



Community Behavior Post COVID-19 Vaccination: A Literature Review

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Abstract. Overcoming the Covid-19 Pandemic is not only the responsibility of the Government, but also the need for synergy and contributions from all elements of the nation, including the community. Efforts that can be used to break the chain of the spread of Covid-19 are to apply obedient behavior to health protocols and the formation of the body's immune system through vaccination activities. These two efforts must go hand in hand to achieve maximum protection. People in different countries have different health behaviors after vaccination. The aim of this study is to find out the analysis of the literature review on the Description of Public Health Behavior Post-Covid Vaccination. The method of this study is a literature review using 15 journals as data sources, journals obtained from the Pubmed and Science Direct database (2018–2022) with the keywords “Health Behavior OR Attitude AND Post Covid Vaccination NOT Pre Vaccination”. Based on 15 journals reviewed, it shows that in general public health behavior after vaccination in several countries is in the good category. There are 11 scientific articles that show positive behavior in wearing masks, 4 articles on the application of hand hygiene, 4 articles on social distancing, 1 article on avoiding crowds and 1 article on restricting mobility. Therefore, public health behavior in various countries after the Covid vaccination tends to be positive.

Keywords: Public Health Behavior · Post-Covid Vaccination

1 Introduction

Coronavirus Disease 19 or COVID-19 was found in Wuhan, Hubei Province, China in December 2019 and is included in the type of infectious disease (Communicable Disease) [1]. After the first case, there was an increase in Covid-19 cases in China every day and peaked in late January to early February 2020. At first, reports of new Covid cases only came from Hubei Province and its surroundings, then increased to other provinces and throughout China. On January 29, 2020, there were 5,974 positive confirmed cases of Covid-19 in China and 132 cases of patients died. On March 11, 2020, the World Health Organization (WHO) has designated Coronavirus Disease as a pandemic that spreads very quickly in early 2020 [2]. The rapid increase in Coronavirus cases occurred in

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almost all continents including Asia, Australia, Europe and America [3] and Indonesia is one of the countries affected by the spread of this disease outbreak. The prevalence of confirmed cases of Covid-19 in the world as of October 4, 2021 reached 234,809,103 cases with a death toll of 4,800,175 cases [4]. While in Kuwait the number of Covid-19 cases reached 411,855 cases with a total death toll of 2,452 cases as of October 4, 2021 [5]. Based on data from the Covid-19 Task Force, cases in Indonesia reached 4,221,610 cases with the number of deaths reaching 142,338 cases [6].

The Covid-19 pandemic is expected to continue to cause a burden of mortality and morbidity as well as to disrupt economic stability throughout the world. The need for a preventive effort to reduce the transmission of the spread of Covid-19 in the world community, one of which is by implementing health behavior. Health behavior can be applied in the form of preventive, detective, promotive and protective behavior [7]. If it is related to life during the Covid-19 pandemic, public health behavior can be reflected in the application of health protocols. The Center for Disease Control and Prevention (CDC) recommends implementing health protocols by wearing masks, maintaining social distance (social distancing), avoiding crowds, washing hands, covering when coughing and sneezing, disinfecting surface objects before handling and monitoring health every day [8].

Factors that can influence a person's health behavior include intentions, social support, access to information, personal autonomy, and enabling situations [9]. One of the intentions (willingness) can be formed due to external stimuli, for example government recommendations and regulations. The results show 15 states and the mayor of the District of Columbia (DC) have agreed to recommend the use of face masks in public places (public transportation, grocery stores, pharmacies, etc.) while maintaining a safe distance of 6 feet and requiring employees in certain professions to wear masks at all times. While at work. The government's mandate has resulted in an increase in citizen compliance in carrying out health protocols during the pandemic, as evidenced by a decrease in Covid-19 cases [10]. Other studies have shown that residents in United States counties are generally healthier in behavior, as evidenced by lower rates of obesity and greater physical activity and greater reductions in the movement of people out of the house. This means that residents comply with social distancing [11].

Access to information also has an important influence on the adoption of public health behaviors. The reason is the availability of information related to actions that can be taken, can increase public knowledge how to prevent and overcome the dangers of Covid-19 and be able to recognize problems that occur. So that there will be a belief in the community to be able to avoid the causes of the emergence of Covid-19 and will behave in a healthy manner in accordance with the theory of health behavior (health belief model).

The success of overcoming the pandemic requires cooperation from various cross-sectors. Even though residents have implemented health protocols, they still have to get protection through vaccination activities. Vaccination is carried out to form a herd immunity. In principle, herd immunity is defined as the immune threshold of many people which can reduce the number of infections by itself. This goal can be achieved through a vaccination program [12].

Data from people around the world who have received the Covid-19 vaccination are 2.7 million people (34.7%) as of October 3, 2021 [4]. Meanwhile, in Kuwait, as many as 923,000 (21.6%) people have received a complete dose of vaccination. Accordingly, Indonesia has vaccinated 53,656,921 (19.6%) people who have received the full dose of vaccine as of October 4, 2021 [5]. From the results of the description of the Covid-19 vaccination data above, it is clear that these results have not reached the 60% target to create herd immunity.

Vaccination programs cannot be used as a guarantee that you will not be exposed to Covid-19. There is still a need for the community to implement post-covid health protocols in order to increase effectiveness in controlling and reducing the incidence of Covid-19. Based on research stated that the vaccine will have a significant positive effect if the majority of people who receive the vaccine complete protective measures by continuing to apply health protocols such as wearing masks, washing hands and keeping a distance [13].

There is a trend of changes in people's behavior after getting vaccinated. People in the world tend to be careless and ignore the implementation of health protocols because they perceive that vaccines can protect them from exposure to COVID-19. Survey research on citizens in Israel shows preventive attitudes have changed after the COVID-19 vaccination, with lower adherence to social distancing and in wearing masks. Both behaviors tend to decrease the level of implementation [14]. Another study conducted on health workers in Ethiopia found that as many as 30.5% of health workers reported a decrease in their experience of wearing masks, 30.1% said that their experience of washing their hands regularly had decreased after receiving dose 1 of the COVID-19 vaccine [15].

Behavioral changes also occurred in Chinese University students after vaccination. Students at South China region universities wash their hands more often but pay less attention to indoor ventilation than North China region university students. Students who are afraid of contracting the Covid-19 virus have poor personal hygiene, the prevalence of using masks by students is only 22% when in public spaces after vaccination, and the number is less than before the implementation of vaccination. Chinese students weaken personal protective behavior after vaccination and that may increase the potential risk of infection in new waves of viral variants (e.g. delta) [16].

Based on the description of the problems above, the researchers were interested and thought about conducting a journal study related to how the public health behavior after the Covid vaccination was described in several countries in the continents of Asia, Africa, and Europe.

2 Methods

The research design in this study is using a literature review. This research was conducted by searching literature from the Pubmed and Science Direct database about the topic of description of public health behavior after the covid vaccination in several countries in the continents of Asia, Africa, and Europe.

The article search strategy by the entering the keywords: "Health Behavior OR Attitude AND Post Covid Vaccination NOT Pre Vaccination". Research articles compiled

will be sorted according to inclusion and exclusion criteria and then a review or analysis will be conducted.

The inclusion criteria of this study included the maximum time for publishing articles/journals five years (2018–2022), Semi-experimental study, quasi-experimental study, descriptive study, etc. (not literature review), Indonesian and English, type of journal original research articles that can be accessed full text, journal content theme on public health behavior in the application of health protocols after covid vaccination. The exclusion criteria included Articles or research journals not indexed by SINTA for national journals and not indexed by the Scimago Journal Rank (SJR) for international journals. Articles or research journals do not explain thoroughly, only abstracts—unnatural articles such as BlogSpot pages, letters, and magazines.

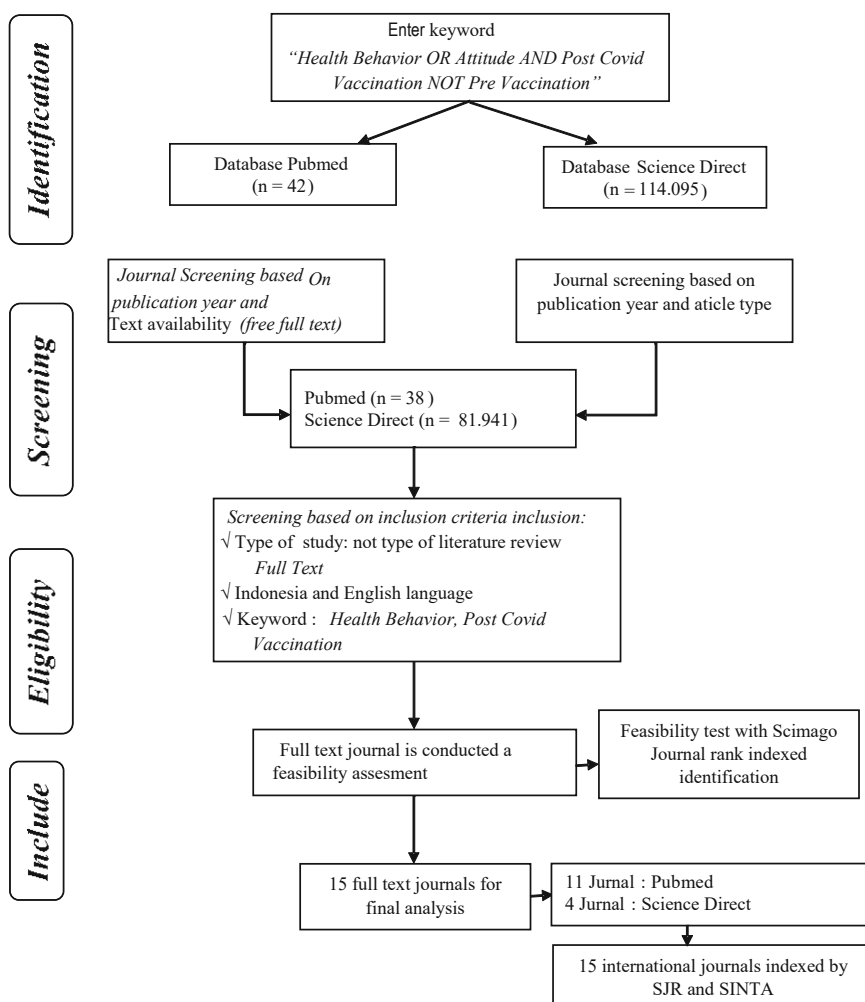


Fig. 1. Study Selection Flowchar

Researcher have described the filters in Fig. 1. The final number of articles that will be reviewed is 15 international journals indexed by the SCIMAGO Journal Rank.

3 Results

The results of the analysis of the article obtained several topics that explained the description of public health behavior after the COVID-19 vaccination, including:

3.1 Behavioral Forms of Wearing Masks

Based on Table 1, it is explained that of the 15 articles that were analyzed, four articles found results in the form of changes in public health behavior in a negative direction after

Table 1. Behavior of Wearing a Mask

Journal, Researcher, Year	Health Behaviour
Jurnal 1 (Yuan et al., 2021)	There was a change in mental health status for the better. Thing it was reflected in the decreased personal anxiety and depression in the post-vaccination group compared to the pre-vaccination group. Preventive behavior against COVID-19 was slightly higher in the post-vaccination group, especially the behavior of wearing masks. It is because residents in Guangzhou, China, have received good health education during the COVID-19 vaccination, and preventive behavior in the early phase of the pandemic has been transformed into habits and personal awareness.
Jurnal 2 (Yakut et al., 2021)	The research findings show that a portion of the Turkish population who recovered from Covid-19 had a high level of knowledge about the disease. Most participants experienced significant positive changes in showing great sensitivity in practices such as wearing masks. They did this because they understood how Covid-19 was transmitted and transmitted.
Jurnal 4 (Rahamim-Cohen et al., 2021)	Research findings show a change in prevention attitude after the Covid-19 vaccination. A total of 21.1% of participants reported a decrease in the practice of wearing masks. Israeli residents < 50 years of age were more likely to reduce the use of masks (28.1%) compared to > 50 years (17.2%). Some health workers saw a minimal decrease in masks (1/23 people).
Jurnal 5 (Goldszmidt et al., 2021)	Research findings show no reduction in there has been a substantial increase in the use of masks after receiving doses of the COVID-19 vaccine in 12 countries, namely Canada, Denmark, France, Germany, Israel, Italy, Norway, Singapore, Spain, Sweden, the UK, and the US. It is reflected that until early June 2021, the population is generally not involved in risky activities after obtaining immunity from the vaccine.

(continued)

Table 1. (continued)

Journal, Researcher, Year	Health Behaviour
Jurnal 6 (Kalam et al., 2021)	The findings show that the majority of Dhaka residents, Bangladesh feels positive post-vaccination effects such as reducing the risk of Covid-19 transmission, being able to participate in activities social and cultural, children can start school again, reduction related to the costs of COVID-19, increasing employment and income opportunities, and being able to attend group prayers. Confidence in getting a COVID-19 vaccine comes from the doctor or nurse recommending it and confidence in yourself. The desire to carry out daily activities and awareness of living in the pandemic era makes them assume that implementing health protocols such as using masks must still be done even though they have carried out vaccinations.
Jurnal 7 (Zewude et al., 2021)	The findings show that as many as 30.5% of Health Workers in Southern Ethiopia expressed a decrease in the experience of wearing masks after receiving the first round of COVID-19 vaccine. The main reason for not wearing masks regularly is because of the inconvenience (60%), followed by the need to appear indifferent because most people around the respondents do not wear masks (38.5%) and cannot afford to buy them because of the cost (15.4%).
Jurnal 8 (Si et al., 2021)	The COVID-19 vaccination has no significant effect on participant masks. It shows that regardless of whether people are vaccinated in China, they still choose to wear masks in public places, even in the post-epidemic era. Consistent mask-wearing behavior has contributed to China's success in fighting the COVID-19 outbreak. The consistency of the Chinese population in wearing masks is inseparable from the role of the Chinese government in strictly implementing the policy of using masks in public places, making the use of masks a necessary condition for people accessing goods and services.
Jurnal 9 (Mosteiro-miguéns et al., 2021)	The findings show that some of the adult population in Spain. Those willing to receive the vaccine are more reluctant to reduce the use of masks in closed public places than those not willing to receive the vaccine. Male participants, the youngest participants, and those with the lowest education levels were the most supportive of reducing preventive measures against SARS-CoV-2 after being vaccinated.

(continued)

Table 1. (continued)

Journal, Researcher, Year	Health Behaviour
Jurnal 10 (Hania & Hania, 2017)	The findings show that most of the respondents (97.9%) report the acceptance rate of the Covid vaccination. Most Malaysians have a high level of adherence to self-protection behavior after vaccination. Self-protection behavior can be reflected in wearing a behavior mask.
Jurnal 11 (Hassan & Gaballah, 2022)	The findings show no change in compliance the behavior of wearing a mask after receiving the vaccine. After removing the curfew in June 2020, the Saudi Arabian government recommended that all workplaces implement their employees' compliance with health prevention measures, especially the use of masks. In addition, encourage workplaces to offer masks to their employees as much as possible. The government has imposed monetary penalties for those who do not wear masks when going out.
Jurnal 12 (Zhang, Lei, et al., 2021)	The findings show that 89% of our study's 1,499 Chinese health workers were vaccinated. Younger health workers (≤ 25 years) adopted a higher level of protective measures than older health workers (> 25 years). More doctors (18.2%, 83/455) wore N95 respirators than nurses (12.0%, 75/624) during the pandemic. Health workers with more extended work experience adopt lower levels of protection. Health care workers working in high-risk departments had two times higher rates of use of N95, face shields, protective clothing, and goggles than those in other departments. Only 9.3% (139/1,499) of healthcare workers reported that they were not afraid of being infected in the hospital, and only 5.1% (76/1,499) reported that they treated patients as usual during the pandemic.
Jurnal 13 (Sun et al., 2022)	The findings show no statistical difference in health behavior between vaccinated and unvaccinated groups. Subjects who received the COVID-19 vaccination showed better health behavior (22.40% while wearing a mask ($P = 0.007$)).
Jurnal 14 (Hartanto, Sudrajat, & Badriatin, 2021)	The findings show that the Tasikmalaya community has carry out vaccination stages one and two, pay less attention to health protocols, especially in the use of masks, and the increasing number of community activities that ignore health protocols. When not implementing health protocols, including wearing masks, public opinion assumes that after being vaccinated, they have received immunity and will not contract Covid-19. This non-compliance is compounded by weak supervision from the Government and the Covid-19 Task Force in each region.

(continued)

Table 1. (continued)

Journal, Researcher, Year	Health Behaviour
Jurnal 15 (Zhang, Liu, et al., 2021).	The findings show that changes in behavior occur in Chinese University students after vaccination. Students who are afraid of contracting the Covid-19 virus have poor personal hygiene. The prevalence of using masks by students is only 22% when in public spaces after vaccination, and the number is less than before the implementation of vaccination.

the Covid vaccination, namely a decrease in the application of health protocols wearing masks. In contrast, the other 11 articles showed positive behavior and continued to apply Health protocol after Covid vaccination.

3.2 Forms of Hand Washing Behavior

Table 2 explains that of the six articles that were analyzed, two articles found results in the form of changes in public health behavior in a negative direction after the Covid vaccination, namely a decrease in the application of hand washing behavior. The other four articles showed positive behavior and continued to implement the protocol for health.

Table 2. Handwashing Behavior

Journal, Researcher, Year	Health Behavior
Jurnal 2 (Yakut et al., 2021)	The research findings show that COVID-19 is still uncontrolled in many countries and continues to threaten the whole world. This new mutation is considered to increase the transmission of the virus and cause a decrease in the optimistic attitude of the Turkish people so that preventive behavior is still carried out, such as washing hands. They are even determined to use antiseptics and colognes more often.
Jurnal 7 (Zewude et al., 2021)	The research findings showed that 30.1% expressed their experience of washing their hands regularly has diminished after taking the first round of the COVID-19 vaccine. Lack of access to water/soap was found to be the main reason (40.5%) for health workers not to wash their hands frequently after touching objects, followed by the use of chemical disinfectants as an alternative option (27%), and the belief that the first round of COVID-19 vaccine was sufficient to prevent infection (16.2%).

(continued)

Table 2. (continued)

Journal, Researcher, Year	Health Behavior
Jurnal 8 (Si et al., 2021)	The findings show that vaccination causes decreased hand washing frequency by 1.75 times. Chinese residents admit it is difficult to avoid being in environments with hidden risks of SARS-CoV-2 infection, such as vegetable markets, supermarkets, and subway stations. Aspects that explain why washing hands less frequently after vaccination is that it is difficult for the government to establish a handwashing policy and set a minimum standard for washing hands per day. In addition, the hand sanitizer provided by the government after large-scale vaccination is gradually decreasing, reducing the number of times people wash their hands to a certain extent.
Jurnal 11 (Hassan & Gaballah, 2022)	The findings show no change in compliance hand washing behavior after vaccination was obtained. Hand sanitizers and gloves in work settings strongly motivated participants to stay on top of precautions. The Saudi Arabian government is encouraging workplaces to offer hand sanitizer to their employees as much as possible.
Jurnal 12 (Zhang, Lei, et al., 2021)	The findings show that nurses wash their hands on average 15.33 times per day, which was 34.9% higher than the average frequency among physicians (11.36 times per day). Health workers with more extended work experience wash their hands more frequently.
Jurnal 13 (Sun et al., 2022)	Subjects who received the COVID-19 vaccination showed behavior better health 25.40% increased for time to wash hands ($P = 0.01$), and 20.90% increased for times of wearing gloves ($P = 0.01$). Subjects also revealed better health behavior after vaccination than before.

3.3 Forms of Behavior of Keeping Distance

Table 3 explains that of the six articles that were analyzed, two articles found results in the form of changes in public health behavior in a negative direction after the Covid vaccination, namely a decrease in the application of social distancing behavior. In comparison, the other four articles showed respectful behavior.

3.4 Forms of Crowd Avoiding Behavior

Based on Table 4, it is explained that there is 1 article that applies the behavior of avoiding crowds, namely in the country of Saudi Arabia (Table 5).

Table 3. Behavior of Keeping Distance

Journal, Researcher, Year	Health Behavior
Jurnal 1 (Yuan et al., 2021)	Preventive behavior against COVID-19 is slightly higher in post-vaccination groups, especially social distancing behavior in the community. The strengthening of the daily preventive behavior of residents in Guangzhou, China, is also supported by the promotion of preventive measures in public places and continuous appeals from the Chinese government to continue implementing health protocols.
Jurnal 2 (Yakut et al., 2021)	The research findings show that the Turkish population perceives that health workers are considered at high risk, and potential disease carriers due to direct contact with COVID-19 patients. More than half of the participants reported they stayed away from health workers. As many as 72% refrained from going to the hospital because of any disease. They are more about improving the lifestyle.
Jurnal 4 (Rahamim-Cohen et al., 2021)	Research findings show that 47.3% reported social distance decreases. Israeli population < 50 years experienced a decrease in social distancing (56.1%) compared to > 50 years (41.8%). Some health workers in Israel experienced a reduction in wider social distancing (10/23 people).
Jurnal 5 (Goldszmidt et al., 2021)	This journal did not find any substantial reduction in physical distance after receiving doses of the COVID-19 vaccine in 12 countries, namely Canada, Denmark, France, Germany, Israel, Italy, Norway, Singapore, Spain, Sweden, the UK, and the US. It is evidenced by the fact that until early June, most people continued to follow the protocol despite an appeal from US President Joe Biden that US adults who have been fully vaccinated do not need to wear masks or maintain physical distance.
Jurnal 8 (Si et al., 2021)	COVID-19 vaccination significantly reduces the intensity participant compliance, reducing the physical distance of more than 1 m by 1.24 times per day. The rapid rollout of vaccinations has caused public risk awareness to declining gradually. People are no longer limited by space constraints and the need for online communication. As a result, social activity increased significantly.
Jurnal 11 (Hassan & Gaballah, 2022)	The findings show no change in compliance keep the distance. The Saudi Arabian government recommends that all workplaces implement their employees' compliance with health prevention measures, especially social distancing. The government imposes monetary penalties for those who do not comply with social distancing.

Table 4. Crowd Avoiding Behavior

Journal, Researcher, Year	Health Behavior
Jurnal 11 (Hassan & Gaballah, 2022)	The government of Saudi Arabia imposed preventive measures such as closing all social entertainment and restaurants and all border areas of air, land, and water from entry and exit by the end of 2020.

Table 5. Behavior Restricting Mobility

Journal, Researcher, Year	Health Behavior
Jurnal 2 (Yakut et al., 2021) Jurnal 3 (Saah et al., 2021)	<p>The findings show that in Turkey, there are restrictions on hours night applied to both younger and older people. It decrease the risk of contracting the disease in this age group. Other risk groups subject to restrictions in Turkey include people with chronic diseases such as chronic obstructive pulmonary disease (COPD), asthma, hypertension, and cardiovascular disease. People in this group are at higher risk of developing a disease of higher severity and death than healthy individuals. It is one of the efforts to prevent the spread of Covid-19.</p> <p>a) The research findings show three positive impacts of the COVID-19 pandemic on the lifestyle choices of some Ghanaians, namely stopping/reducing risky behavior, starting physical exercise, and starting/increasing fruit and vegetable consumption. They have a high level of health knowledge related to chronic diseases, nutrition, hygiene, and health behavior due to a large amount of health education and information on various media platforms. Increased knowledge and perception of the threat of the COVID-19 pandemic made them make optimistic assumptions about health-related lifestyles.</p> <p>b) Most of the population experiences changes in behavior, such as cessation of the behavior of consuming alcohol, sharing personal items, and consumption of junk food.</p> <p>c) Another positive effect is reflected in the behavior of the Ghanaian population seeking health care and having regular health checks</p>

3.5 Forms of Behavior Restricting Mobility and Other Health Behavior

4 Discussion

4.1 Health Behavior in East Asia

There is a significant behavioral change in the population in China after receiving the COVID-19 vaccination. Recent studies have shown that the COVID-19 pandemic has caused tremendous negative effects on the mental health of the Chinese population. This

can be reflected in the attitude of the population's anxiety and depression regarding the ongoing COVID-19 pandemic. However, the mental health of the Chinese population is slowly getting better and worries about SARS-Cov-2 infection are slowly diminishing after getting vaccinated. It is necessary to take preventive steps by implementing health protocols even though they have received the vaccine. The preventive behavior of wearing masks and social distancing in Guangzhou, China increased after vaccination [16]. Subjects who received COVID-19 vaccination showed better health behavior (22.40%) in wearing masks [17]. Like the research that regardless of whether people are vaccinated or not, they still choose to wear masks in public places even in the post-epidemic era. The consistency of the Chinese population in wearing masks cannot be separated from the role of the Chinese government in strictly implementing policies in the use of masks [18].

The Chinese government's policies include the mandatory use of masks when in public places, making the use of masks a necessary condition for people who will access goods and services [18], and promotions and constant appeals from the government. The Chinese government in public places about wearing masks. This is in line with Bandura's theory that one of the dimensions of a person's behavior change is Cues to Action, meaning something that can move individuals to change their behavior, in this case the Chinese government plays a role in changing the behavior of the Chinese population (Bandura, 1994; Glanz, 2008) [19].

Preventive behavior by implementing health protocols has been practiced by the Chinese population for a long time, even before the existence of vaccination activities. These preventive behaviors are applied every day and have been carried out since the initial phase of the pandemic. This behavior has been transformed into a habit and personal consciousness of the Chinese population. So the COVID-19 vaccination will not affect the compliance of the population in carrying out health protocols, especially in the use of masks because an awareness and belief has been formed in the Chinese population.

The compliance of the Chinese population in carrying out health protocols is not only in terms of wearing masks but also compliance in applying hand hygiene. Health workers who have longer work experience wash their hands more often. The findings show that nurses wash their hands on average 15.33 times per day, 34.9% higher than the average frequency among doctors (11.36 times per day) [20]. Subjects who received the COVID-19 vaccination showed a 25.40% better health behavior, an increase in hand washing time [17]. However, some Chinese residents claim to have decreased compliance in carrying out hand hygiene. As research found that vaccination caused a decrease in the frequency of hand washing by 1.75 times [18]. Chinese residents admit that it is difficult to avoid being in environments with a risk of SARS-CoV-2 infection, such as vegetable markets, supermarkets and subway stations. The aspect that can explain the reason for washing hands less frequently after vaccination is that it is difficult for the government to establish a handwashing policy and set a minimum standard for washing hands per day. In addition, they reported that the hand sanitizers provided by the government after large-scale vaccinations were gradually decreasing, which also reduced the number of times people wash their hands to some extent. In line with the theory of Karr which says that behavior is influenced by factors, namely Action Situation, it means that the

availability of supporting facilities or infrastructure makes individuals feel capable of realizing an attitude and behavior [9].

4.2 Health Behavior in Middle East Asia

Changes in compliance in the behavior of implementing health protocols are also experienced by residents in Saudi Arabia. Perceived susceptibility, namely the belief that individuals who are at risk of experiencing illness will make a person more careful in shaping their lifestyle, avoiding behaviors that can cause illness and doing things that can improve health (Bulgar, White & Robinson) [21]. It is associated with these findings that the residents of Saudi Arabia perceive the coronavirus as a high-risk infection and believe that they are susceptible to infection. That belief can be attributed to the increase in the global death toll from Covid-19 and to the severity of the coronavirus. This finding is supported by Chen dan Yang who found that a person's fear of the effects of a disease is related to their perception of danger.

Perceived benefits are individual beliefs about the benefits felt when carrying out healthy behavior. According to the findings of this study, the majority of the population of Saudi Arabia believe that these preventive measures are important in preventing the spread of Covid-19. The findings show no change in adherence to preventive behavior after receiving the COVID-19 vaccine. A way to limit mobilization and the risk of crowding, the Saudi Arabian government imposed a curfew from March to June 2020 and the only way to communicate with each other was through social media platforms. After removing the curfew in June 2020, the Government of Saudi Arabia recommended all workplaces to implement their employees' compliance with health prevention measures, especially the use of masks, hand sanitizers and social distancing. In addition, the government imposed monetary penalties for those who do not wear masks when going out and do not comply with social distancing.

The change in the behavior of the people of Saudi Arabia comes from the motivation and advice of the government. According to the integrated model, people who are motivated by a controlled motivation such as a legislative decision may stick to a recommended behavior as soon as an external stimulus is present, but they are more prone to non-compliance in the long run than those who behave on their own motivation. This can be reflected in the end of 2020 an increase in Covid-19 infections which prompted the Saudi government to push for stricter measures and more penalties for those who did not comply with the precautionary measures. The following measures were implemented: closing all social entertainment venues and restaurants; close all land, water, air borders from entry and exit by the end of 2020.

4.3 Health Behavior in Southwest Asia

There has been a change in the attitude and behavior of the Turkish population who recovered from COVID-19. Perceived Severity is an individual's belief about the severity of a disease based on experience and treatment that has been carried out. If we relate to the findings of the results that the Turkish population who recovered from COVID-19 had a high level of knowledge about the disease and most of the participants experienced positive changes.

Positive behavior changes can be reflected in the high sensitivity in the practice of implementing health protocols. Compliance in carrying out post-vaccination preventive measures on the Turkish population is information that states that COVID-19 is still uncontrolled in many countries and continues to threaten the whole world due to new mutations. According to the Turkish population, this is considered to increase the transmission of the virus and cause a decrease in the optimistic attitude of the Turkish people so that preventive behavior is still carried out such as wearing masks and washing hands, even they are determined to use antiseptics and colognes more often [22].

Turkey has curfew restrictions imposed on both younger and older people. This is considered to reduce the risk of contracting the disease in this age group. Other risk groups subject to restrictions in Turkey include people with chronic diseases such as chronic obstructive pulmonary disease (COPD), asthma, hypertension, and cardiovascular disease. People in this group are considered to be at a higher risk of developing a disease with a higher severity and death than healthy individuals. This is one of the efforts to prevent the spread of Covid-19.

Perceived Susceptibility is reflected in the individual's belief that health workers are considered high risk and potential carriers of disease due to direct contact with COVID-19 patients. So more than half of the participants reported that they stayed away from health workers and as many as 72% refrained from going to the hospital because of any illness. They are more about improving their lifestyle.

Perceived benefits are depicted from habits that change in a positive direction that some participants experience changes in smoking habits, namely reducing their use. As many as 18% quit smoking while 27% reduce smoking. Nearly half of the participants were likely to change their smoking habits, perhaps worried that the severity of COVID-19 would be triggered by smoking.

4.4 Health Behavior in West Asia

Preventive behavior has changed after the COVID-19 vaccination in the Israeli population. The research findings show that there has been a change in prevention attitudes after the Covid-19 vaccination. A total of 21.1% of participants reported a decrease in the practice of wearing masks. Israeli residents <50 years of age were more likely to reduce the use of masks (28.1%) compared to >50 years (17.2%). Some health workers saw a minimal decrease in the use of masks (1/23 people). In addition, the findings of another study showed that 47.3% reported a decrease in social distancing. Israeli population <50 years experienced a decrease in social distancing (56.1%) compared to >50 years (41.8%). Some health workers in the state of Israel experienced a reduction in wider social distancing (10/23 people) [14].

The decrease in adherence to preventive behavior can be influenced by various factors, one of which is the level of knowledge. Low levels of knowledge and lack of access to information and health education / Accessibility of Information cause individuals to feel less vulnerable to interference and act according to what they want.

4.5 Health Behavior in South Asia

The findings show that most of the residents of Dhaka, Bangladesh feel the positive effects of post-vaccination such as being able to reduce the risk of Covid-19 transmission, being able to participate in social and cultural activities, children being able to start school again, reducing costs related to COVID-19, increasing job opportunities and income., and able to attend group prayers. Confidence in getting a COVID-19 vaccine comes from the doctor or nurse recommending it in addition to confidence from yourself. Their desire to carry out daily activities and their awareness of living in the pandemic era, makes them assume that implementing health protocols such as using masks must still be done even though they have carried out vaccinations [23].

4.6 Health Behavior in Southeast Asia

The findings show that most respondents (97.9%) reported acceptance rates for Covid vaccination. Most Malaysians have a high level of adherence to self-protection behavior after vaccination. Self-protection behavior can be reflected in the behavior of wearing masks [24]. Different results were found in the Tasikmalaya community who had vaccinated stages one and two, paid less attention to health protocols, especially in the use of masks, as well as more and more community activities that ignored health protocols. Public opinion when not implementing health protocols, including wearing masks, generally assumes that after being vaccinated, they have received immunity and will not contract Covid-19. This non-compliance is compounded by weak supervision from the Government and the Covid-19 Task Force for each region [25].

4.7 Health Behavior in Africa

The findings show that as many as 30.5% of Health Workers in Southern Ethiopia expressed a decrease in the experience of wearing masks after receiving the first round of COVID-19 vaccine. The main reason for not wearing masks regularly is because of the inconvenience (60%), followed by the need to appear indifferent because most people around the respondents do not wear masks (38.5%), and cannot afford to buy because of the cost (15.4%). The study findings showed that 30.1% revealed their experience of washing their hands regularly had diminished after taking the first round of the COVID-19 vaccine. Lack of access to water/soap was found to be the main reason (40.5%) for health workers not to wash their hands frequently after touching objects, followed by the use of chemical disinfectants as an alternative option (27%), and the belief that the first round of COVID-19 vaccine was sufficient to prevent infection (16.2%). Non-compliance in implementing health protocols is influenced by Personal Autonomy or behavior carried out on their own volition and authority. The perception that arises may be that with vaccination, immunity has been formed and preventive behavior is considered to be no longer important [15].

The research findings show three positive impacts of the COVID-19 pandemic on the lifestyle choices of some Ghanaians, namely stopping/reducing risky behaviors, starting physical exercise, and starting/increasing fruit and vegetable consumption. They have a high level of health knowledge related to chronic diseases, nutrition, hygiene, health

behavior due to the abundance of health education and information on various media platforms. Increased knowledge and perceptions of the threat of the COVID-19 pandemic make them assume positively about health-related lifestyles. Most of the population experienced behavioral changes such as stopping the behavior of consuming alcohol, sharing personal items and consuming junk food. Another positive effect is reflected in the behavior of the Ghanaian population who seek health care and perform routine health checks [26].

4.8 Health Behavior in Europe

The research findings show no substantial reduction in the use of masks after receiving doses of the COVID-19 vaccine in 12 countries namely Canada, Denmark, France, Germany, Israel, Italy, Norway, Singapore, Spain, Sweden, the UK and the US. This is reflected in the fact that until early June 2021, the population is generally not involved in risky activities after obtaining immunity from the vaccine. Found no substantial reduction in physical distancing after receiving doses of COVID-19 vaccine in 12 countries namely Canada, Denmark, France, Germany, Israel, Italy, Norway, Singapore, Spain, Sweden, UK and US. This is evidenced by the fact that until early June most people continued to follow the protocol despite an appeal from US President Joe Biden that fully vaccinated American adults do not need to wear masks or maintain physical distance [27].

The findings show that some adults in Spain who are willing to receive the vaccine are more reluctant to reduce the use of masks in closed public places than those who are not. In general, male participants, the youngest participants and those with the lowest education levels were the most supportive of reducing preventive measures against SARS-CoV-2 after being vaccinated. The findings show that some adults in Spain who are willing to receive the vaccine are more reluctant to reduce the use of masks in closed public places than those who are not. In general, male participants, the youngest participants and those with the lowest education levels were the most supportive of reducing preventive measures against SARS-CoV-2 after being vaccinated [28].

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References

1. E. Pranita, "Diumumkan Awal Maret, Ahli: Virus Corona Masuk Indonesia dari Januari," [www.Kompas.Com](https://www.kompas.com/sains/read/2020/05/11/130600623/diumumkan-awal-maret-ahli--virus-corona-masuk-indonesia-dari-januari), 2020. [Online]. Available: <https://www.kompas.com/sains/read/2020/05/11/130600623/diumumkan-awal-maret-ahli--virus-corona-masuk-indonesia-dari-januari>. [Accessed: 05-Oct-2021].

2. WHO, "Listings of WHO's response to COVID-19," *World Health Organization*, 2020. [Online]. Available: <https://www.who.int/news/item/29-06-2020-covidtimeline>. [Accessed: 05-Oct-2021].
3. S. D. Chowdhury and A. M. Oommen, "Epidemiology of COVID-19," *J. Dig. Endosc.*, vol. 11, no. 1, p. 3, Mar. 2020.
4. C. R. Dennison Himmelfarb and D. Baptiste, "Coronavirus Disease (COVID-19)," *J. Cardiovasc. Nurs.*, vol. 35, no. 4, pp. 318–321, 2020.
5. Github, "CSSEGISandData/COVID-19: Novel Coronavirus (COVID-19) Cases, provided by JHU CSSE," *Dataset COVID-19*. 2021.
6. Satgas COVID-19, "Peta Sebaran," <https://Covid19.Go.Id/Peta-Sebaran>, p. , 2021.
7. A. Widayanti, *Aplikasi teori perilaku promosi kesehatan*. Surabaya: Sanata Dharma University Press, 2019.
8. CDC, "How to Protect Yourself & Others | CDC," *Coronavirus Disease 2019 (COVID-19)*, 2019. [Online]. Available: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>. [Accessed: 05-Oct-2021].
9. S. Notoatmodjo, *Promosi Kesehatan Dan Perilaku Kesehatan*. Jakarta: Rineka Cipta, 2012.
10. W. Lyu and G. L. Wehby, "Community use of face masks and COVID-19: Evidence from a natural experiment of state mandates in the US," *Health Aff.*, vol. 39, no. 8, pp. 1419–1425, 2020.
11. K. Bourassa, D. Sbarra, A. Caspi, and T. Moffitt, "Social Distancing as a Health Behavior: County-level Movement in the United States During the COVID-19 Pandemic is Associated with Conventional Health Behaviors," *Ann. Behav. Med.*, no. May, 2020.
12. A. Dewi, "Penanggulangan Pandemi Covid-19 Melalui Program Pengadaan Vaksin dan Pelaksanaan Vaksinasi Covid-19," *Kemenkeu Direktorat Jenderal Anggaran*, 2020. [Online]. Available: <https://anggaran.kemenkeu.go.id/in/post/penanggulangan-pandemi-covid-19-melalui-program-pengadaan-vaksin-dan-pelaksanaan-vaksinasi-covid-19>. [Accessed: 06-Oct-2021].
13. S. M. C. Abo and S. R. Smith, "Is a COVID-19 vaccine likely to make things worse?" *Vaccines*, vol. 8, no. 4, pp. 1–13, 2020.
14. D. Rahamim-Cohen, S. Gazit, G. Perez, N. Barak, S. Ben Moshe, and M. Mizrahi-Reuveni, "Survey of Behaviour Attitudes Towards Preventive Measures Following COVID-19 Vaccination," *medRxiv from Cold Spring Harb. Protoc.*, pp. 75–90, 2021.
15. B. Zewude, B. Melese, E. Addis, and W. Solomon, "Changing patterns of compliance with protective behavioral recommendations in the post first-round COVID-19 vaccine period among healthcare workers in southern Ethiopia," *Risk Manag. Healthc. Policy*, vol. 14, pp. 3575–3587, 2021.
16. Y. Yuan *et al.*, "Changes in mental health and preventive behaviors before and after COVID-19 vaccination: A propensity score matching (PSM) study," *Vaccines*, vol. 9, no. 9, 2021.
17. L.-X. Sun *et al.*, "Association between health behaviours and the COVID-19 vaccination: risk compensation among healthcare workers in Taizhou, China," *Hum. Vaccin. Immunother.*, vol. 18, no. 1, pp. 1–7, 2022.
18. R. Si, Y. Yao, X. Zhang, Q. Lu, and N. Aziz, "Investigating the Links Between Vaccination Against COVID-19 and Public Attitudes Toward Protective Countermeasures: Implications for Public Health," *Front. Public Heal.*, vol. 9, no. July, pp. 1–11, 2021.
19. Irwan, *Etika dan Perilaku Kesehatan*. 2017.
20. N. Zhang *et al.*, "COVID-19 Vaccination Did Not Change the Personal Protective Behaviors of Healthcare Workers in China," *Front. Public Heal.*, vol. 9, no. December, pp. 1–10, 2021.
21. M. Pakpahan *et al.*, *Promosi Kesehatan dan Perilaku Kesehatan*. 2021.
22. S. Yakut, B. Karagülle, T. Atçalı, Y. Öztürk, M. N. Açık, and B. Çetinkaya, "Knowledge, attitudes, practices and some characteristic features of people recovered from COVID-19 in Turkey," *Med.*, vol. 57, no. 5, pp. 1–14, 2021.

23. M. A. Kalam *et al.*, “Exploring the behavioral determinants of COVID-19 vaccine acceptance among an urban population in Bangladesh: Implications for behavior change interventions,” *PLoS One*, vol. 16, no. 8 August, pp. 1–20, 2021.
24. M. Hania and A. Hania, “A Complete Clinical Audit to Assess the Compliance and Quality of the Safe Surgery Checks in OMFS Theater,” *J. Curr. Surg.*, vol. 7, no. 3, pp. 35–38, 2017.
25. B. Hartanto, D. Sudrajat, and T. Badriatin, “Community Behavior in Health Protocol Policy Perspective Post Covid-19 Vaccination,” *Sawala J. Adm. Negara*, vol. 9, no. 2, pp. 192–200, 2021.
26. F. I. Saah, H. Amu, A. A. Seidu, and L. E. Bain, “Health knowledge and care seeking behaviour in resource-limited settings amidst the COVID-19 pandemic: A qualitative study in Ghana,” *PLoS One*, vol. 16, no. 5 May, pp. 1–15, 2021.
27. R. Goldszmidt *et al.*, “Protective Behaviors against COVID-19 by Individual Vaccination Status in 12 Countries during the Pandemic,” *JAMA Netw. Open*, vol. 4, no. 10, pp. 8–12, 2021
28. D. G. Mosteiro-miguéns, D. D. B. Roca, E. M. Domínguez-martís, N. Vieito-pérez, P. Álvarez-padín, and S. Novío, “Attitudes and intentions toward COVID-19 vaccination among Spanish adults: A descriptive cross-sectional study,” *Vaccines*, vol. 9, no. 10, pp. 1–16, 2021

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