Analyzing the adoption of clean and Healthy Living Behaviors

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Analyzing the Adoption of Clean and Healthy Living Behaviors against COVID-19
Students in Indonesia

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Abstract:

The ease of getting information influences students adopting the behavior.
Purpose:
Analyzing indicators of clean and healthy living behavior on students, and finding the effect of information on students' clean and healthy living behavior in dealing with COVID-19.
Methods:
This type of research is quantitative and uses a cross-sectional study design. The study was conducted from March – to June 2020. The sample of students at one of the state universities in Medan City was 352 respondents. Data were collected through a survey using a questionnaire. Path analysis is used to determine the effect of the relationship between variables x on y. The influence of the respondent's characteristic variables (X1) on the consumption of nutritious food (Y1) exercise habits (Y2), handwashing habits (Y3), environmental hygiene (Y4), smoking habits (Y5), wearing masks (Y6), water consumption (Y7), consumption of cooked food (Y8), use of health facilities (Y9), the habit of praying (Y10). The effect of access to information (X2) on the consumption of nutritious food (Y1), exercise habits (Y2), handwashing habits (Y3), environmental hygiene (Y4), smoking habits (Y5), wearing masks (Y6), water consumption (Y7), consumption of cooked food (Y8), use of health facilities (Y9), the habit of praying (Y10).
Results:
We found that information affected the consumption of nutritious food, the T-statistic value of 2.603, information affected exercise habits, the T-statistic value of 1.970, information affected handwashing habits the T-statistic value of 2.941, information affected the use of health facilities the T-statistic value 4.631 and individual characteristics influenced the use of masks the T-statistic value 2,167.
Conclusion:
Information affects clean and healthy living behavior, information media is an effective way and impetus for students to adopt the behavior. Information that is presented in a good, interesting way has direct implications for behavior change.

Keywords: COVID-19, clean and healthy living behavior, access to information, washing hands, nutritious food, wearing masks, smoking, exercise

1. INTRODUCTION

The emergence of the COVID-19 disease in Wuhan has spread throughout the world. No exception cases of COVID-19 also appeared in Indonesia from March 2020 to January 13, 2021, there were 91,968,829 million confirmed positive cases, 231,846 patients were declared cured and 10,819 of them died [1]. Such a rapid, widespread, and dead spread has become a global health problem. All countries are affected by COVID-19, declining income and asset investment [2]. International trade is significantly affected due to restrictions on access between countries [3]. Malaysia results in unemployment, job losses, and company closures [4]. The World Health Agency stated that the rapid increase was due to person-to-person transmission [5]. Therefore, limiting social contact, and implementing clean and healthy living behavior (PHBS) are needed to break the chain of transmission from person to person. If these efforts are not carried out, the number of these diseases will continue to increase and the threat of death will increase.

The Ministry of Health of the Republic of Indonesia has developed a strategy to improve the quality of public health through the movement for clean and healthy living behaviors, this program started in 2016 [6]. The Clean

and Healthy Behavior Program includes 1) consumption of nutritious food. 2) exercise habits. 3) the habit of washing hands. 4) environmental cleanliness. 5) smoking habits. 6) use a mask. 7) water consumption. 8) consumption of cooked food. 9). take advantage of health facilities. 10) the habit of praying. Decree of the Minister of Health No. HK.01.07-Menkes-328-2020 health protocols in public places and facilities to prevent COVID-19. However, the implementation of clean and healthy living behavior has not been implemented by the entire community until now. Families who had a clean and healthy lifestyle in the city of Jakarta in 2017 were 51% of the 466,828 household heads surveyed [7]. Along with the COVID-19 pandemic outbreak in Indonesia, modifications were made to the application of clean and healthy living in the family to prevent the spread of COVID-19. The implementation of PHBS in student groups has been carried out by previous researchers, there is no significant difference between PHBS for health and non-health students [8]. The Indonesian government has socialized the movement for clean and healthy living and health protocols in public places during the new normal nationally to suppress COVID-19 cases through health promotion activities. But clean and healthy living behavior has not been applied, especially to students. Kumar (2013) states that health promotion is an effective and relevant medium to improve health globally [9].

The World Health Agency provides strategic steps to reduce the spread of this disease, by staying at home, maintaining physical distance, using masks, consuming nutritious food, and getting used to washing hands. Relevant Wang (2021) explains social isolation and self-quarantine as the optimal strategy to prevent an increase in cases [10]. Jalal explained that restrictions for a long time to minimize the spread of COVID-19 will not be accepted by the community and people's lives will slowly return to normal [11]. This condition has already occurred in Indonesia, the end of social restrictions and the start of the new normal people do not heed health procedures in public places. However, it is feared that the spread of COVID-19 will not stop. Approach to the concept of behavior according to L. Green is influenced by supporting, enabling, and driving factors. However, in this study, the L Green theory has not been able to explain the phenomenon of a person adopting a clean and healthy lifestyle. Different conditions are found, there are other factors, namely, the role of information media which is assumed to affect a person's willingness to adopt healthy behavior. Previous research on health behavior in students stated that student behavior was influenced by their environment [12]. The environment has a very large influence on a person's adopting behavior.

The Indonesian government has socialized the application of clean and healthy living behaviors and the application of health protocols to all levels of society, workers, students, and university students. One of the implementations of PHBS in the school setting, thus strengthening the culture of the community in the school environment. PHBS in the school environment is 93.7% less category [12]. It means that clean and healthy living behavior in schools has not been implemented, which means that the Ministry of Health of the Republic of Indonesia's program of clean and healthy living behavior has not been successful. The application of PHBS for non-health students is 49.2% lower than students in the health faculty. Research subjects are distinguished based on the fields of social science, humanities, and health. Clean and healthy living behavior programs are studied in health student courses, and not in non-health student courses. Previous research [8] found the results of interviews with informants at SMPN X were many students not doing PHBS, such as washing hands with soap and running water [13]. It is necessary to promote the promotion of the application of clean and healthy living behaviors at all levels of society, including students as one way to suppress the spread of COVID-19. It was found that access to information affects clean and healthy living behavior

Based on this, it is necessary to study the implementation of PHBS on students, as well as the tendency of students to adopt behaviors so that a description of students' awareness in implementing clean and healthy living behaviors in dealing with COVID-19 as well as PHBS indicators that are applied by students is obtained. This study becomes an input in assessing indicators of clean and healthy living behavior applied by students, and factors that influence clean and healthy living behaviors in students. The purpose of the study was to find indicators of clean and healthy living behaviors carried out by students and to prove that access to information affected students' clean and healthy living behaviors in dealing with COVID-19. This research contributes to the Indonesian government, especially the Ministry of Health in the field of health promotion, to take the right way to use information media that is easily accessible as an approach to the community adopting clean and healthy living behaviors to prevent the spread of COVID-19. The other researchers only research clean and healthy living behavior, there is no variable access to information.

2. METHODS

2.1 Study design and participants

This type of quantitative research is carried out using a cross-sectional research design. Researchers collected data once during the research period and then studied and analyzed it in [14]. According to Hardadini (2020), there are 2 forms of surveys, namely cross-sectional surveys and longitudinal surveys [15]. The research was conducted with students at one of the Universitas Islam Negeri Sumatera Utara in Medan City. This is based on the consideration that research was carried out during the pandemic and imposed restrictions on activities outside the home, campus, and public places so that the determination of the population is affordable at one university. Data were collected using a survey from March – to June 2020.

2.2 Inclusion criteria

To avoid selection bias, the researcher set the criteria for the eligibility of the sample. The sample was determined by purposive sampling, the criteria were determined: 1) willing to become research respondents. 2) fill out the questionnaire completely. 3) the status of active students at the universities studied. Obtained 571 respondents who filled out the questionnaire, and the amount 352 respondents who were used as research samples met the inclusion criteria. Exceptions to the sample were because they did not fill out the questionnaire completely, and alumni were not active students. Sample recruitment process through student organizations at the Universitas Islam Negeri Sumatera Utara. Figure 1, Flowchart of research criteria:

2.3 Data collection

Data was collected using an online questionnaire compiled by the researcher and modified and added 2 variables, namely, characteristics and access to information. Questionnaires were sent via google forms, then distributed by members of student organizations to be distributed to the target population. Indicators of clean and healthy living behavior include: 1) consumption of nutritious food, 2) exercise and rest habits, 3) habit of washing hands with soap, 4) maintaining environmental cleanliness, 5) smoking behavior, 6) using masks, 7) consumption of mineral water, 8) eating perfectly cooked food, 9) utilization of health facilities and 10) praying were research variables. The total number of questions is 30 items, consisting of 4 scales such as 4 = yes, always, 3 = yes, often, 2 = sometimes, and 1 = no. The minimum score is 30 and the maximum score is 120.

The information access questionnaire was developed by researchers based on research results [16]. Consists

of 4 indicators 1) source of information 2) frequency of accessing information 3) ease of access, and 4) time of accessing information. The total number of questions is 4 items. Referring to previous research using a mixed-method design combining quantitative and qualitative methods. The technique of determining the size of the sample using the quantitative approach is the SLovin formula, the sample is determined by the probability sampling technique. Quantitative data analysis using SEM-PLS. The qualitative approach was carried out using a Focus Group Discussion. Qualitative data analyzed by TAM (Technology Acceptance Model) is a model that measures technology acceptance. Previous researchers analyzed the relationship between the acceptance of information technology and other variables [16]. Internal consistency was measured using Cronbach alpha consistent if > 0.6. The research instrument scale consists of 4 scales, namely, 4 = yes, always, 3 = yes, often, 2 = sometimes, and 1 = no. Minimum score 12 maximum 48. Access to information is classified into 2 categories: high (scores 25 – 48), and low (scores 12 – 24).

The research has received research ethics approval from the Health Research Ethics Committee No: RK.07/KEPK/STIK/IV/2020. Before the questionnaire research, the validity and reliability were tested on 30 respondents. Validity and reliability tests were conducted at the faculty of science and technology Universitas Islam Negeri Sumatera Utara Medan. The test results of the questionnaire were declared valid and reliable.

2.4 Statistical Analysis

Characteristic data were analyzed using frequency distribution. The analysis of the adoption of clean and healthy living behavior was carried out by path analysis using the PLS software Version 3.0. The hypothesis was accepted based on the significance level of p-value < 0.05 or T statistic > 1.96. The questionnaire is equipped with a respondent's consent form. The relationship between latent variables and indicators in the outer model. A valid indicator is the value of the outer model (> 0.5). Proof of the hypothesis through the relationship path using the PLS application with a bootstrapping stage. After the process, the results of the t-statistic are significant if (t-statistic > 1.96).

Research hypotheses: 1) there is an effect of respondent's characteristics on the consumption of nutritious food. 2) there is an effect of the respondent's characteristics on exercise habits. 3) there is an influence of the respondent's characteristics on the habit of washing hands. 4) there is an effect of the respondent's characteristics on environmental cleanliness. 5) there is an effect of respondent's characteristics on smoking habits. 6) there is an effect of the respondent's characteristics on the habit of using a mask. 7) there is an effect of respondent's characteristics on drinking water consumption. 8) there is an effect of respondent's characteristics on the consumption of cooked food. 9) there is an effect of respondent's characteristics on the utilization of health facilities. 10) there is an effect of respondents' characteristics on prayer habits. 11) there is an effect of access to information on the consumption of nutritious food. 12) there is an effect of access to information on exercise habits. 13) there is an effect of access to information on handwashing habits. 14) there is an effect of access to information on environmental cleanliness. 15) there is an effect of access to information on smoking habits. 16) there is an effect of access to information on the habit of using masks. 17) there is an effect of access to information on drinking water consumption. 18) there is an effect of access to information on the consumption of cooked food. 19) there is an effect of access to information on the utilization of health facilities. 20) there is an effect of access to information on prayer habits.

3. RESULTS

The following results of descriptive data analysis based on the characteristics of research respondents are shown in Table 1, the research hypothesis test is shown in Figure 2, and in Table 2 the results of significant hypothesis testing.

The results of a cross-sectional survey on 352 samples, the characteristics of the majority of the sample are > 20 years old, 186 (52.8%), minimum age of 17 years, and a maximum of 23 years. Sex was dominated by women, 303 (88.1%), non-science faculty 266 people (75.6%), and the majority of respondents live in villages with 252 people (71.6%) compared to 100 respondents living in urban areas.

Access to information in the high category was dominated by 183 students (52%), consumption of nutritious food in the good category, by 307 people (87.2%), exercise habits in the routine category by 217 people (61.6%), the habit of washing hands with soap in the routine category 325 people (92.3%), environmental hygiene in the good category, 277 people (78.7%), having smoking habits or smoking family members, 207 people (58.8%), the habit of using masks in routine category (338 people (96%), the habit of consuming water in good category 259 people (73.3%), have the habit of eating food that is not cooked perfectly 316 people (89.8%), the majority do not use health facilities 330 people (93.8%), have the habit of praying 323 people (91.8%). Good criteria based on a questionnaire score of 8-12 respondents answered 3 questions with a positive answer of "yes, always" weighting (4) or "yes, often" weighting (3). The criteria are not good based on a questionnaire score of 4-7 respondents answered 3 questions with negative answers "sometimes" with a weight of (2) or "no" weight of (1). Furthermore, Figure 1 shows the relationship between latent variables and indicators in the outer model. Referring to the concept of SEM-PLS indicator declared valid determined based on the Cronbach loading factor value of more than 0.7, composite reliability value above 0.6, and AVE value greater than 0.5 [17].

Valid indicators measuring the characteristics of respondents are gender (0.783), the frequency indicator of accessing information is declared valid (0.979), only 1 indicator of the habit of using masks is valid (0.973), and 1 indicator of health facility utilization is valid (0.987). The indicators that were declared entirely valid were the consumption of nutritious food, exercise, hand washing, environmental hygiene, smoking, drinking water consumption, cooking food, and praying habits (> 0.5).

The relationship between latent variables and indicators is known from the analysis of the outer model. An indicator is declared valid if the value of the outer model (> 0.5). Proof of the hypothesis through the relationship path using the PLS application with the bootstrapping stage the t-statistical value is significant if (t-statistics > 1.96.) After the bootstrapping process, the results of the t-statistics are shown in table 3 below:

Table 3 shows that proving the hypothesis through the variable relationship path (X1, X2), respondent characteristics, and access to information on 10 indicators of clean and healthy living behavior in preventing COVID-19, using the PLS application with a bootstrapping stage. After the process, the results of the t-statistic are significant if (t-statistic > 1.96), so there are 5 accepted hypotheses, namely: information affects the

consumption of nutritious food, the T-statistic value is 2.603, the mean is 0.166, and the standard deviation is 0.062. Information affecting exercise habits T-statistic value 1.97, mean 0.121, and standard deviation 0.053. Information affecting hand washing habits, T-statistic value was 2,941, mean was 0.053, and standard deviation was 0.155. Information affecting the use of health facilities T-statistic value of 4.631, mean of 0.218, and standard deviation of 0.047. Individual characteristics affect the use of masks, the T-statistic value is 2.167, the mean is 0.241, and the standard deviation is 0.115. Because access to information supports the clean and healthy behavior of students, the government needs to increase the socialization of the application of clean and healthy living behavior through television, radio, and social media as well as easy access to information for all regions in Indonesia.

The research paradigm refers to the L.Green concept that behavior is influenced by supporting, motivating, and enabling factors. However, the researcher assumes that there are other factors, namely information media that influence clean and healthy living behavior. Therefore, the hypothesis is set to refer to the L. Green concept and add information access variables.

DISCUSSION

Gender is a valid indicator to measure the characteristics of respondents. The majority of respondents are female, this is supported by data from the Central Statistics Agency in 2018, where the ratio of male to female sex is 1:10. This data is sourced from 25 regencies and 8 cities in North Sumatra Province [18]. All research respondents were students from North Sumatra Province, Indonesia. The greater distribution of female sex ratios influences behavior and competition among women themselves. Therefore women have more courage to compete in everything. Other indicators of age, faculty, ethnicity, and area of residence are not valid. The age range of the respondents is 17 – 23 years, the age category of young adults has the same development so that there is almost no difference in the age range which is declared invalid by the age indicator.

The degree of health of a community group is influenced by genetics, which is inherited from parents, the availability of health facilities, the environment in which they live, and individual behavior. Individuals will change their behavior when they are in a threatening situation. This explanation is by the concept of the health belief model, situations that threaten health and individuals who have the belief that they are in a dangerous situation require individuals to adopt behaviors that support health [19].

Support for individual behavior to implement clean and healthy living behavior during a pandemic can reduce the spread of COVID-19, but a collaborative approach by building community immunity through vaccination must be carried out. Moreover, Shi's research (2021) states that Covid-19 has a permanent impact in Indonesia [20]. Giving vaccines is important to prevent the spread of the pandemic [21]. The pattern of the COVID-19 pandemic is unpredictable, therefore a strict step that needs to be taken is to increase vaccination [22]. Other researchers mentioned that the COVID-19 outbreak created job opportunities in pharmaceutical, vaccine, and laboratory tests [23].

The results of the study prove that information affects clean and healthy living behavior, it is necessary to share information through social media such as Facebook, Twitter, or Instagram. Relevant to previous research, it is stated that social media is the right tool to build behavior in society because it is widely used, efficient, and convenient [24]. Respondents apply clean and healthy living behavior by consuming nutritious food, doing sports activities, washing hands, and utilizing health facilities because of the information submitted by the Ministry of

Health from time to time the number of new patients who were declared positive, died and recovered through television, electronic paper, web, and other social media. This number continues to grow so that the information provides a positive stimulus for the community to implement clean and healthy living behaviors. The results of this study have similarities with Kim's previous research (2018) which states that health education is a way of providing information and knowledge to a community to increase understanding of health and adopt healthy behavior [12],[19]. Behavior change is supported by effective communication with the community [25]. A good understanding will encourage individuals to adopt behaviors that are beneficial for themselves.

On the other hand, individual behavior to adopt healthy behavior is determined by independent responsibility. Martini (2019) argues that behavior is driven by a desire to do and a caring attitude towards something. This behavior change is driven by the role of health promotion activities that prioritize individual responsibility for the environment [26]. Health promotion in the UK emphasizes individual responsibility so that they want to change healthy living behavior [27],[26]. The age of respondents is in the adult category, having the ability to decide independently to adopt behaviors that they think are beneficial, so the trend of positive data. This is to the results of the study that individual characteristics affect the use of masks. In fact, in public places such as markets, and places of worship, people wear masks, but groups of children aged < 12 years, both in schools and places of worship, do not wear masks. Previous research explained that the differences in age and gender showed significant behavioral differences [28].

Concerns about the risk of transmission of COVID-19 in children, supported by previous research that coronavirus infection also occurs in the group of children, and almost half of the cases are asymptomatic. Radiological examination results were declared normal. It is suspected that this transmission occurred due to contact with adults, or being in a pandemic area. On the other hand, children do not yet have responsibility for themselves, especially for health problems. Even a survey of the group of children aged 10 years and over based on the results of the Basic Health Research on correct hand washing habits of 49.8% [29]. This means that the potential for transmission in this group is very possible. The spread of COVID-19 infection can be stopped through the habit of washing hands with soap or hand sanitizer. Health promotion activities such as health education through the provision of information, and social and environmental approaches will increase understanding and beneficial behaviors, to adopt healthy behaviors [12].

The advantage of this research is that the findings on the role of information expand the theory of behavior change based on L. Green's theory and the theory of health belief models have the privilege of the concept of self-efficacy, a person's belief to act. Beliefs will be stronger encouraging individuals to act supported by the information they receive. The community plays a role in suppressing the spread of COVID-19. Naeini argues that success in preventing the spread of COVID-19 is determined by community involvement takes an important role in the spread of this disease [30]. Public awareness of the spread of COVID-19 is determined by trust in health information. Information about COVID-19 affects people's social behavior. The public does not take safe actions to protect themselves from the COVID-19 outbreak due to the information crisis [31. Current health problems can be overcome by adopting a holistic approach [9] to community empowerment and building cross-sectoral policies to foster public trust [9]. Similarly, research conducted by Fuller et al (2021) found that uncertain health information resulted in public doubts about vaccines, therefore a policy of removing systematic barriers must be carried out [32].

The results of the study apply to the study population, which has the same characteristics as the adult age sample and is in the same campus environment situation. The population of Indonesia currently reaches 300 million people and lives in areas separated by islands, so the dissemination of information widely needs to be increased by emphasizing personal responsibility to invite people to adopt clean and healthy lifestyles. Education on clean and healthy living behaviors starting from household members can help increase the scope of clean living in the community [33]. The role of such information is large and effective. The use of information media must take into account the ease of access, cost, speed, and content of the information for all age groups. It is essential to package health information properly so that it is right to target.

CONCLUSION

Consumption of nutritious food, exercise, hand washing, use of masks, environmental hygiene, smoking habits, drinking water consumption, cooking food, utilization of health facilities, and prayer habits are 10 indicators of proper clean and healthy living behavior to prevent the spread of the COVID-19 infectious disease. Information is the right way to change behavior. The delivery of information to change behavior through the media must be innovative. Information that is presented well and attractively makes it easier for the public to accept and implement the message conveyed. Individual characteristics affect the use of masks. Research respondents are students so they have the independence to make choices to act based on considerations that they think are useful.

Practical Benefits The results of this study can be used as corrections for practitioners, especially health promotion officers so that health policy programs can be implemented properly through well-packaged messages or information, utilizing media that are widely used by the community, and implementing good message management strategies in providing services and information. easy access to information.

The Indonesian government should instruct the ministry of education and culture, the ministry of higher education to implement clean and healthy living behaviors from elementary school to university. Establish policies so that educational institutions support health promotion programs, and are directly involved by placing posters, banners, billboards, or running texts at educational institutions at entrances, parking lots, or locations that are easily accessible to students. It is expected that behavior modification is based on conditioning through stimuli that are around the individual.

The Directorate General of Health Promotion and Community Empowerment of the Ministry of Health of the Republic of Indonesia promotes health promotion through social media such as Facebook, Instagram, YouTube, and Twitter. Motivating the public to be directly involved in health promotion such as holding various competitions for the use of masks, implementing clean and healthy living behaviors, implementing health protocols through TikTok at national health day events, commemorating national nutrition day, and so on.

This study complements the behavioral concept of previous researchers. The originality of the research lies in the difference in behavior according to L. Green, which is influenced by predisposing, reinforcing, and enabling factors. The results of the study found the role of information in encouraging changes in a person's behavior. The frequency of accessing information affects individual beliefs. The more often you receive information, the stronger it forms individual beliefs so that it encourages individuals to change behavior.

The results of this study provide input to academics, especially in the field of public health, to develop knowledge through behavior change research using new variables in the adult group, such as information needs,

and the availability of free information so that effective strategies for delivering health information become more effective. Further researchers can conduct research using the theory of the social-ecological model using social, community, organizational, and interpersonal variables that can influence changes in individual behavior.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was approved by the Health Research Ethics Committee of the College of Health Science "Maluku Husada (No: RK.07/KEPK/STIK/IV/2020).

HUMAN AND ANIMAL RIGHTS

No animals were used for studies that are the basis of this research. All human procedures followed were by the guidelines of the Helsinki Declaration of 1975.

CONSENT FOR PUBLICATION

Informed consent was obtained from all participants of this study.

AVAILABILITY OF DATA AND MATERIALS

Research data is available to the author.

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