervention because it does not depend on high-threat communications or other overt stimuli that suffer effectiveness over time [37]. Offering a straightforward, non-intrusive visual cue to rinse station responsiveness will consequence in a long-term increase in HWC compared to an environment with no signal related to capital gain [39]. The affect factor related to the compliance include who has experience will be better at responding to something than those who have no experience, the surrounding environment is supportive then compliance will be achieved better than the not supported-environment, and facilities are fulfilled properly make useful health facilities. This will make a person feel responsible for his/her health [40].

Bivariate analysis (Fisher’s test) in this study was used to determine the relationship between independet variables and dependent variables. Table 3 shows that the majority of respondents adressed the availability of hand washing facilities and COVID-19 health protocols media and had good compliance with HWWS. Satistical tests describes a p-value of 0.017 ($p<0.05$) means that there was a significant relationship between the availability of hand washing facilities and the level of HWWS compliance in the beach tourism workers in Bantul, Indonesia. Based on the biological significance test, the availability of hand washing facilities is a risk factor for the level of HWWS compliance with a 95% confidence interval (CI) value (1.418-25.387) and a prevalence ratio (RP) value of 6, meaning that respondents who receive the availability of handwashing facilities do not support the risk. which is 6 times more likely to be poor compliance with HWWS compared to respondents who have the availability of supportive handwashing facilities. It is contrary with the statistical test of COVID-19 health protocols media variable obtained a p-value of 1,000 ($p>0.05$), meaning that there was no significant relationship between the availability of the COVID-19 health protocol media and the level of HWWS compliance among beach tourism workers in Bantul, Indonesia.

Table 3. Correlation between availability of hand washing facilities and availability of COVID-19 health protocols media with HWWS compliance level among beach tourism workers

Variables	HWWS compliance level		Total number	RP (95% CI)	p-value
	Poor	Good			
	n (%)	n (%)	N (%)		
Availability of hand washing facilities					
Not support	6 (10)	10 (16.7)	16 (26.7)	6 (1.418-25.387)	0.017
Support	4 (6.7)	40 (66.7)	44 (73.3)		
Availability of COVID-19 health protocols media					
Not support	1 (1.7)	6 (10)	7 (11.7)	0.8 (0.087-7.617)	1.000
Support	9 (15)	44 (73.3)	53 (88.3)		

The previous study is similar with this current study which reported that there was a significant relationship between the availability of facilities and infrastructure to the compliance of the COVID-19 health protocol in the community. Non-compliance behavior was caused by insufficient hand washing sink number and location of sinks that are not strategic [13]. The results of this study are in accordance with research that hand hygiene behavior in some developing countries is very influential on access to the availability of clean water supply and the use of soap for hand washing [41]. Handwashing practice was measured in a related study by observing handwashing demonstrations, noticeable hand cleanliness, and the availability of handwashing facilities and cleansing agents [34]. The scientific proof for the implications of

mass media on water, sanitation, and hygiene-related health behavior knowledge and practices is mixed. A Tanzanian study discovered a relationship between media access and improved knowledge of water, sanitation, and hygiene [42]. The population characteristics linked to improved behaviors develops over time, or the before and after cross-sectional samples also include participants with varying characteristics [34]. Hand hygiene knowledge and compliance of workers are make such positive behaviors could be established by maintain these into the optimal culture in workplace settings [43].

There was no significant relationship between the availability of COVID-19 protocol media and HWWS compliance level in this study. Although health protocol media is available and supported, but the beach tourism workers not frequently to practice HWWS. The factor that influences is a low reading culture. According to the United Nations Educational Scientific and Cultural Organization (UNESCO) findings, the reading habits of Indonesian people in low category, only 1 in 1,000 people in Indonesians who read. This condition is clearly concerning. The ability and reading skills are the basis for the acquisition of knowledge, skills, and attitude formation [44].

This study is consistent with other studies which reported no association between exposure to HWWS information and HWWS practice. HWWS practices are not good due to exposure to poor HWWS information by 30.8% respondents [45]. Provision of health promotion media to remind us carry out clean and healthy living behaviors. Installing health promotion media is needed, so that many people can see it. Likewise, posters of hand washing steps using soap in the handwash always remind people to do HWWS and critical time to clean hands with soap [46], [47].

There are some limitations that should be considered. This study was conducted during a pandemic period and distribution of questionnaire depend on beach tourism workers who worked shift only, the results study depend on the seriousness of the respondents in filling out the questionnaire. The collecting primary data just one time, the resercher did not directly observe the daily activities of respondents even continuously to find out the HWWS practice which affect compliance among beach tourism workers.

4. CONCLUSION

This study concluded that availability of hand washing facilities and health protocols media for COVID-19 are majority in "support" category and the beach workers have "good" compliance level of HWWS. In addition, our finding highlighted that the availability of hand washing facilities was related to HWWS compliance level among beach tourism workers. In order to reduce the transmission rate of COVID-19 in public facilities, the government should monitor and evaluate health behavior practices, enhance the availability of HWWS facilities, and adjust to relevant COVID-19 health protocols media.

ACKNOWLEDGEMENTS

This study was funded by the Universitas Ahmad Dahlan, Indonesia, with contract no. PD-248/SP3/LPPM-UAD/VI/2021.

REFERENCES

[1] World Health Organization, "WHO coronavirus (COVID-19) dashboard," *World Health Organization*, 2021. https://covid19.who.int/region/searo/country/id (accessed Nov. 21, 2021).

[2] Ministry of Health, "The latest situation of the development of coronavirus disease (COVID-19) March 21, 2021," *Ministry of Health*, 2021. www.Kemkes.go.id (accessed Nov. 21, 2021).

[3] K. Karyono, R. Rohadin, and D. Indriyani, "Handling and prevention of the corona virus outbreak (COVID-19) in Indramayu Regency," *Jurnal Kolaborasi Resolusi Konflik*, vol. 2, no. 2, pp. 164–173, Aug. 2020, doi: 10.24198/jkrk.v2i2.29127.

[4] E. Yanti, N. Fridalni, and H. Harmawati, "Prevent transmission of coronavirus," *Jurnal Abdimas Saintika*, vol. 2, no. 1, pp. 33–39, 2020, doi: 10.30633/jas.v2i1.553.

[5] I. Izzaty, "Government policy in handling panic buying due to COVID-19," *Info Singkat*, vol. 12, no. 5, pp. 19–24, 2020, [Online]. Available: https://berkas.dpr.go.id/sipinter/files/sipinter-624-478-20200707164632.pdf

[6] D. K. Lamichhane, S. Shrestha, and H.-C. Kim, "District-level risk factors for COVID-19 incidence and mortality in Nepal," *International Journal of Environmental Research and Public Health*, vol. 19, no. 5, pp. 2659–2672, Feb. 2022, doi: 10.3390/ijerph19052659.

[7] World Health Organization, "Water, sanitation, hygiene and waste management for the COVID-19 virus," *World Health Organisation*, 2020. https://apps.who.int/iris/handle/10665/331499 (accessed Nov. 21, 2021).

[8] T. Jefferson *et al.*, "Interventions for the interruption or reduction of the spread of respiratory viruses," in *Cochrane Database of Systematic Reviews*, no. 4, T. Jefferson, Ed. Chichester: John Wiley & Sons, Ltd, 2007, pp. 1465–1858. doi: 10.1002/14651858.CD006207.pub2.

[9] N. Sharif *et al.*, "Protective measures are associated with the reduction of transmission of COVID-19 in Bangladesh: A nationwide cross-sectional study," *PLoS ONE*, vol. 16, no. 11, pp. 1–13, Nov. 2021, doi: 10.1371/journal.pone.0260287.

[10] L. Khedmat, "New coronavirus (2019-nCoV): An insight toward preventive actions and natural medicine," *International Journal of Travel Medicine and Global Health*, vol. 8, no. 1, pp. 44–45, Mar. 2020, doi: 10.34172/ijtmgh.2020.07.

[11] D. Prastiwi and M. A. Anindhita, "Education on covid-19 prevention health protocols in the new normal era at youth youth organizations in Batang Regency," *Abdimas*, vol. 2, no. 1, pp. 25–29, 2021, [Online]. Available: https://jurnal.unikal.ac.id/index.php/abdimas/article/view/1292
[12] Y. Nuriati, A. Heryana, I. S. Mustikawati, and N. W. Sangadji, "Employee perception of the availability of COVID-19 facilities and means of handling in the workplace is related to compliance," *Jurnal Kesehatan Masyarakat*, vol. 9, no. 4, pp. 566–575, 2021, doi: 10.14710/jkm.v9i4.30224.
[13] F. Kasim, B. Satria, B. Wasliati, K. Sitepu, I. N. Saputri, and H. G. Sihite, "Factors relating to public compliance with the COVID-19 health protocol," *Jurnal Kesmas Dan Gizi (Jkg)*, vol. 3, no. 2, pp. 207–212, Apr. 2021, doi: 10.35451/jkg.v3i2.687.
[14] M. S. Pulungan, "The role of students in socializing the COVID-19 health protocol through the KKL DR IAIN Padangsidimpuan program," *Jurnal At-Taghyir*, vol. 2, no. 2, pp. 291–308, 2020, doi: 10.24952/taghyir.v2i2.2727.
[15] W. Suprihatin, "Analysis of consumer behavior of tourists era cCOVID-19 pandemic (tourism case study in West Nusa Tenggara)," *Jurnal Bestari*, vol. 1, no. 1, pp. 56–66, 2020.
[16] N. Karlina, D. Muhafidin, and E. Susanti, "Implementation of the COVID-19 protocol in ecotourism-based agrotourism management in the pandemic period," *Sawala: Jurnal pengabdian Masyarakat Pembangunan Sosial, Desa dan Masyarakat*, vol. 2, no. 1, pp. 28–36, Jan. 2021, doi: 10.24198/sawala.v2i1.29921.
[17] Q. X. Ma, H. Shan, H. L. Zhang, G. M. Li, R. M. Yang, and J. M. Chen, "Potential utilities of mask-wearing and instant hand hygiene for fighting SARS-CoV-2," *Journal of Medical Virology*, vol. 92, no. 9, pp. 1567–1571, 2020, doi: 10.1002/jmv.25805.
[18] M. C. Freeman *et al.*, "Assessing the impact of a school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza Province, Kenya: A cluster-randomized trial," *Tropical Medicine & International Health*, vol. 17, no. 3, pp. 380–391, Dec. 2012, doi: 10.1111/j.1365-3156.2011.02927.x.
[19] A. Przekwas and Z. Chen, "Washing hands and the face may reduce COVID-19 infection," *Medical Hypotheses*, vol. 144, p. 110261, Nov. 2020, doi: 10.1016/j.mehy.2020.110261.
[20] A. Yulianto, "Analysis of favorite tourist sttractions based on number of visitors in the Special Region of Yogyakarta," *Media Wisata*, vol. 15, no. 2, pp. 555–567, Jun. 2021, doi: 10.36276/mws.v15i2.109.
[21] F. Damasdino, "Study of characteristics of tourists and development efforts, thematic tourism products in Goa Cemara beach, Kuwaru Beach, and Pandansimo Baru beach Bantul Regency," *Media Wisata*, vol. 13, no. 2, pp. 308–320, Sep. 2021, doi: 10.36276/mws.v13i2.224.
[22] Bantul Health Service, "Bantul prepadness to COVID-19," *Bantul government*, 2021. https://corona.bantulkab.go.id/ (accessed Jul. 17, 2021).
[23] S. Zielinski and C. M. Botero, "Beach tourism in times of COVID-19 pandemic: Critical issues, knowledge gaps and research opportunities," *International Journal of Environmental Research and Public Health*, vol. 17, no. 19, pp. 1–19, Oct. 2020, doi: 10.3390/ijerph17197288.
[24] M. D. Hillier, "Using effective hand hygiene practice to prevent and control infection," *Nursing Standard*, vol. 35, no. 5, pp. 45–50, Apr. 2020, doi: 10.7748/ns.2020.e11552.
[25] S. Notoatmodjo, *Health research methodology*. Jakarta: Rineka Cipta, 2014.
[26] A. Riyanto, *Application of health methodology*, Edisi 1. Yogyakarta: Nuha Medika, 2011.
[27] J. S. W. Wong and J. K. F. Lee, "The common missed handwashing instances and areas after 15 years of hand-hygiene education," *Journal of Environmental and Public Health*, pp. 1–7, Aug. 2019, doi: 10.1155/2019/5928924.
[28] P. T. James, A. Kunoor, and P. S. Rakesh, "Awareness of health care workers, patients and visitors regarding air borne infection control–a descriptive study from a tertiary care centre in Kerala, Southern India," *Indian Journal of Tuberculosis*, vol. 65, no. 2, pp. 168–171, Apr. 2018, doi: 10.1016/j.ijtb.2017.08.028.
[29] O. Al-Wutayd, A. E. Mansour, A. H. Aldosary, H. Z. Hamdan, and M. A. Al-Batanony, "Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: A non-representative cross-sectional study," *Scientific Reports*, vol. 11, no. 1, pp. 1–12, Dec. 2021, doi: 10.1038/s41598-021-96393-6.
[30] K. Kusmiyati, E. R. Sinaga, and W. Wanti, "Hand washing habits, condition of hand washing facilities and the presence of E.Coli on the hands of food vendors in restaurants in the Oebobo Kupang health center work area in 2012," *Jurnal Info Kesehatan*, vol. 11, no. 2, pp. 417–427, 2012.
[31] L. H. Kwong, A. Ercumen, A. J. Pickering, L. Unicomb, J. Davis, and S. P. Luby, "Age-related changes to environmental exposure: Variation in the frequency that young children place hands and objects in their mouths," *Journal of Exposure Science and Environmental Epidemiology*, vol. 30, no. 1, pp. 205–216, 2020, doi: 10.1038/s41370-019-0115-8.
[32] Y. L. A. Kwok, J. Gralton, and M. L. McLaws, "Face touching: A frequent habit that has implications for hand hygiene," *American Journal of Infection Control*, vol. 43, no. 2, pp. 112–114, 2015, doi: 10.1016/j.ajic.2014.10.015.
[33] Centers for Disease Control and Prevention, "Show me the science–how to wash your hands," *CDC*, 2020. https://www.cdc.gov/handwashing/show-me-the-science-handwashing.html (accessed Dec. 05, 2021).
[34] M. Islam *et al.*, "Effectiveness of mass media campaigns to improve handwashing-related behavior, knowledge, and practices in Rural Bangladesh," *American Journal of Tropical Medicine and Hygiene*, vol. 104, no. 4, pp. 1546–1553, Apr. 2021, doi: 10.4269/ajtmh.20-1154.
[35] F. Hikmawati, *Counseling guidance*. Jakarta: King Grafindo Persada, 2011.
[36] A. Mulyawan, R. Sekarsari, N. Nuraini, and E. Budi, "Overview of community compliance level in the implementation of post vaccination health protocol COVID-19," *Edu Dharma Journal: Jurnal penelitian dan pengabdian masyarakat*, vol. 5, no. 2, pp. 43–51, Sep. 2021, doi: 10.52031/edj.v5i2.175.
[37] S. Miller, L. Yardley, and P. Little, "Development of an intervention to reduce transmission of respiratory infections and pandemic flu: Measuring and predicting hand-washing intentions," *Psychology, Health & Medicine*, vol. 17, no. 1, pp. 59–81, Jan. 2012, doi: 10.1080/13548506.2011.564188.
[38] J. R. B. Halbesleben, C. Rathert, and S. F. Bennett, "Measuring nursing workarounds," *JONA: The Journal of Nursing Administration*, vol. 43, no. 1, pp. 50–55, Jan. 2013, doi: 10.1097/NNA.0b013e31827860ff.
[39] E. W. Ford, B. T. Boyer, N. Menachemi, and T. R. Huerta, "Increasing hand washing compliance with a simple visual cue," *American Journal of Public Health*, vol. 104, no. 10, pp. 1851–1856, Oct. 2014, doi: 10.2105/AJPH.2013.301477.
[40] I. Samidah, M. Murwati, and S. Sulastri, "The influence of health education in complying with the COVID-19 health protocol in Pondok Batu village of Mukomuko Regency in 2020," *Journal of Nursing and Public Health*, vol. 9, no. 1, pp. 35–39, Jun. 2021, doi: 10.37676/jnph.v9i1.1434.
[41] G. Howard *et al.*, "COVID-19: Urgent actions, critical reflections and future relevance of 'WaSH': Lessons for the current and future pandemics," *Journal of Water and Health*, vol. 18, no. 5, pp. 613–630, Oct. 2020, doi: 10.2166/wh.2020.162.
[42] C. C. Alexander *et al.*, "Media access is associated with knowledge of optimalwater, sanitation and hygiene practices in Tanzania," *International Journal of Environmental Research and Public Health*, vol. 16, no. 11, pp. 1–10, Jun. 2019, doi:

10.3390/ijerph16111963.
[43] E. Tjoa, C. Mahendra, S. Suryanto, S. Theresia, M. Wirjanata, and D. A. Soeselo, "Hand hygiene knowledge, perception, and compliance among healthcare workers," *International Journal of Public Health Science (IJPHS)*, vol. 11, no. 2, pp. 405–416, Jun. 2022, doi: 10.11591/ijphs.v11i2.21263.
[44] P. Wiedarti *et al.*, *School literacy movement master design*. Jakarta: Directorate General of Primary and Secondary Education, Ministry of Education and Culture, 2018.
[45] N. Mukminah, V. T. Istiarti, and S. BM, "Factors related to hand washing practices using soap in elementary school students in the working area of Banyuurip Purworejo health center," *Jurnal Kesehatan Masyarakat*, vol. 4, no. 5, pp. 354–361, 2016, doi: 10.14710/jkm.v4i5.14628.
[46] D. A. C. Situmorang, "Application of hand washing using soap in the elderly in preventing COVID-19 analyse in nursing home winners Of Medan city," M.S. *Thesis*, Dept. Public Health, Univ., Sumatera Utara, Medan, Indonesia, 2021. [Online]. Available: https://repositori.usu.ac.id/handle/123456789/31778
[47] Ministry of Health, "Ministry of health No. HK.01.07/MENKES/382/2020 on public health protocols in places and public facilities in the framework of prevention and control of corona virus disease 2019 (COVID-19)." Ministry of Health, Jakarta, pp. 8–15, 2020.

BIOGRAPHY OF AUTHORS

Musfirah is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interests are focused on Environmental Health Risk Assestment, Environmental Pollution, Hygiene & Sanitation, Chemical Hazard Pollution & Contaminantion, and Health of Settlements and Buildings. She is author of several international publications about environmental health risk assessment and environmental pollution. She can be contacted at email: musfirah@ikm.uad.ac.id.

Ahmad Faizal Rangkuti is a lecturer on Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Research Topics Interest are Hygiene & Sanitation, Sanitation of Public Places, Health of Settlements and Buildings. He has published several peer reviewed articles on the subject of sanitation and environmental health aspect. He can be contacted at email: faizal.rangkuti@ikm.uad.ac.id.

Fenni Nurul Khotimah is bachelor degree graduated from Public Health Department, Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia. Her research interest is environmental health aspect with focused health tourism. She can be contacted at email: fenninurulkhotimah11@gmail.com.

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