Health-protective behavior during the pandemic: Does media exposure to COVID-19 information matter?

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ABSTRACT

Background: The COVID-19 pandemic has prompted people to seek and get information on COVID-19 through the mass media or social media. It is expected to impact their beliefs, attitudes, and actions toward health-protective behavior. **Purpose:** This study aims to see how health-protective behavior amid a pandemic is predicted by exposure to COVID-19 information in the mass media and on social media. **Methods:** The current study advances the theory of planned behavior by surveying 413 persons cross-sectionally on Java Island, Indonesia. PLS-SEM was employed to assess measurement and structural models in order to answer the hypotheses. **Results:** The findings reveal that using mass media and social media to receive knowledge about COVID-19 strongly predicts intentions and behavior to apply preventive behavior, which is mediated by perceived behavioral control (PBC) and attitude. **Conclusion:** This research concludes that social media and mass media significantly positively influence three important aspects of forming behavioral intentions, and it also found that attitude, subjective norms, and PBC are important aspects of existing behavioral intention. **Implications:** This research also looks at the theoretical and practical ramifications. Theoretically, media use is related to the application of the TPB model. Practically, the government needs to optimize the mass media and social media use to reach the public with lots of valid, easy-to-understand COVID-19 information and generate positive optimism from the public.

Keywords: COVID-19; health-protective behavior; mass media; social media; planned-behavior

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INTRODUCTION

People's intention or behavior is assumed to change due to information exposure in media. In reality, information exposure in media crosses various communication channels. Besides conventional media, information exposure can be through social and online media (Wu & Li, 2017). Several previous studies have revealed the effect of information exposure in media on people's perception of certain behaviors. Several previous studies indicate that information exposure in media can influence people's behavior, such as changing health-related behavior (e.g., Choi et al., 2017; Li, 2018). Regarding its role in influencing people's attitudes and behavior, the mass media is believed to be a promising tool in disseminating health-related information (P. L. Liu, 2020; Wibhisono, 2020), in this context also includes social media (Choi et al., 2017; Yang & Wu, 2021).

The rapid spread of the Coronavirus caused the World Health Organization to declare a COVID-19 pandemic (Ma, 2020). The outbreak was so fast and pervasive that by early 2020, this virus had spread to various nations, including Japan, Thailand, Singapore, the United States, and other countries in regions of Europe (Debora, 2020). In Indonesia, the COVID-19 case was first announced by President Jokowi on March 2, 2020, and then spread widely in Indonesia (Ihsanuddin, 2020). At the beginning of the emergence of the COVID-19 virus, the mass media in Indonesia had even reported on the risk of the Coronavirus, even long before

it was called COVID-19 and was declared a pandemic (Wibhisono, 2020) then, as the pandemic worsened, the news of the COVID-19 became increasingly prevalent in the media (Christiyaningsih, 2020). The pandemic has forced the Indonesian government to take measures to restrict its spread, one of which is risk communication activities aimed at changing people's behavior regarding self-protection so they do not become infected with the Coronavirus. The Ministry of Health of the Republic of Indonesia (2020) has released health-protective behavior norms as a basis that the Indonesian people must respect and apply during the COVID-19 epidemic. The guidelines state that when leaving the house to socialize, people should wear appropriate masks, wash their hands thoroughly with soap or use hand sanitizers, maintain a social distance of at least one meter when interacting with others, and increase endurance by exercising and eating a healthy diet (Kemenkes RI, 2020).

The Indonesian government conducts risk communication and health promotion initiatives through several channels, such as press conferences, news coverage in the mainstream media, and information dissemination through social media (Pratama, 2020). During the COVID-19 pandemic, several media outlets distributed material containing health-related messages, information on government attempts to combat the pandemic, the hazards of COVID-19, advice for health-protective behavior, and information on health-protective behavior legislation. During the COVID-19

pandemic, the mainstream media and social media are outlets for conveying information about health promotion and hazards associated with health-protective behavior. It is intended that by being exposed to knowledge about COVID-19 through the media and social media, the public can practice self-protective behavior and avoid being exposed to the Coronavirus. However, many individuals are still unaware of health regulations amid the pandemic. The inclusion of additional cases of positive COVID-19 patients demonstrates that public compliance with health-protective behavior has yet to be optimal (Nugraheny, 2020).

Hence, the objective of this research is to investigate the impact of contact with COVID-19 material disseminated by mainstream media and social media on people's intentions and behavior toward adopting health-protective measures throughout a pandemic. This study employs the theoretical framework of the theory of planned behavior (TPB) proposed by Ajzen (1991). The TPB consists of three key concepts, namely "attitude, subjective norms, and perceived" behavioral control (PBC), which play crucial roles in shaping individuals' intentions and behaviors. In the present research, we apply the TPB to examine health-protective behaviors adopted by individuals throughout "the COVID-19 pandemic".

The COVID-19 pandemic, whose transmission cannot be controlled, has forced several countries, including Indonesia, to take mitigation steps to minimize transmission of the Coronavirus. In addition, the vaccine against this virus is still in the research and development stage to see its efficacy for human use (Fauzia, 2020). Indonesia had implemented large-scale social restrictions that required people to "stay at home." Still, it needs to be realized that activities like normal conditions must be carried out to maintain economic stability, so implementing activities with several adjustments is a solution during a pandemic (Novika, 2020). Therefore, the Government of Indonesia implemented a New Normal; people can carry out their daily activities again by adapting to a new normal life. One of the things people have to do when carrying out their daily activities is to implement the prescribed COVID-19 health-protective behavior.

The Ministry of Health of the Republic of Indonesia (Kemenkes RI, 2020) has regulated health-protective behaviors that must be adhered to or implemented by Indonesian people during the COVID-19 pandemic. The community is asked to at least implement individual health-protective, such as using masks that comply with standards when leaving the house and interacting with other people, the community is asked to regularly washing their hands with soap or using hand sanitizers, the community is asked to maintain a social distance of at least 1 meter when interacting with other people, and the public is encouraged to increase endurance by exercising and eating healthy foods (Kemenkes RI, 2020).

Developed from the theory of reasoned action by Ajzen (2012), the main framework or endeavor to comprehend, forecast, and modify

human social behavior is called the theory of planned behavior (TPB). This theory makes the assumption that conduct is predicted by PBC and intention and that attitude, subjective norms, and PBC predict intention (Ajzen, 2020). This theory describes how people make logical judgments by understanding the consequences of their choices before making them.

One of the previous studies using TPB was conducted by Yang and Wu (2021), who found that the intention and behavior of wearing masks by Chinese citizens during the haze was predicted by attitudes and subjective norms supported by social media use to obtain health information. The difference with the present research is the additional aspect of using or exposure to mass media and social media in predicting attitude, subjective norms, and PBC.

Attitude is a person's views or beliefs about certain behaviors combined with positive or negative judgments about the results of certain behaviors (Ajzen, 2012; Yang & Wu, 2021). According to Ajzen (1991), the more positively someone feels about a certain activity (such as following the COVID-19 health protocol), the more likely they are to have that conduct as their intention. Several previous studies have shown that attitudes predict intention in health-related behaviors such as wearing masks during air pollution (Yang & Wu, 2021) and the COVID-19 pandemic (Amin, Hadisiwi, & Suminar, 2022b), implementing healthy lifestyles (Banerjee & Ho, 2020), and using a contraceptive method (Amin, Hadisiwi, Suminar, et al., 2022).

Subjective norms are one's perception of social expectations to adopt certain behaviors influenced by one's normative beliefs and combined with one's motivation to comply (Ajzen, 2020; Asare, 2015). Normative views are associated with the potential that persons who are deemed necessary approve or disapprove of conduct, whereas motivation to comply is an appraisal of how vital it is to get acceptance from those who are deemed significant (Ajzen, 1991; Banerjee & Ho, 2020), and see people who are considered important also perform certain behaviors (Yang & Wu, 2021).

Perceived behavioral control is a person's belief in their capacity to conduct behavior based on how simple or difficult they believe the performance to be in relation to existing barriers or facilities (Ajzen et al., 2004; Asare, 2015; Ho et al., 2015). Controlling behavior has two components. The first component demonstrates the availability of resources required to support behavior, such as money, time, and so on. The second component demonstrates a person's conviction in his or her capacity to achieve anything (Ajzen, 1991).

Behavioral intention indicates that someone is willing to try or make an effort they plan to make, which then performs actual behavior (Ajzen, 1991; Smith, 2015). Furthermore, behavioral actions are tangible actions that someone takes, for example, using a mask when air pollution (Yang & Wu, 2021). In the context of this study, behavioral intentions and actions adhere to the COVID-19 health protocol, which can be defined as justification, compliance, and commitment to adhering to health protocols

during the COVID-19 pandemic.

Exposure to information by media can create a profound impact and has the potential to trigger changes in behavior, attitudes, views, and perceptions of the audience who receive the information (Amin, Hadisiwi, & Suminar, 2022a). The natural form of media exposure is when someone hears, sees, and reads the messages in the media (Shore, 1985). Regarding the impact of exposure to information through the media, DeFleur and Dennis (1998) explain that the fact that the media can help change beliefs and behavior is undeniable.

Television, radio, newspapers, and online media have all played important roles in informing the public about health concerns and affecting public views and attitudes about health issues (such as COVID-19 information) (Lin & Lagoe, 2013; Shim & You, 2015). Individual health views and behaviors are affected at the cognitive level by the information they receive (Yang et al., 2019). Furthermore, apart from contemporary mass media, social media (such as Facebook, Instagram, and Twitter) has now become a source of health information accessed online by the general public (Wu & Li, 2017; Yang & Wu, 2021). Individual exposure to health information on social media has affected the construct theory of planned behavior (Ajzen, 1991).

Research on media exposure related to health information has been carried out before. The results of the study explain that there is a relationship and influence of media exposure related to health information with changes in attitudes or audience perceptions of intentions or healthy living behavior (Thompson, 2020; Yang & Wu, 2021; Yaya et al., 2018), and perception of a health risk (Choi et al., 2017; Li, 2018; Wu & Li, 2017), although in the theoretical aspect, not all of these studies use TPB. Therefore, using the TPB constructs, namely attitude, subjective norms, and PBC as mediators, as did Yang and Wu (2021), this study aims to examine how exposure to or use of mass media and social media for information about COVID-19 can influence the intentions and actions of implementing health-protective behaviors by Indonesians, especially on Java Island during the pandemic.

Based on the previous literature review, this study formulated several hypotheses: **H1:** Attitude, subjective norms, and PBC towards the health-protective behavior will positively predict people's behavioral intentions to implement the health-protective behavior. **H2:** People's behavioral intentions will positively predict people's behavior to implement health-protective behavior. **H3:** Mass media use to obtain information on COVID-19 by people will predict attitude, subjective norms, and PBC toward health-protective behavior. **H4:** Social media use to get information on COVID-19 will predict attitude, subjective norms, and PBC toward health-protective behavior. **H5:** The relationship between people's use of mass media for information on COVID-19 and their behavior in implementing health-protective behaviors mediated by attitude, subjective norms, and PBC. **H6:** The relationship between

people's use of social media for information on COVID-19 and their behavior in implementing health-protective behaviors mediated by attitude, subjective norms, and PBC.

RESEARCH METHOD

This study used a cross-sectional survey by distributing questionnaires to Indonesian people who live on Java Island. The selection of people on Java Island as the population is because 5 out of 6 provinces on Java Island are the largest clusters of cases of COVID-19 in Indonesia, namely East Java, West Java, Central Java, Jakarta, and Banten. Determining the sample size in this study could not be done because researchers needed to know the exact number of people living on the island of Java. Therefore, we determine the minimum sample size capable of producing statistically confident research findings using G*Power analysis. With the expected effect size of 0.15, alpha error of 5%, statistical power of 80%, and seven predictors, the minimum sample required is 208. However, we collected 413 respondents who completed the questionnaire so that this research could produce statistical power above 90%. The determined respondent characteristics are domiciled on Java Island, leveraging mainstream media and social media to get details on COVID-19. This research was conducted by distributing questionnaires massively through social media and WhatsApp or Telegram groups. Table 1 presents descriptive data related to the demographics of the respondents, including gender, age, health status, education, income,

Table 1 Respondents' characteristic

Demography	Frequency (N=413)
Age (Years; M ± SD)	24.3 ± 4.99
Gender (%; F / M)	70.5 / 29.5
Health Status (%)	
Very bad	.2
Bad	1.2
Not bad	5.1
Good	33.7
Very good	59.8
Education (%)	
High school	36.8
Diploma	3.9
Bachelor	51.8
Master	5.1
Doctorate	2.4
Monthly Income (IDR, %)	
< 750.000	39.7
750.001 – 1.500.000	12.1
1.500.001 – 2.250.000	11.6
2.250.001 – 3.000.000	10.9
> 3.000.000	25.7
Mass Media / Social Media Used (%)	
Online media / Instagram	97.8 / 86.8
TV / Twitter	49.8 / 41.4
Newspaper / Facebook	6.7 / 27.1
Radio / LINE	7.0/ 11.1
Mass Media / Social Media Usage (%)	
Rarely	11.4 / 10.1
Sometimes	30.0 / 33.2
Often	34.1 / 32.7
All the time	24.5 / 24.0

Source: Data processed by Author, 2022

mass media use, and social media use. The mean age score obtained was 24.3 (SD=4.9) out of 70.5% female and 29.5% male respondents. Furthermore, data analysis was carried out by applying Partial Least Square-Structural Equation Modeling (PLS-SEM) to evaluate the measurement and structural models and then

answer the research hypotheses (Hair et al., 2017; Yang & Wu, 2021).

In developing the questionnaire, this study measured the mass media use and social media use for COVID-19 information by adapting the four items from Yang and Wu (2021). Sample items for example, "Using mass media (TV/Radio/Newspaper/Online Media)/social media (Facebook, Instagram, Twitter) helps me stay informed about COVID-19" and "Using mass media (TV/Radio/Newspaper/Online Media) / social media (Facebook, Instagram, Twitter) help me find out the latest news on handling COVID-19". Respondents' responses were measured using a 5-point Likert scale ranging from a score of 1 (strongly disagree) to a score of 5 (strongly agree). To measure attitude, descriptive norms, injunctive norms, and PBC, the present study adapted several items exemplified by Ajzen (2019) in a guide to building or creating research measurement tools that use the theory of planned behavior constructs and also adapted measurement items that used by Yang and Wu (2021) especially Weibo and WeChat, which shapes their health perceptions and behaviors. To investigate how Chinese people's exposure to health information on social media influenced and Ho et al. (2015). Then, this study measured the intention to implement the COVID-19 health-protective behavior adapted from the items by Yang and Wu (2021). Furthermore, respondents' behavior to implement health-protective behaviors was measured by several items adapted from Yang and Wu (2021), for

example, "How often do you use a mask when in a crowd during the COVID-19 pandemic?". Respondents' responses were measured using a 5-point Likert scale ranging from a score of 1 (strongly disagree/very uncomfortable/very dislike/none/never) to a score of 5 (strongly agree/very comfortable/very like/a lot/all the time).

RESULTS AND DISCUSSION

The result of the measurement model evaluation using SmartPLS shows that the model fit is quite good with SRMR = .056 <.08. Furthermore, the result also indicates that almost all items are valid as a measurement with a loading factor value above .70, which means higher than the threshold above .70 to be said to be a suitable item as a measurement (Hair et al., 2019; Knekta et al., 2019), except for the first item, which measures attitude, and the fourth item, which measures PBC, both were removed from the measurement model.

The AVE value of each construct also shows a value that meets the threshold above .50 so that all constructs in this study are convergently valid (Table 2). Furthermore, the Fornell–Larcker value also indicates that all constructs are discriminantly valid because they are proven to measure the measured construct (Table 2). It can be seen that the correlation value of certain constructs with the construct itself is greater than the correlation value of the construct with other constructs. This study also does not face reliability problems because the reliability value of each construct in terms of

Table 2 Measurement Model Evaluation and Fornell-Larcker Value

| Construct	1	2	3	4	5	6	7	8
1) Mass Media	.894							
2) Social Media	.654	.885						
3) Attitude	.469	.565	.855					
4) Descriptive Norms	.408	.392	.495	.815				
5) Injunctive Norms	.339	.330	.410	.770	.802			
6) PBC	.409	.433	.615	.567	.553	.815		
7) Intention	.322	.409	.641	.512	.498	.596	.941	
8) Behavior	.383	.423	.580	.585	.500	.540	.550	.783
Mean	4.41	4.48	4.58	4.12	4.21	4.44	4.55	4.35
Standard Deviation	.72	.65	.59	.69	.71	.63	.63	.62
Cronbach's (α)	.916	.907	.877	.832	.816	.831	.936	.792
Comp. Reliability	.941	.935	.916	.887	.878	.887	.959	.863
AVE	.799	.783	.731	.664	.643	.664	.886	.614

Source: Data processed by Author, 2022

Cronbach alpha and composite reliability shows a value above the threshold of .70 (Hair et al., 2019; Knekta et al., 2019).

The present study found that the behavioral intention of people to implement the COVID-19 health-protective behavior was positively significantly predicted by PBC ($\beta = .221$, $p < .01$), injunctive norms ($\beta = .161$, $p < .01$), attitude ($\beta = .408$, $p < .001$), and not by descriptive norms ($\beta = .061$, $p > .05$), therefore H1 is partially supported. The behavioral intention then predicts people's actions to implement health-protective behaviors ($\beta = .550$, $p < .001$) so that **H2** is supported. Furthermore, mass media use to get information about COVID-19 by people positively significantly predicts PBC ($\beta = .220$, $p < .001$), injunctive norms ($\beta = .216$, $p < .001$), descriptive norms ($\beta = .265$, $p < .001$, and their attitude ($\beta = .174$, $p < .01$), therefore H3 is fully supported. **H4** is also fully supported because social media use to obtain information about COVID-19 by people positively significantly

predicts attitude ($\beta = .451$, $p < .001$), descriptive norms ($\beta = .219$, $p < .01$), injunctive norms ($\beta = .189$, $p < .01$), and their PBC ($\beta = .289$, $p < .001$).

This study also used Bootstrapping to establish 95% confidence intervals in generating findings regarding statistically indirect effects and investigated hypotheses H5 and H6 linked to the indirect impact (Hair et al., 2019). In order to ensure the accuracy of the confidence interval, 5,000 bootstrap sample replications were used (Benitez et al., 2020). The calculation results show a significant indirect effect of mass media use to obtain information about COVID-19 on people's actions to implement health-protective behaviors, which are mediated by their attitudes and behavioral intention ($\beta = .039$, $p < .05$, CI= .042 to .135), and their *PBC* and behavioral intention ($\beta = .027$, $p < .05$, CI= .008 to .057), however, not mediated by their *descriptive norms* and behavioral intention ($\beta = .009$, $p > .05$, CI= .008 to .046), and their *injunctive norms* and behavioral intention ($\beta = .019$, $p > .05$,
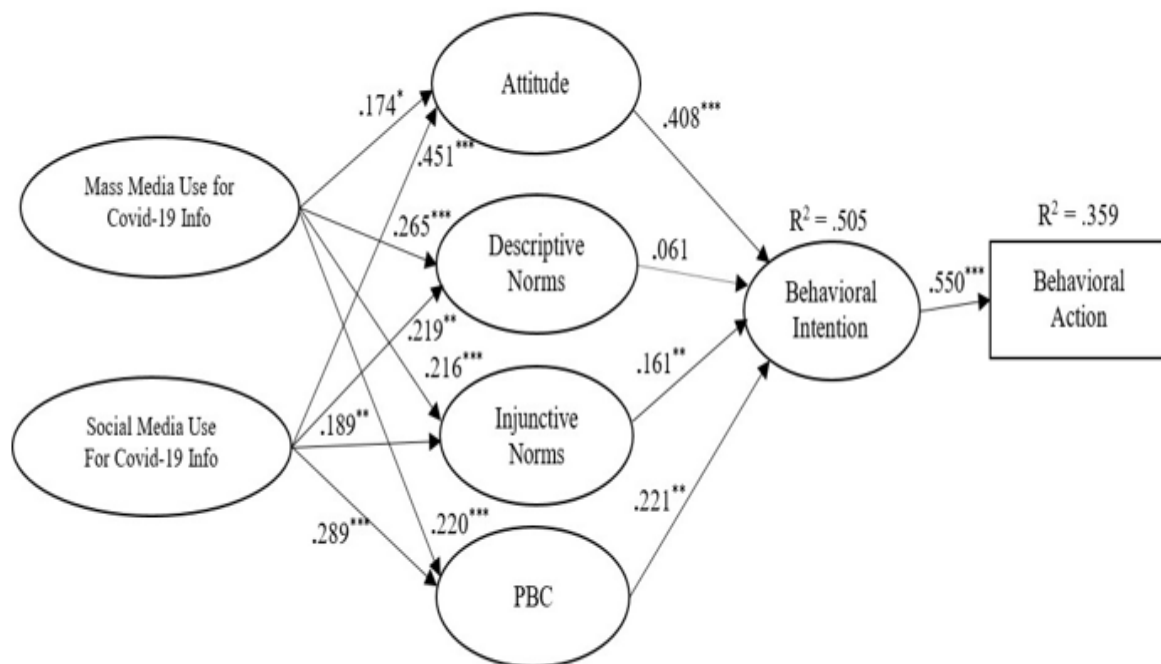
Source: Data processed by Author, 2022
Figure 1 Structural Model Evaluation with Its Statistical Significance
(*p < .05, **p < .01, ***p < .001)

CI= .008 to .046). Furthermore, the result also shows a significant indirect effect of social media use for COVID-19 information on people's actions to implement health-protective behaviors mediated by their attitudes and behavioral intentions (β = .101, p < .001, CI= .010 to .068), their *PBC* and behavioral intention (**β = .028, p < .05, CI= .007 to .046**), however, not mediated by their *descriptive norms* and behavioral intention (**β = .007, p > .05, CI= .008 to .046**), and their *injunctive norms* and behavioral intention (β = .017, p > .05, CI= .008 to .046). Therefore, **H5** and **H6** are partially supported, respectively. Overall, this research model, as shown in Figure 1 , explains a 50.5% variance in intentions to implement health-protective behavior and a 35.9% variance in behavioral action to implement

it during the COVID-19 pandemic.

This study found that the mass media and social media use by people on Java Island to obtain information about COVID-19 predicts attitude, injunctive norms, descriptive norms, and perceived behavioral control. The results of this study also show that behavioral intention is predicted by attitude, injunctive norms, and perceived behavioral control. Furthermore, behavioral intention significantly positively predicts people's behavior to adopt health-protective behaviors during the COVID-19 pandemic. The results of this study are consistent with the TPB that a person's behavioral intention is influenced by attitude, subjective norms, and perceived behavioral control, which in turn affect people's behavior towards certain behaviors.

In this study, mass media and social media use also influence three important aspects of the TPB construct, which are assumed to affect intention, and intention influences health-protective behavior. Empirical facts regarding the mass media use to get information on COVID-19 and the implementation of health-protective behaviors by people during the COVID-19 pandemic are interesting to discuss.

The results of this study are quite different from previous research conducted by Yang and Wu (2021), which showed that the Chinese people's health-protective behavior, namely wearing a mask when air pollution occurred, was significantly positively influenced by the use of social media Weibo which was mediated by a positive attitude and intention towards health-protective behavior. There are differences in the path of forming intentions and implementing health-protective behavior even though the information is sourced from the media. Based on the results of the present study, all types of media, both social media and mass media, can influence the attitudes, subjective norms, and PBC of people on Java Island, which in turn generate positive intentions and actions toward implementing health-protective behaviors by people. The differences in crisis context may have caused differences in the results of this study with previous studies. Within the scope of this study, the issue being examined pertains to the global COVID-19 pandemic, which represents a novel phenomenon for the international community, including Indonesian citizens. Many media reports regarding the risks of the Coronavirus and COVID-19 adorn the news columns in the mass media and social media. Implementing health-

protective behavior as a measure to minimize the spread is something that is even officially regulated by the government, not just an appeal so that the public already knows.

Theoretically, attitudes, subjective norms, and perceived behavioral control are important aspects in forming intentions, which in turn influence a person's actions regarding a matter (Ajzen, 1991). Further on this matter, the public has received or even sought information about COVID-19 that indirectly builds their knowledge, attitudes, and perceptions about the current pandemic. Therefore, information conveyed in the mass media or social media regarding the pandemic, the risk of COVID-19, and the application of appropriate health-protective behaviors also play an important role (Junaedi & Sukmono, 2020; C. Liu & Liu, 2020; P. L. Liu, 2020).

Furthermore, the results of this study show that social media and mass media can positively and significantly improve attitudes, subjective norms, and PBC of people on the island of Java. It indicates that both types of media are capable of helping people obtain information related to COVID-19. Especially in social media, sources of information can be very varied. Social media use allows a person to get information from various sources that they can access easily (Junaedi & Sukmono, 2020). Social media users can get information about COVID-19 when they surf social media from friends, healthcare accounts, and mass media, who now also have social media accounts.

Mass media use is no less critical in obtaining information on COVID-19, especially now that the mass media also have online media platforms that

are easy to access. It is also illustrated by the results of descriptive statistics, which show the average access duration is often to very often. Then, the most used mass media is online media, reaching 97.8%, and the most social media is Instagram reaching 86.8% (Table 1). Therefore, the authors assume that exposure to COVID-19 information through social media and mass media has hit many people on the island of Java, although this requires further research.

This study also found that attitude, injunctive norms, and PBC can increase intention and subsequently improve health-protective behavior significantly. These results are consistent with research conducted by Asare (2015), that attitude, subjective norms, and PBC influence people's intentions and behavior in using condoms. Although different in the context of the phenomena studied, the results of this study illustrate that in behavior change, the aspects of attitudes, encouragement or suggestions, and perceived behavioral control are important. First, attitudes relate to people's views of certain behaviors. Second, subjective norms are related to social expectations. Third, PBC is associated with a person's self-efficacy for doing certain things (Ajzen, 1991). The three aspects that form the construct of TPB can build a person's intentions and actions in implementing health-protective behaviors during COVID-19.

Furthermore, these results differ from the findings of Yang and Wu (2021), in which the intention to implement health-protective behavior is significantly influenced by the attitudes and subjective norms of the Chinese people, not by their PBC. In the context of the COVID-19 pandemic crisis, the present study sees that a positive attitude towards health-protective behavior, support or encouragement to implement health-protective behavior from people who are considered necessary, and a person's belief or self-efficacy about the ability to carry out specific behaviors are the drivers for the emergence of intentions that lead to on action. A positive attitude to using a mask, social distancing, and washing hands are determining factors for someone intending and implementing health-protective behavior. It is also supported by the influence of people in their environment who can be role models and advise people to implement health-protective behaviors.

Indeed, as volitional control over conduct rises, PBC becomes less substantial in predicting action (Ajzen, 1991). However, in the context of this study, PBC is an important aspect because it involves a person's belief in being able to apply health-protective behaviors during COVID-19. It is evident from this research that one's belief about one's ability to perform certain behaviors is essential in generating intentions, which in turn leads to actions in implementing health-protective behaviors.

This study confirms that the theory of planned behavior (TPB) is a valid theory for predicting certain behaviors of a person, for example, implementing health-protective behaviors to minimize transmission of COVID-19. TPB shows the usefulness of its theoretical constructs within the framework of the COVID-19 model. This study examines the influential role of attitude, subjective norms, and perceived behavioral control. The use of TPB in research needs to be considered because

the COVID-19 pandemic is still occurring in Indonesia and shows many cases of transmission because many people are still ignorant of the health protocols that have been regulated. TPB can be applied to explain the determining factors that shape people's behavior and read people's conditions in a positivist way.

With the existence of the vaccine and the start of the vaccination program, TPB can also be used to predict the intention or behavior of adopting the COVID-19 vaccine when the vaccine is given to people in Indonesia. It is interesting to examine vaccine adoption using TPB from the health promotion and communication perspective, given the emergence of vaccines in Indonesia, which has reaped pros and cons.

Furthermore, the results of this study also reaffirm what was carried out by Yang and Wu (2021). Media use is related to the application of the TPB model, especially since this research combines aspects of mass media and social media. It confirms that attitude, subjective norms, and perceived behavioral control can also be supported by other influencing factors, which in this context is media exposure due to media use for information on COVID-19. Information received by the audience then determines how they behave towards certain behaviors, respond to suggestions from people closest to certain behaviors, and have beliefs about the ability to perform certain behaviors.

The COVID-19 pandemic as a health crisis has actually caused problems not only in the health sector. From the health aspect, many people have died because of this virus. However, many people still ignore health-protective behavior, which causes

transmission to be difficult to control. However, this research shows that media use for information about COVID-19 can influence intentions and even actions to implement health-protective behaviors mediated by attitudes, subjective norms, and perceived behavioral controls. This assumption is supported by reports circulating that there are still many people in Indonesia who do not implement health-protective behavior (Nugraheny, 2020), so the President of the Republic of Indonesia must issue special regulations for violators of health protocols facing COVID-19 (Kemenkes RI, 2020).

Therefore, there must be more information that is relevant and easily understood by the public regarding the COVID-19 pandemic and steps to minimize it by carrying out health-protective behaviors. Central to regional governments can also take advantage of a two-stage communication strategy, considering that, based on the results of this study, people intend to implement health-protective behaviors because of encouragement or advice from people considered important to them.

Furthermore, there are lots of hoaxes about COVID-19 circulating in the community. Hence, there needs to be a massive balance of information that can be used as a reference by the community in a language that is easy to understand. It is essential to increase positive attitudes and positive beliefs about the ability to adopt health-protective behaviors, such as wearing masks according to standards, diligently washing hands, maintaining social distancing, and adopting a healthy lifestyle by eating healthy and exercising. Furthermore, this research can be empirical evidence that mass media and social media can improve attitudes, subjective

norms, and behavioral control that the audience perceives. Therefore, the government needs to optimize mass media and social media use to reach audiences with lots of valid, easy-to-understand COVID-19 information and generate positive optimism from the public to implement it.

This research targets only to reach respondents in six provinces on Java Island, namely East Java, West Java, Central Java, Yogyakarta, Jakarta, and Banten. In addition, although the number of samples generally represents Java Island, several provinces still need to meet the targeted minimum number of respondents. Of course, the results of this study still need to adequately describe the condition of handling the pandemic in Indonesia through the implementation of health-protective behaviors. The author realizes that the shortage of samples in several provinces greatly influenced the results of this study. The author feels they have been unable to photograph the phenomena that occur properly. However, at least this research can be an initial description for the next researcher. Another limitation is that the present study did not include aspects of duration and frequency of exposure as variables to test the relationship and influence because the researchers focused on aspects of media use only. It can be considered for further research.

subjective norms, and perceived behavioral control by the public. This research shows that social media and mass media significantly positively influence three important aspects of forming behavioral intentions. This study also found that attitude, subjective norms, and PBC are important aspects of existing behavioral intention. Furthermore, this study also shows that behavioral intention ultimately enhances the adoption of health-protective behavior during COVID-19. Attitudes, support, or suggestions from people considered necessary and beliefs about their ability to apply health-protective behaviors are the keys to their willingness or intention to implement health-protective behaviors during a pandemic until they finally implement them concretely. Recommendations for the next researcher is to research on the same topic, namely media exposure to information about COVID-19 on the act of implementing health-protective behavior, but with a longitudinal survey method so that it can reflect the condition of the population from one period to a certain period, bearing in mind that health promotion and communication continue to be encouraged. It has the potential to change the condition of society at a particular time.

CONCLUSION

Mass media and social media use has been proven to generate behavioral intentions, increasing positive actions from people to implement health-protective behaviors during the COVID-19 pandemic. It also reaffirms that the media still has the power to change attitudes,

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