



# A Qualitative Study with Health Belief Model: Perceived Risks and Compliance Towards COVID-19 Prevention Measures Among Adults in Indonesia

Mara Ipa<sup>1</sup>, Pandji W. Dhewantara<sup>1</sup>, Jerico F. Pardosi<sup>2</sup>, Heni Prasetyowati<sup>3</sup>,  
M. E. A. Fuadiyah<sup>3</sup>, Rachmalina Soerachman<sup>1</sup>, Endang P. Astuti<sup>1</sup>,  
and Yuneu Yuliasih<sup>1</sup>(✉)

<sup>1</sup> Research Organization for Health, National Research and Innovation Agency,  
Jakarta, Indonesia  
yune002@brin.go.id

<sup>2</sup> Faculty of Health, Queensland University of Technology, Brisbane, Australia

<sup>3</sup> Pangdaran Public Health Laboratory, Ministry of Health Republic of Indonesia,  
Jakarta, West Java, Indonesia

**Abstract.** Current policy responses in Indonesia have been focused on increasing public awareness of the risks of COVID-19. Nevertheless, there is limited information concerning public perceptions on COVID-19 pandemic that would contribute for formulating adequate preventative approaches to mitigate consequences of COVID-19 in the population. The Health Belief Model (HBM) approach was adopted in this qualitative study among Indonesian adults in 34 provinces. Risks and barriers perception of COVID-19 prevention measures were assessed include exploring perceived of susceptibility, perceived of severity, perceived of benefits and perceived barriers. In-depth interviews (IDIs) were performed in April 2020 via phone (online interview). Thematic analysis approach was applied for the qualitative data analysis. The findings suggests that perception towards COVID-19 has influenced level of participation and compliance in practicing recommended preventive and control measures. Several obstacles to implement the preventive measures included the readiness of the government in terms of infrastructure and human resources for health. Lacking in terms of complying with prevention policies and health protocols, and overlapping policies launched by the government felt by the public were found to create mixed messages and responses on adequate preventative measures relating to COVID-19 epidemics situation in Indonesia. Of which, in the context of global crisis a consistent regulation and firmness in implemented related issues play a crucial role in forming participatory of preventive and control measures. Persistent and assertiveness of policy responses can increase and sustain community trust as well as their attitudes and compliance with COVID-19 preventive measures for preventing community transmission of COVID-19.

**Keywords:** COVID-19 · perceived risk · prevention measures · health belief · behavior · Indonesia

## 1 Introduction

Coronavirus Disease (COVID-19) was first reported at the end of 2019 in Wuhan province, China. The World Health Organization (WHO) declared pandemic situation on the 11<sup>th</sup> March 2020 based on its rapid increase of cases in multiple countries [1]. Globally, there have been more than 53 million positive COVID-19 cases were reported with at least 6 million deaths by 17th June 2022 [2, 3]. Indonesia first announced the COVID-19 case in early March 2020 [4]. Even though WHO has announced COVID-19 as a global pandemic, many people in Indonesia still do not consider this as a major health threat including disbelief about the existence and impact of COVID-19 to their health.

Perceptions of risk are inseparable from one's thoughts and culture. It is an individual psychological design affected by cognitive aspect, feeling, community, culture, and other individual variation [5]. These variations might happen between individuals, groups, as well as at the national level. Perceptions of risk relating to COVID-19 were documented to be significantly associated with preventive behaviours such as frequent hand washing, physical distancing, avoiding public places, and wearing face masks in ten countries [6]. Public risk perception on public health emergencies such as COVID-19 pandemic is one of the factors that contribute to increasing public participation in adopting and applying preventive measures [7]. The awareness, perceived risk perception, and personal protection behavior of each individual are essential in the success of COVID-19 prevention and control, given the absence of drugs and vaccines. In this case, community plays a vital role for the successful implementation of preventive and control measures recommended by Government authorities [8].

Influential factors, including socio-demographic characteristics, social context, and individual values could influence risk perceptions during pandemic situation. However, several factors such as cognitive (e.g. people's knowledge and understanding of risk), emotional and experiential (e.g. personal experiences), socio-cultural paradigms (e.g. social amplification of risk, cultural theory, beliefs, and values), and relevant individual differences (e.g. gender, education, ideology) would influence the subject's perception of the actual risk of the disease [9]. Information about perceptions of risk factors and compliance in conducting prevention efforts is required to determine the types of adequate programs and main target groups of health education and promotion to be carried out [10].

Health Belief Model (HBM) is one of the influential theories in explaining why individuals behave or decide not to do anything about the health risk to themselves or the society [11]. Perceived susceptibility, perceived severity, perceived barriers and perceived benefits are four key constructs to understand individuals' health fears which may affect behavioral responses to preventive measures by health authorities during pandemic situation such as H1N1 including vaccine acceptance [12]. A literature review focusing on the use of facemasks for Severe Acute Respiratory Syndrome (SARS) using HBM suggest the life-threatening risk of SARS has influenced individuals' decision to properly wear face mask by perceiving both susceptibility and severity of SARS [13]. A qualitative study on understanding influenza pandemic based on rural community in Central Java found mixed opinions about Avian Flu as a rumor that have influenced their trust with the government's program to prevent Avian Flu cases [14]. To our knowledge,

there have been limited evidence on risk perception, barriers and motivating factors that influencing the adoption of preventive measures towards COVID-19 in the context of Indonesia [15]. In order to fill this gap, a qualitative study was conducted to explore perception and factors underlying responses among adults in taking preventive measures towards COVID-19 in Indonesia.

## 2 Materials and Methods

### 2.1 Study Design

This qualitative study was nested within a quantitative online survey entitled “Knowledge, attitude, practices and perceptions of adult Indonesian people during early COVID-19 pandemic”. Data were collected from April to Mei 2020. The informants were obtained from previous quantitative online survey. They were asked to provide their contacts if they were interested in participating in online In-Dept Interviews (IDIs). After the quantitative survey has been completed, 77 informants were selected based on based on demographic categorize including region, type of work, and level of education. Primary data (IDIs) were conducted over the phone using interview guidelines to explore the risk perception of the novel coronavirus infection in the community. We chose adult ( $\geq 15$  years as it corresponds to the age group within the age range defined as adolescent in Indonesia [16].

### 2.2 Data Collection

The participants were selected purposively based on online survey participants’ diversities. The selection was based on gender, age groups, type of residence owned, marital status, occupation, education level, and monthly income. The target were adult populations (above 15 years old) in 34 provinces in Indonesia. Total of 77 participants were selected from a total of 3582 online survey participants. Participants were interviewed by mobile phone from 20th April until 30th April 2020. Phone number acquired from the online survey which conducted prior to the qualitative study. Researchers performed the interview with an average of approximately 15–30 min until the necessary information was obtained.

Risks and barriers perception of COVID-19 prevention measures were assessed through HBM approach include exploring (a) perceived of susceptibility, to assess perceived vulnerability; (b) perceived of severity, understanding the perceived risk perception; (c) perceived of benefits are the benefits that the individual may expect to accrue by undertaking the behavior in question; and (d) perceived barriers in the individual feels may prevent them from making the desired behavior change. In line with common practice in qualitative research, data collection was ceased when additional interviews did not add new information [17].

### 2.3 Data Analysis

All interviews were electronically recorded into the phone devices. Interviews recorded in Bahasa Indonesia were translated to English and then back translated to ensure the

accuracy of transcription. For quality control, random transcript segments were selected and compared against audio recordings and were found to be accurate. Responses to each question were analyzed separately, using a formalized content analysis approach to identify key themes relating to the HBM constructs. In this manner, direct comments could be highlighted, coded, and organized. Qualitative data analysis uses a thematic analysis approach, where coding was determined at the beginning which aims to build themes from the qualitative data [18]. The consistency of results was maintained with researchers and research assistants who worked independently coding each transcript in the form of a matrix. In the case of differing thematic interpretations, discussion between the researchers took place until the final agreement was reached.

### 3 Results

#### 3.1 Characteristics of the Informants

Seventy seven participants participated in IDIS using phone interview. Table 1 shows the socio-demographic characteristics of the informants. Most informants (59.7%) were university graduate with 6.5% had completed primary school. Half of informants (54.5%) were unemployed, and the others (14.3%) were health care workers. Those who were employed, more than half (61%) with monthly income less than \$140 USD.

Three key themes emerged from the interviews data (1) conflicts of interest between the desire to take preventive measures and fulfillment of daily needs; (2) community awareness and preparedness of resources; and (3) overlapping and assertiveness in policy implementation toward COVID-19. Five themes were identified based on HBM approach including perceived risk, perceived severity, perceived barrier, perceived benefit and cues to action (Fig. 1).

#### 3.2 Perceived of Risk

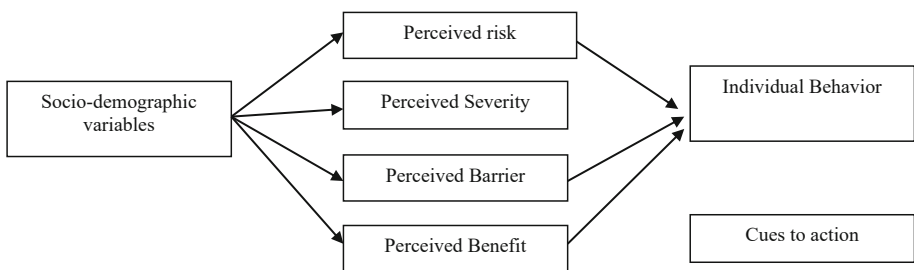
Most participants tend to state that they were likely to be infected, although the probabilities were varied. Participants expressed the reason why people can be infected by the virus without presenting any symptoms (asymptomatic infection). One possible reason that they could not stay longer at home since they have to go to work so that the chance of being infected is becoming higher. Even though they have personally carried out preventive measures or wearing mask, they still have concerns about it.

*“Yes, you have a chance, because now there are lots of orang tanpa gejala (OTGs-people with asymptomatic cases). Yes, even with PSBB (large scale social restriction), actually people are still going out, I see that the outside still looks busy. Nevertheless, I see that now people are more aware of wearing masks.”* (IF, Housewife, 28 years old, West Java)

*“... the chance of infection is ... high enough for me, he he (sheepish laugh)... because it is not a problem at work since the work is already off, right?! Awareness in the community is also different.... However, when there are lots of people in my house, and not all of them wash their hands. The risks are there ...”* (ND, Teacher, 22 years old, Special Region of Yogyakarta)

**Table 1.** Socio-demographic characteristics of the informants (N = 77)

Characteristics	Number (%)
<b>Age (years)</b>	
15–24	20 (26.3)
25–34	27 (35.5)
35–44	8 (10.5)
45–54	8 (10.5)
≥54	4 (5.3)
<b>Gender</b>	
Male	36 (46.8)
Female	41 (53.2)
<b>Employment</b>	
Not employed	24 (54.5)
Health Care Workers	11 (14.3)
Non-health Care Workers	42 (31.2)
<b>Education</b>	
Primary school	5 (6.5)
High school	26 (33.8)
University degree	46 (59.7)
<b>Monthly income (in IDR)-update kurs (1 USD = 15.138 IDR (in 30 of April 2020))</b>	
<2.000.000,-	47 (61)
2.000.001 – 5.000.000,-	20 (26)
5.000.001 – 10.000.000,-	6 (7.8)
>10.000.000,-	4 (5.2)

**Fig. 1.** The Health Belief Model [19]

Some participants expressed the lack of knowledge of whether or not they had a chance of contracting COVID-19 and hoped not to become infected, which expressed through beliefs that both prevention efforts and government recommendations have been applied.

*“If you asked me about the chance of contracting the disease, I do not think so. I mean, I am not interacting with someone who is ODP (individuals under supervision), and I always keep myself clean as well, it seems the chance is still far”* (IM, entrepreneur, 56 years old, West Java)

*“well, if you asked me whether I have the chance or not, I do not know exactly. Hopefully not, all this time, I have been in contact with people, yet, thank God, still healthy too, hopefully not getting the COVID-19.”* (MI, Driver, 47 years old, South Kalimantan)

### 3.3 Benefit

The majority of informants from various regions in Indonesia were reported to having more time with their family members and caring for others as perceived benefits during the implementation of social restriction as preventive measures due to increasing positive cases of COVID-19 in the population.

*“...Indeed, we see in our life, people prefer to do activities outdoor, but it's better to regroup, so it is recommended that we stay at home, what for? To get closer to our family...”* (FS, Student, 19 years old, Maluku)

*“... Actually, on one side, we feel a sense of empathy with other people; maybe we usually don't pay too much attention to our neighbors; instead, right now, we do. We thought about our neighbors, whether they can eat or not, like that, because they can't work and so on,...”* (Su, Government's employee, 39 years old, West Java)

Several participants also recognized the positive consequences of large-scale social restrictions due to COVID-19 situation through improved aspects of their religiosity practices and fostered creativity while staying at home.

*“...Alhamdulillah (Praise be to God), so far, what I feel is that I can do more religious services which I previously had difficulty to maximize .....”* (ND, 22 years old, Teacher, Special Region of Yogyakarta)

*“...hmm, maybe because this is a difficult time, sometimes we get creative, especially when we are looking for additional income, so we have time to rest and more time for family. Because our activities were less, I feel our expenses were reduced. Inevitably, we learn to save money...”* (EV, Entrepreneur, 39 years old, Bali)

Some participants also emphasized personal benefit regarding their change in health behavior that previously was not pay much attention to PHBS (Clean and Healthy Living Behavior), and now more aware to obey and regularly carry out health protocols such as washing hands, maintaining health by exercising, consuming nutritious food and vitamins or herbal medicine.

*“ try adapting to a healthy lifestyle, a balanced diet, and handwashing.....”* (HD, 22 years old private employee, West Kalimantan)

*“ I eat more which were good for immunity, continue to eat fruit, wash my hands more often and I am more aware of hygiene issues...”* (IF, 28 years old, House Wife, West Java)

*“...having exercise regularly, drinks jamu (herbs liquid), taking vitamin C everyday....”* (YY, 49 years old, entrepreneur, West Java)

### 3.4 Barriers

Overall, the perceptions of obstacles highlight the following points stated by informants from different levels of severity in various regions in Indonesia. The barriers in implementing government policy as an effort to prevent COVID-19 include the readiness of the government in terms of infrastructure and human resources for health.

*“...from what I see, maybe this will continue, since in Indonesia, especially maybe in our area, fortunately no one has been positive. The swab test has not shown positive result. But if someone positive for example, it means that it will be very difficult. Because us, especially in this district, haven't had the health infrastructure facilities ready, the health workers are also not prepared yet, the isolation place itself is also not set ...”* (DSW, 42 years old, private employees, East Nusa Tenggara)

*“...then maybe in my opinion the rapid test is quite difficult. So there are many people in the community who want to, so in the end, they were worry, they want to be tested with their families, but it were limited, so they were scrambling for it and it is going to be difficult...”* (LI, 43 years old, Government employees (Health department), East Java)

In addition, the majority of participants stated that public awareness was still lacking in terms of discipline in complying with prevention and control policies that were rolled out by the government at different administrative levels. Other informants reported that overlapping policies launched by the government felt by the public, giving rise to have more confusion as expressed by these informants.

*“...Then, I saw that it was indeed difficult to just stay at home and make sure that people who entered the house were clean, ... I mean, not everyone had the awareness to tell people to wash their hands...”* (ND, 22 years old, Teacher, Special Region of Yogyakarta)

*“...Euhh actually yes maybe generally, but there are still any weaknesses with the policy, there is a policy that still imperfect or still overlaps with one another. Finally it is applied in practice yet-not in line with expectations...”* (EU, 36 years old, Government's employee, West Java)

*“...we have to support and actually everything must work out. If the regulation is applied it will harmed the daily laborer. So the regulation must also consider them, so everything will be in line. If you want lockdown, yes lockdown, it shouldn't*

*be just a theory, because so far the theory developed, but the practice was very difficult, mam...*" (BT, 34 years old, Government's employee (Health), West Java)

Most informants expressed their concern in complying with efforts for preventing more positive cases of COVID19 in the population by experiencing economic hardship and other negative consequences because of large scale social restrictions which illustrated by several participants in different regions of Indonesia.

*"...in my opinion ... the dilemma happened also because it is hard for the daily laborers to get on with their lives, but the dilemma for the medical team is also getting larger as the transmission getting wider..."* (SU, Private employees, 29 years old, East Nusa Tenggara)

*"...Well, in my opinion, it's good... but not everyone is like that, if people don't come out ... when they think that it is difficult to meet their food needs ... So people will become unwilling to stay at home..."* (FT, 19 years old, entrepreneur, North Sumatera)

*"this is also still being questioned. How come the governor seems to be very relaxed and not yet put up the PSBB ... Even though there are almost 200 positives COVID19 ... Maybe they are still considering ... euh the economic impact of all things..."* (EV, 39 years old, entrepreneur, Bali)

## 4 Discussion

This study was conducted to explore people's perception towards SARS-CoV-2 infection among the Indonesian adults in the early epidemics. Our study suggests that perception towards COVID-19 has influenced level of participation and compliance in practicing recommended preventive and control measures. The findings suggest that perception, benefits, and barriers have motivated some communities to consciously undertaking (or not to undertake) actions to avoid COVID-19 infection. Perception is the process of assigning value to selected stimuli, which is referred to as interpretation. Once the selected stimuli have been classified as having a good perception, it would follow as to what it is suggested [20, 21].

This study found that risk perception towards COVID-19 was variable among the participants. Some participants expressed that they still have the potential to be infected despite taking proper preventive behaviors. Whereas there are some participants who perceived that they were less vulnerable to Coronavirus since they have less interactions or activities with people and remain complied to practicing preventive behaviors. Others expressed their anxiety of having COVID-19 as the virus spread so fast and deadly in the population.

In certain cases, the lack of knowledge with epidemic has raised fears among community [22]. The factors that contributed to anxiety during the COVID-19 pandemic are still unknown. Several recent studies have reported that women [23], as well as individual with lower social economic status (SES) [24], live in rural areas [25], and those who are at a greater risk of contracting COVID-19 [26] have a higher rate of depression and anxiety than others. This fear motivates people to take precautions such as wearing masks. Consistent with the findings in China, regardless of the presence or absence



of symptoms, was correlated with lower anxiety scores [27]. Mask wearing appears to be an intervention indicator for reducing anxiety during the COVID-19 epidemic [28]. According to the HBM, increase in perceived susceptibility to a particular health problem would engage in behaviors to reduce their risk of developing the health problem [29]. Individuals who believe they are at low risk of developing an illness are more likely to engage in unhealthy, or risky, behaviors. The combination of perceived severity and perceived susceptibility is referred to as perceived threat [30].

Our findings suggest that the epidemic had brought positive effects for some informants. The pandemic has made everyone spent more time at home. Some participants believe that the pandemic has helped them created a strong bond in their families [31]. Few studies have shown several advantages of the WFH program: flexibility in completing work, non-limited to office hours, reducing expenses on transportation costs or gasoline costs, and minimalizing stress levels related to traffic jams and extra time for family activities and side jobs [32].

In this study, we identified five major barriers suggested by the participants, including lack of discipline/motivation/awareness, trust on medical/health services, lack of information, inconsistent policy implementation and economy. In line with previous study that the presence of suspicions or denials by the government during the early stages of the pandemic [33]. Beliefs could be another factor influencing people's behavior. The adherents of this faith believe that getting closer to God can give them immunity to these diseases [34]. Further, culture has the same role as a personality in human life because it is a set on which a person behaves so that individuals can determine their perceptions of actions that need to be taken to respond to social life [35]. However, self-isolation is a recent norm in Indonesia, and it is almost never a general reflection and subculture, as it is in Japan, for example [33].

At the early phase of the outbreak, the low level of readiness and compliance among people could be due to limited knowledge on COVID-19 and uncertainties that lead to misconception about COVID-19 infodemic [36]. Such phenomena are also reported in studies elsewhere [37], in this modern era, public education can be done through various channels, including mass media. The media becomes the primary reference to the current condition of coronavirus spread. The public can easily access news related to the spread of COVID through the media. It can help shape people's perception towards COVID-19 [38]. The finding implies that media play an integral role within the context of this pandemic to provide accurate information and to help promoting public awareness.

In general, the informants expressed that they still having difficulties in performing appropriate preventive and control measures consistently. One of the barriers was their lack of confidence on the government policies and the readiness of current health systems (e.g., health services and resources) to curb COVID-19 positive cases in the population. The participants suggested overlapping policies that had made them confused. Trust in government has long been recognized as an essential determinant of citizens' compliance with public health policies, boundaries, and guidelines [39]. Unfair policies or regulations impact daily livelihoods and could reduce people's compliance [40]. Thus, improving and maintaining the public trust and services are essential. The government must be transparent and consistent in communicating and implementing policies. In addition, the support of facilities and infrastructure from the government can encourage

community compliance in applying a policy [41, 42]. Economic pressure is another barrier experienced by some participants in adopting preventive measures. To some extent, pandemic or lockdown situation has limited people to work and earn income. The participants expressed if they could lose their jobs or earnings if they continue staying at home. To alleviate society's economic burden, the government should be fast and involved in budget reallocation, ensuring food security, strengthening the health sector through basic health services and the national insurance scheme (BPJS) for COVID-19 patients, strengthening local government and local economies, reduced taxes on certain goods, as well as the implementation of various economic and fiscal policies to ensure that those who are impacted are compensated [43].

Some limitations also need to be considered, while in this study we had successfully interviewed a wide range informants from different region across Indonesia and with different occupations. However, of which only a few had actually involved from younger age group and low education. This may partly be due to limitation of people participated in the online survey. As a result, we were not able to capture more information from the informants. This findings of this hence may not represent the general conditions of perception COVID-19 preventive and control measures among adult in Indonesia.

## 5 Conclusion

The findings of this study contribute to the comprehend knowledge of the community perspective in the time of COVID-19 in decision making and personal willingness in association with preventive behaviors. Of which, in the context of global crisis a consistent regulation and firmness in implemented related issues play a crucial role in forming participatory of preventive and control measures.

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