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

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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.

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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 tourism 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) 3 % 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. Statistical 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 Poor n (%)	Good n (%)	Total number N (%)	RP (95% CI)	p-value
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 reserchер 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.

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