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Communication strategy in the implementation of health belief model (HBM) at Bali Province in dealing with COVID-19

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Abstract---The Health Belief Model (HBM) approach posits that each individual shall consider health threats such as the Covid-19 outbreak as a serious problem and each individual must engage in preventive behaviors. Individual perceptions of health are the main factor for behavior change efforts so that individuals are willing to accept the conducted health promotion. This research aims to analyze the six dimensions of the Health Belief Model (HBM), which are perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy. This study uses a qualitative descriptive method. The data analysis techniques used are data reduction, data display and conclusion drawing at the time of pre-research, during research, and post-research. Data collection is performed by observing, interviewing, and documenting. The result of the research is that the researchers find that the dimensions of the Health Belief Model which are most influential in the informant interview process are the cues to action and perceived severity dimensions.

Keywords---communication, health belief model, COVID-19 pandemic.

Introduction

Covid-19 is spread in various countries such as China, South Korea, Iran and Italy in March 2020. Life that was originally normal was then threatened due to the spread of Covid-19. Governments in innumerable countries decided to close schools, universities, shops, restaurants and companies. People needed information when Covid-19 spread, clear, honest and valid information is essential, because clear information is the most effective prevention to prevent public panic. Information overflow may lead to an "infodemic". Such a phenomenon may make it difficult to find reliable sources of information (Finset *et al.* 2020; Ginsberg & Sayers 2020).

Knowledge of the signs of a disaster, the elements involved in a disaster, disaster communication media, resources, sources of basic needs of the affected community, means of distributing aid, and human resources are aspects of communication which shall be considered. Communication activities must always be performed between the community and numerous stakeholders to ensure their preparedness in dealing with possible disasters. The Covid-19 pandemic outbreak has resulted in people getting psychological disorders, fatigue, work fatigue, fear, and stigma, thus the most important matter is that effective communication has to be ensured in the workplace, family and community (Ginsberg & Sayers 2020; Reddy & Gupta 2020).

Indonesia is one of the countries who fight against the Covid-19 pandemic. The first case in Indonesia was recorded on March 2, 2020. Covid-19 had entered the country in the third week of January 2020. On May 21, 2020, an increase in 973 new cases of COVID-19 was reported in Indonesia, with a total of 20,162 cases. After that, new cases were reported in 34 provinces and four major provinces, which are Jakarta, East Java, West Java, and North Sumatra. The Indonesian government had implemented a strategy to break the chain of the Covid-19 spread in the form of the issuance of Regulation of the Minister of Health of the Republic of Indonesia Number 9 of 2020 on Large-Scale Social Restrictions. The regulation adjusts several restrictions for the community, such as school hours, operation of public transportation, work from home, and such (Sari 2020; Megatsari *et al.* 2020).

The economic sector of Bali Province has been affected by the Covid-19 pandemic. Such is because Bali's economic sector is highly dependent on the tourism segment. Under the current situation of global tourism crisis where the entire tourism industry is suffering significantly from the Covid-19 pandemic which has caused every country to apply strict rules for their citizens to visit other countries including Bali. This issue as a matter of course indirectly causes tourist visits to decrease drastically and affects the social life of the local citizens as well. In Balinese community organizations, there are administrative *banjar* (*banjar dinas*) and customary *banjar* (*banjar adat*) which can help solve various problems. Furthermore, strong bonds between members of the *banjar* will specifically develop social bonds. Balinese people adhere to the concept of "Tri Hita Karana". A principle of Spirituality which is centered on God, then Humans are responsible for maintaining a harmonious bond with nature (Han *et al.* 2020; Suastra 2017).

In the situation of Covid-19 pandemic, collective efforts or actions are necessary. Numerous health institutions have concluded that the mitigation in the spread of the Covid-19 virus is highly dependent on changes in the behavior of each individual such as: washing hands, wearing masks when interacting, self-quarantining, and maintaining physical distance. If behavior change does not occur in a collective manner, the consequences will not only affect the number of deaths and the trauma of those left behind, but also on various economic, social and mental health aspects of the community. The Health Belief Model is able to be used as an intervention with the objective to overcome the threat of disease and increase the confidence of each individual. In addition, in order to maintain and improve people's health and healthy living behavior, one way is to convince the public about the important impact and benefits of healthy living behavior itself. Thus, health beliefs in terms of perceived susceptibility, severity, benefits, and barriers to disease, may be manifested in preventive behavior and behavioral intentions as described in the Health Belief Model approach (Sari 2020; Bourassa *et al.* 2020; Lei *et al.* 2022; Tsai *et al.* 2021).

During the COVID-19 pandemic, people are showing precautionary behavior. Nonetheless, this preventive behavior depends on a variety of factors such as individual circumstances, including health problems, perceived risks, and personal beliefs and social responsibilities, norms, and concern for others. A report from the World Health Organization (WHO) states that "health communication is seen to have relevance for virtually every aspect of health and well-being, including disease prevention, health promotion and quality of life. Moreover, collaborative preventive measures such as implementing joint interventions to quarantine infected individuals and their family members, social distancing at work, and school closures after community transmission is detected are able to substantially reduce the number of SARS-CoV-2 infections. Health messages and awareness campaigns must be formulated based on the construction of the Health Belief Model (Kim *et al.* 2022; Bavel *et al.* 2020; Koo *et al.* 2020; Siddiqui *et al.* 2016).

This study aims to determine the management of Covid-19 in Bali Province with the Health Belief Model (HBM) approach. The selection of Bali as the research location is due to the attack of Covid-19 outbreak which affected various sectors of life in the Province of Bali. This research may also help health care providers acquire more insight into the health behavior of indigenous people in Bali Province in relation to the Covid-19 outbreak.

Method

This study uses a qualitative descriptive method. Primary data is obtained directly from the results of interviews and observations. Secondary data is data gained from publications and information produced by numerous government institutions and organizations. Secondary data is also attained through literature studies, namely documents or reports from related parties such as the Covid-19 Task Force, the Bali Provincial Government. Studies on previous research and relevant books are sources of secondary data as well. Data analysis techniques used in this study are data reduction, data display, and conclusion drawing

(Miles and Huberman, 1992). Then, the data validation uses the source triangulation techniques or datasets, methods, and theories.

Discussion

The Covid-19 pandemic requires every individual to be aware therefore they are able to participate in breaking the chain of the spread of Covid-19. The Health Belief Model (HBM) approach may be used to predict preventive health behaviors as well as responses to Covid-19.

Table 1
Key components of HBM, conceptual definition, strategic intervention

Concept	Conceptual Definition	Strategic Intervention
Perceived susceptibility	Belief about the possibility of getting sick	<ul style="list-style-type: none"> • Determining the population at risk and establish a tier • Personalizing risks based on a person's individual characteristics or behavior
Perceived severity	Belief about the seriousness of contracting a disease including its consequences	<ul style="list-style-type: none"> • Making individual perceptions to be more consistent with actual risks • Determining the consequences of risks and conditions • Triggering emotions such as distress and regret with an image
Perceived benefits	Belief about positive aspects of health behaviors such as behavioral success to reduce risk	<ul style="list-style-type: none"> • Shifting individual perspectives by showing other beliefs about behavior and its effects • Providing knowledge and arguments which support behavior
Perceived barriers	Belief about the obstacles that will occur in carrying out an action and its negative aspects	<ul style="list-style-type: none"> • Identifying and reduce perceived barriers through assurance, correction of misinformation,

Cues to action	Internal and external factors that can trigger health behavior	incentives, and assistance <ul style="list-style-type: none"> • Promoting awareness • Using appropriate reminder and attraction system
Self-efficacy	Belief that one can do what is recommended in health behavior	<ul style="list-style-type: none"> • Providing recommended training and guidance • Providing verbal affirmation

Source: Glanz, Rimer, Viswanath 2015

There are five dimensions of the Health Belief Model approach which is used by researchers as follows:

- a. Perceived susceptibility becomes the initial way to convince society to take an active role in preventing Covid-19. Individuals who feel that they have a risk of disease are more likely to take preventive measures than those who feel that they have no risk factors for disease. In the case of Covid-19, vulnerable individuals include all people and all ages. This fact is one of the challenges in dealing with Covid-19 compared to handling natural disasters or other types of disasters. The same assertion was also explained by a research informant as follows:

“Covid 19 is what causes Humans, on the other hand humans are also affected so that Object and Subject become one. When one is exposed to Covid he will be a source of threat to the rest of society. When one is not exposed to Covid, he is threatened by his neighbors left and right whom he never knows unless they do a Swab or PCR. So, between Covid and the subject, it means they are at the same point. So it continued to follow, the question is when is Pre-Disaster? If in Disaster Management, Pre-Disaster is just before or eeeeeee the situation at the time of the disaster has not occurred even though it is still in a safe condition or there is a potential threat, it is still Pre-Disaster. But at the time of the Covid situation it was still one condition, indeed that is because the people themselves could be a threat. So people are exposed, affected can be a threat factor for others. Well, this continues like this and the function occurs in expansion, because one person who is exposed to it can infect more than one person. It means, indeed, the protection that is being carried out is what really has to be accurate in particular” (LK, 25/1/22).

The spread of the Covid-19 virus is also one aspect of the perception of susceptibility to rapid transmission and there is a presymptomatic period which allows the virus to spread through droplets or contact with contaminated objects, causing a greater level of susceptibility to infection with the Covid-19 virus. Moreover, the transmission of Covid-19 may be able to spread through the air in the condition of the patient in special care (Decree of the Minister of Health of the Republic of Indonesia 2020). Indigenous communities in Bali Province are convinced by the government regarding vulnerability, one of which is by the value

of local wisdom such as “Vasudaiva Kutumbhakam” which means we are all family. Hence, if one does not take precautions against Covid-19, their whole family will be susceptible to Covid-19. Furthermore, the susceptibility related to the transmission of the Covid-19 virus is even greater due to the process of life in Bali Province such as religious and cultural activities which are performed collectively and carried out in gatherings thus involving many people, therefore they become a vulnerability and highly unsafe for the process of life in Bali. Such is in line with the findings of previous studies which states that if the public's perception of the risk of disease is high, compliance in abiding with the Covid-19 disease prevention and control process will increase (Kwok *et al.* 2020).

- b. Perceived severity is one impact of the Covid-19 disease in Bali Province. During the Covid-19 pandemic, various sectors of life in Bali were disrupted including the economic, tourism, health, social sectors, which caused great hardships for indigenous people in Bali. In the health sector, if one look at case data on June 28, 2021, there were 49,758 confirmed cases and 1,559 deaths. Bali Province along with Java Island become the regions which have the highest Covid-19 cases in Indonesia. In addition, Bali Province is the area most severely affected by the pandemic in terms of the economy, as seen from data showing Bali's economic growth in the second quarter of 2020 or the April-June 2020 period, experiencing a down to 10.98 percent compared to the same period last year (Public Health Office of Bali 2021; BPS 2020c). The difficulties in Bali Province as a result of the Covid-19 pandemic were also explained by the informant as follows:

“So indeed these are the worst times for Bali, where Bali is almost 80% dependent on tourism and Covid has really hit the tourism sector as we know. So, the domino effect of the business sector in Bali is obviously all businesses become affected. Eee, of the 9 regencies and cities, there are currently 8 regencies and cities affected, because nearly all of them are related to tourism, except for 1 district, Jembrane, because indeed they do not depend on tourism because they live from agriculture and fisheries. But the others do not have other business sectors such as factories, no, there isn't any. So let's say now Badung is affected because tourism has fallen. The effect of Badung being hit means that agriculture does not operate, fisheries lack demand, and then the people's purchasing power for retail decreases, because Badung is the biggest locally-generated revenue. Which regencies are related to tourism? Denpasar has tourism, Badung of course, Gianyar lives from tourism, Karangasem, too, Buleleng has Lovina. Bangli also has tourism, there is Kintamani. Many tourism employees come from remote areas of Bali. So almost all Bali districts are affected” (AW/8/11/21).

Conditions which disrupt the economy such as the current pandemic, have also occurred during previous disasters, for instance the 1998 economic crisis, the 2002 first Bali Bombing, the second Bali Bombing in 2005, and the 2017 Mount Agung eruption. Compared to the level of severity from the aforementioned disasters, the Covid-19 pandemic has had more of an impact on Bali Province from various sectors of life. This is clarified by an informant as follows:

“Where the statistics that occurred in 2019 after Mount Agung erupted, indeed Mount Agung erupted, there was a decline, like the case with the Bali bombing 1

Bali bombing 2. There was also a significant decrease, if I may take an illustration, in the first Bali bombing, we experienced a decline of almost 60% to 70% but there was still 30% of total. One of which was domestic guests and then some guests from ASEAN countries were still present, yes, the second Bali bombing, and we in the first Bali bombing, the recovery was only about 6 months. In 6 months we have recovered, so it means that our financial strength was still strong. The second Bali bombing happened, the second Bali bombing was a bit long, it took us 1 year to recover. 1 year we recovered. Eee Mount Agung erupted, well, Mount Agung erupted, there was also a significant decline, but it was only local. This pandemic is something that is completely beyond our expectations, which caused the occupation to reach 0 degrees the hotel to reach 0 degrees, eh 0%, which means that 0% there are really no guests present. Now this is quite long, it happened almost around 1 every year so it is true that there are indeed many hotels that are temporarily closed due to this pandemic" (AW/8/11/21).

"The third phenomenon is what the suicide rate in Bali is high enough, now I think that the Balinese character is more or less the same as the Japanese when things happen that are embarrassing for a person. Because at this time says he owes a debt to the banjar, right? This is mentioned continuously, in this banjar it is mentioned continuously. Now, what is the name, this causes shame not only to themselves but to their families and communities, in the end they chose to end their lives. Now this is the highest in Badung, I heard reports from the head of HIPMI (Himpunan Pengusaha Muda Indonesia or Indonesian Young Entrepreneurs Association) in Badung that there have been suicides quite high in in and they are most affected at this time, where almost all hotels in Bali are actually focused on Badung. Well this is finally why they end their lives" (AW/8/11/21).

Considering the situation of the spread of Covid-19, this pandemic has almost reached all provinces in Indonesia with the number of cases and/or the number of deaths increasing and having an impact on the political, economic, social, cultural, defense and security aspects, as well as the welfare of the people in Indonesia (Decree of the Minister of Health of the Republic of Indonesia 2020). The impact of Covid-19 that disrupts the sectors of life as described above can make individual perceptions of the severity of Covid-19 become greater, because the greater the perceived severity of contracting the Covid-19 virus on daily life and relationships in society, the greater influence on the preventive behavior of each individual (Park & Oh 2021).

- c. Perceived benefits are an individual's perception of the benefits of Covid-19 prevention measures such as wearing masks, keeping a distance, washing hands and the benefits of behavior changes which are recommended to prevent the spread of Covid-19. Further is the benefits of the Covid-19 vaccination. The benefits of behavior change and vaccination are felt by the Balinese society, particularly the indigenous people. This is in line with the informants' explanation as follows:

"So far, very capable. The latest survey results of the Balinese indigenous people have a high level of adherence to health protocols for behavior change efforts in Indonesia, even the highest. An example of using masks is 98% of the level of discipline and compliance with the use of masks" (IMR, 11/12/21).

"I dare to once again take responsibility with our customs that we have succeeded. The evidence is that now we are very smooth, in 3 months, not even 3 months, the case that exploded yesterday in Bali until we were at level 4 has now dropped to level 2. In fact, hopefully next week, we are going to level 1. In my opinion, we are very successful, because in terms of statistics on wearing masks, keeping a distance, according to statistics at the national level we are still the best" (IGS, 12/11/21).

"Well, say we put it 80 percent, a small percentage is still stubborn, especially at the youth level. Therefore we need to give special emphasis, like today's teenagers, you know that if you don't keep pumping and filling them, they will forget. That's because they feel that they are still young, well, young people need to be pressed again. Say the old ones don't need that anymore, they have self-awareness and they feel that when they leave the house without a mask, they feel something is missing. Right, it's a habit of three years we have been wearing masks when we go out of the house. They must feel that something is missing. Because it is a habit and routine, we have to wear it, since it is a government program, it's our own safety. I think that's it. So as a whole we in the indigenous peoples realize the benefits of adopting new habits" (IMB, 17/02/22).

Perceived benefits play an important role in implementing preventive behaviors, such as screening. People tend to adopt healthier behaviors when they believe that the new behavior will lessen the spread of a virus or disease (Glanz et al. 2015). In line with the results of research from Kamran *et al.* (2021) on the prevention of Covid-19 in Iran, it is stated that the majority of people in Iran believe that the benefits that they felt when conducting the preventive action of Covid-19 disease are in accordance as recommended.

d. Perceived barriers are obstacles which occur in making behavior changes to break the chain of Covid-19 spread, such as costs, physical illness, psychological considerations or lack of access to logistics. High barriers cause reduction in a person's desire to perform preventive behavior (Shmueli 2021). In the case of Covid-19, especially in Bali Province, information is too excessive and confusing. One-stop information between the central government and local governments. Furthermore, the obstacle is in terms of behavior changes such as masks, disinfectants, and other personal protective equipment which costs money, thus in a pandemic the economy is declining but there is an additional need to maintain health. This is also explained by the informants' statement as follows:

"Another obstacle that I feel is when there is too much information about Covid and also the exposure of hoaxes which makes people's trust in the government decrease, too" (NS, 15/02/22).

"Basically, I think that behavior changes during a pandemic is not an easy matter, it must be within us who have to continue to be committed to doing it and spreading it. Moreover, for indigenous peoples in Bali, for example about keeping a distance, and not crowding. Because the average religious and cultural activities in Bali have to involve a lot of people. In addition, during the pandemic, people are required to

pay additional costs to buy masks, disinfectants and others. But all of these obstacles can be removed if they are communicated through elements of customs and religion. The concept of Tri Hita Karana, which plays an important role, is mandated by our predecessors to involve three elements of a balance of life in order to obtain prosperity to maintain harmony with God, nature, and humans themselves” (IGS, 12/11/21).

“From our society there is no obstacle, that from our people we are fully following the rules according to it even though one doesn't have money but yes still the priority is his health. Sometimes as I said the Covid was, who and where and when it is present we don't know. It would be nice for us to anticipate it early before it hurts us, better we (follow) the advice of the government. The government's analysis is also multiplied, so maybe the first way to overcome the Covid is wearing a mask, the correct health procedures maybe the analysis maybe already (has been done) many times so they told us like that. We just follow the advised orders for health. The government suggests we wear a mask because maybe it has a negative effect. The point is in us whether the administrative and customary (banjar) have agreed and directed, there are no traditional krama (manners) against it. Must be obedient. Because it's all for the common good” (IKM, 1/02/22). Perceived barriers have a negative and direct relationship with COVID-19 prevention behavior, meaning that the lower the obstacles felt by a person in taking precautions, the higher the application of preventive behavior (Mirzaei *et al.* 2021).

- e. Cues to action or triggers which encourage people to be involved in the prevention of COVID-19. In this study the researchers found a number of matters that triggered individuals to be able to prevent COVID-19 as follows:
 - (a) The formation of *Satuan Tugas Gotong Royong* or Mutual Cooperation Task Force in 1493 traditional villages in Bali Province which led to the province having the resistance of the Covid-19 disaster through local wisdom and local value. In accordance with research conducted by Kurnio *et al.* (2021) that the integration of indigenous people, local, and traditional knowledge with scientific knowledge will increase the effectiveness of adaptation and resilience, including in dealing with disasters.
 - (b) Shared leadership with official and customary elements. Bali Province in its government system recognizes shared leadership between official villages and customary villages which are set in the Bali Provincial Regulation No.4 of 2019 concerning Customary Villages. Conforming to as described by Angga & Perdana (2021) that decision making whether in arranging work programs, and so on related to village development on basis of Customary Villages, is always coordinated by conducting meetings on the basis of the rules that have been set to reach a joint agreement between customary villages and official villages, especially in the management of COVID-19. Shared leadership in dealing with COVID-19 may enable positive impacts because the increasing number of human resources can be utilized to break the chain of the spread of COVID-19. This is as explained by the informant as follows:

“Entering the domain must have the correct attitudes, because there is an appeal that is mutual cooperation, must have special guidance, which is from the customs and officials. Without any special guidance, everyone will be confused. It's easy for

just an appeal or a circular, but who is able to translate circulars, yes, these traditional figures our official figures unite themselves to make the role of togetherness to understand a separate appeal" (IGR, 1/12/21) .

(c) The role of stakeholders. In the management of COVID-19 in Bali Province, one of the efforts made is to make consensus or establish cooperation between various elements for mutual strengthening and help in a health emergency situation. Bali Province forms a Disaster Risk Reduction Forum (FPRB) which is a combination of various elements to perform collaboration such as academics, the business world, mass media, and the community itself to help the role of the government in realizing behavior changes to break the chain of COVID-19. (d) Customary laws in Bali Province are one of the most effective cues to action in handling COVID-19. Activities in Bali Province are generally conducted in customary villages, covering traditional and religious fields, where a customary village in Bali has its own customary rules as outlined in the village's *awig-awig* (customary law). The customary village government is autonomous, in the sense that each customary village has its own rules that only apply to the villagers or banjar concerned. This village's *awig-awig* contains rules which are regulating and forcing the community to create harmony and the exhibition of every legal relationship in society. *Awig-awig* is made and determined by the village *krama* (manners) based on mutual agreement and obeyed by the village *krama* themselves and the most important matter is that the *awig-awig* is a binding of the unity and union of the village *krama* to guarantee the solidarity and integrity in uniting the common goals, realizing a safe, peaceful, orderly and prosperous life for the peace of the village. Generally, *awig-awig* is a social control that functions to maintain the existing rules/values. It aims to restore any disturbed balance by imposing negative sanctions against citizens who violate or deviate from the values or rules that apply. The community is obliged to obey regulations, including in customary villages that have regulations or *awig-awig*. If any regulation is violated, the violator will be subject to customary sanctions. There is one sanction that is extremely feared by the community in the traditional village, which is the sanction "*Kasepekang*". Such is because their rights and obligations will be restricted and this will also apply to their descendants, for example being prohibited from participating in "*ayah-ayahan*" (mutual cooperation), performing prayer in the temple, the use of the Banjar Hall, not getting a holder (priest), and not having a burial place in the village. Residents who have been subject to sanctions *Kasepekang* and intend to return to being a local resident may be granted after fulfilling the requirements and obligations to pay for a kind of *penanjung batu* (compensation) or *guru piduka ritual*(asking for forgiveness). Cues to action through the application of penalties are applied in indigenous peoples in Bali because during the management of Pandemi Covid-19, not everyone intends to follow the recommendations of the local government and also traditional villages. Hence the role of customary law enforcement is necessary (Sukadana *et al.* 2021; Yasa 2020).

f. Self-efficacy is an attitude of individual self-confidence in making behavior changes and complying with the health protocol to help dealing with COVID-19 in Bali Province. One element of individual self-efficacy in Bali Province is strengthened by local values, therefore the community go through difficult times with mutual cooperation as explained by the informant as follows:

"As I say, we have a real concept called *menerebraye* which means that one who suffers is also our suffering. This is what binds us in the traditional Bali. The suffering of one family is the suffering of all of us, so inevitably we have to provide help to them. This is actually still very thick in Bali so I view this custom is what we should maximize, especially in the context of disaster risk reduction, this is the most important. With our local value, it becomes the strength of every individual to be able to go through the difficult times of Covid-19 and can comply with the government's advice to adapt to new habits" (IGS, 12/11/21).

The self-efficacy of each individual in dealing with COVID-19 may arise due to the support of cultural and religious activities by upholding the values of "Tri Hita Karana". In line with the research results of Tsai *et. al.* (2021) which states that self-efficacy is closely related to the behavior of new habits, the more confident a person or individual, the more certain they are to carry out health recommendations.

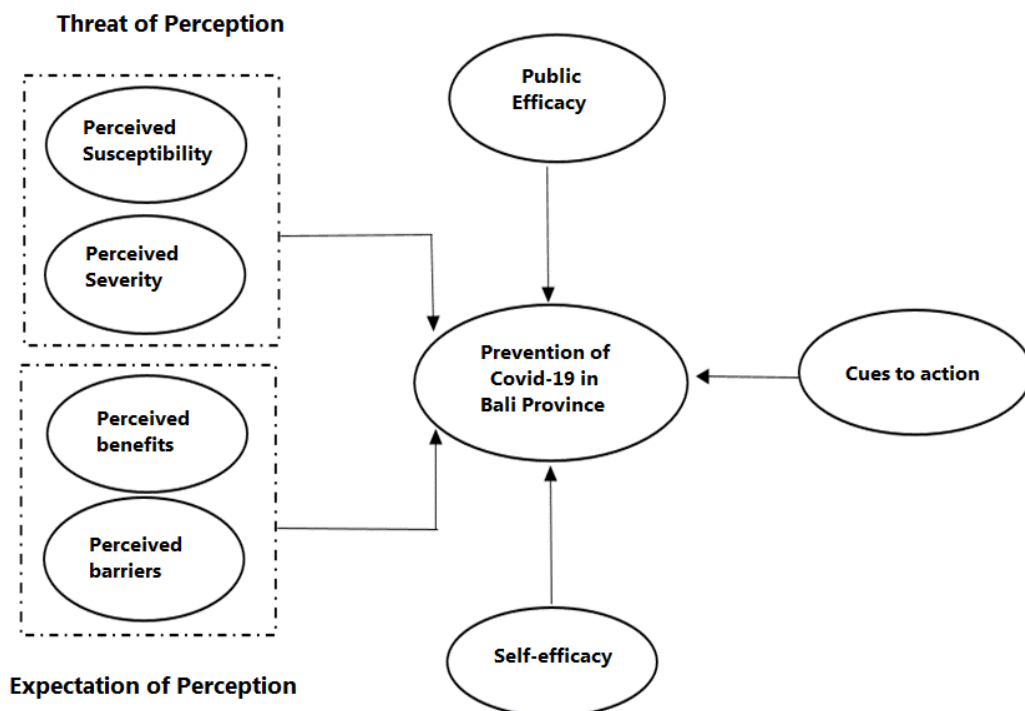


Figure 1. HBM Framework for Prevention of Covid-19 in Bali Province

Conclusion

Researchers found elements which demand every individual of indigenous peoples in Bali Province to be aware in order to participate in breaking the chain of the spread of COVID-19 using the Health Belief Model (HBM) approach that predicts preventive health behavior and responses to Covid-19 as well. There are six dimensions of the Health Belief Model approach used by researchers, namely

perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy. In addition, researchers discovered that the dimensions of the Health Belief Model which most influenced the informant interview process are the dimensions of cues to action and perceived severity.

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