# Critical Factors Affecting Masks Purchasing Intention of Consumers During COVID-19 Pandemic: An Empirical Study in Vietnam

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## Abstract

An effective measure to prevent the spread of COVID-19 is wearing masks in public places. This solution is highly recommended in many countries all over the world. The objective of this study is to identify the antecedents of citizens' intention to purchase masks during the COVID-19 pandemic. Based on the theory of planned behavior (TPB), the current study analyzes attitudes toward mask-purchasing, subjective norms, and perceived behavioral control, to assess their impact on intention to purchase masks. In total, six variables are examined: attitude toward mask-wearing, subjective norms, perceived behavioral control, perceived severity, perceived susceptibility, and the intention to wear masks. Data are collected from 243 respondents in Ho Chi Minh City, Vietnam. They were processed through by factor analysis and multiple regressions. The results report that all three factors positively affect citizens' intention to buy masks in the following ascending order: Attitude toward mask-purchasing, subjective norms, and perceived behavioral control. Our study is the first research that applies TPB to investigate citizens' intention to purchase masks to during the COVID-19 pandemic. Moreover, this study provides guidelines to the Vietnamese public managers to combat COVID-19 through the purchase of masks. Shopkeepers would be well advised to observe the intentions of consumers toward masks.

**Keywords:** Mask, Purchasing Intention, Attitudes, Subjective Norms, Perceived Behavioral Control COVID-19 Pandemic

**JEL Classification Code:** C12**,** C38, M30, M38, L84

## 1. Introduction

Since the first coronavirus disease (COVID-19) patient was identified in December 2019 in Wuhan city, Hubei province, China, the virus has spread globally and brought a new public health crisis (Zhao, 2020). The World Health Organization (WHO) has recognized COVID-19 as a global pandemic on March 11, 2020, because of its disastrous and far-reaching consequences (Zhu et al., 2020; Ma & Miller, 2020). In this way, an increasing trend is witnessed in the purchasing intention of anti-corona equipment. Purchasing intention processes are of interest

to analysts of behavior (Chandon et al., 2005). It is related to an "individual's subjective likelihood of performing some particular behavior" (Fishbein & Ajzen, 1975). Besides, attitudes toward behavior are also predicted by different factors such as personal control, opinions, and beliefs (Soomro & Shah, 2015). Being an important concepts, there is a dire need to explore its status during the COVID-19 pandemic.

Until March 15, 2021, the COVID-19 disease has spread throughout 221 countries and territories with confirmed cases and death tolls of over 120 million and nearly 2.7 million, respectively (Worldometer, 2021). The number of confirmed cases and the death toll is rising every minute around the world. Apart from increasing the unprecedented deaths and cases, COVID-19 has caused chaos in social, economic, security, and other sectors. Vietnam shares a border with China as the epicenter of the COVID-19 disease. A huge influx of travelers from China through land, sea, and air puts Vietnam at the amplified risk of more spread of the virus from China. In Vietnam, as of March 15, 2021, there have been 2557 cases of infection, 2115 cases cured,

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and 35 deaths (Worldometer, 2021). Since the first case of COVID-19 infection was diagnosed on January 23, 2020, the Government of Vietnam has taken drastic measures to prevent the intrusion and spread of the epidemic. A week later, the prime minister established a National Steering Committee for COVID-19 Prevention and Control. There have been many drastic measures applied for the first time in epidemic prevention and control such as temporarily suspended entry for all foreign nationals, mass quarantines, contract tracing, and widespread testing. Thanks to these measures, the COVID-19 disease in Vietnam has been well controlled even when a new strain of the virus was detected. Vietnam is considered a role model in pandemic control with low-resources as well as in economic growth (World Bank, 2020).

Besides drastic measures, there are also simple, economical, but very effective ways to minimize the spread of the COVID-19 such as regular hand washing with soap or sanitizers and wearing masks in public places. Wearing a face mask is recommended to prevent the spread, not only of COVID-19, but also respiratory disease (Chu et al., 2020; Tso & Cowling, 2020). Therefore, nearly 60 countries have issued mandatory regulations to wear masks in public places such as China, South Korea, Taiwan, the Czech Republic, Vietnam, among others. As some countries decided not to implement lockdown policies, effective measures to minimize the spread of the pandemic will depend on public behavior. Hence, personal protective equipment like hand washing, gloves, masks were purchased by the individuals (Cirrincione et al., 2020). We tried to explore the mask purchasing intention of Vietnamese individuals. WHO (2020) advised people to use masks in public places because masks could reduce the risk of infection by 60 to 80%. Due to an essential value of mask during COVID-19, there is limited evidence of the exploration of individuals' psychological factors and masks purchasing intention in general and particularly in developing countries (Feng et al., 2020).

Moreover, to our knowledge, to date, no study has employed TPB, which is the most used theory in behavior literature, to explain masks purchasing intention under COVID-19 pandemic. In attempting to fill this research gap, this study aims to explore the TPB to determine the important factors that impact mask purchasing intention in Vietnam during the challenging period of COVID-19.

This paper is structured as follows: Section 2 presents a theoretical framework, resulting in the development of a research model and the proposed hypotheses. Section 3 highlights the research methodology. Section 4 reports the empirical results and discussions, while Section 5 offers the conclusion as well as the limitations and future research.

## 2. Theoretical Framework and Research Hypothesis

Applying and measuring the intention of any behavior is not new, especially in health studies (Shi & Kim, 2020; Zhang et al., 2015). In the behavior literature, the theory that has attracted the most attention is TPB (Abraham & Sheeran, 2015; Becker, 1974; Godin et al., 2007). The TPB shows how the influences on an individual determine that individual's decision to follow a particular behavior. In this case, purchasing intention is to become important in reflecting consumer behavior (Chandon et al., 2005). Based on the TPB model, three variables influence the intention to engage in behavior, namely, attitude toward behavior, subjective norms, and perceived behavioral control. Since its inception, TPB has been adopted to analyze behavior (Conner & Sparks, 2015; McEachan, 2011), including engaging in ecological behavior (Kim et al., 2013; Moser, 2016), and buying organic food (Pham, 2020; Xu et al., 2020; Kumar & Smith, 2018).

### Attitude toward masks

Attitude is considered as one's overall evaluation of behavior (Conner, 2001) and it illustrates to what extent behavior was deemed as positive or negative (Peters & Templin, 2010, Lee, 2017). According to TPB, someone's attitude decides her or his intention to perform that behavior (Ajen, 1991). People tend to perform behaviors if they think that this behavior would trigger valuable outcomes (Cooner, 2001). This study specifies attitude as people's perception and tendencies of behavior toward mask. If people had a positive attitude toward mask purchasing, then they become more aware of the significance of mask and are consequently more intent on engaging in buying them, and vice versa. Besides that, the positive relationship between attitude towards behavior and the intention to perform behavior has been concluded (Ates, 2019; Zhang & et al., 2019; Oh, 2020). In line with the argument, the first hypothesis is:

**H1:** *Attitude toward masks positively affects the purchasing intention of mask.*

### Subjective norms

Subjective norms represent perceptions of specific salient others' views about whether one should or should not engage in a behavior (Ajzen & Fishbein, 1980). The closer their relationship with others is, the greater their tendency to influence the other person. Based on TPB, someone would tend to perform a behavior if he/she felt the pressure from their relatives to do it. In the context of East Asian culture, society encourages collectivism rather than individualism.

Thus, individuals are easily influenced by leaders and even related organizations. Previous studies have confirmed the positive impact of subjective norms on intention (Al-Swidi & et al., 2014; Ham & et al., 2015; Lee & Lim, 2020). Thus, we test the second hypothesis:

*H2: Subjective norms positively affect the purchasing intention of mask.*

### Perceived behavioral control

Perceived behavioral control describes someone's expectation that the performance of a behavior is under his/her control (Conner, 2001). The perception is dependent on two things, namely, the necessary resources and opportunities to perform the behavior successfully (Ajzen, 1991). Perceived behavioral control is defined in this study as an integrated measure of internal and external resources that make it easy to act upon the motivation to buy masks. Previous studies have proven that the inclusion of perceived behavioral control improves the TPB model's ability to predict or explain intention (Armitage & Conner, 2001; Verbeke & Vackier, 2005). However, perceived behavioral control fails to predict intention in quite many cases (Eagly & Chaiken, 1993; McMillan & Conner, 2003). Therefore, this study includes perceived behavioral control together with attitudes and social norms and expects that they have a positive effect on intention of purchasing masks. Thus, the following hypothesis is proposed (see Figure 1):

*H3: Perceived behavioral control positively affects the purchasing intention of mask.*

## 3. Research Methodology

### 3.1. Sample and Data Collection

The data were collected from the citizens of Ho Chi Minh City, Vietnam through survey forms regarding the mask-wearing intention. Because of unavailable data of the population of citizens in Ho Chi Minh City, it is impractical to certify the representativeness of the sample applied. Hence, the samples were chosen through convenience sampling. There have been many studies using this technique to test behavioral models (Sumaedi et al., 2016). The sample of this



**Figure 1:** Research Model

study is 300. The number of samples was accepted because it overcomes the requirement of the research's method, which demands samples of at least five times the number of indicators (Hair et al., 2010). This study uses 23 indicators so that the required sample is 115.

Data collection was performed in the first two weeks of January 2021. The questionnaires were distributed in public places such as universities, supermarkets, parks, and stations. A total of 253 raw samples were returned with a response rate of 84.33%. After cleaning and screening of data, 243 valid questionnaires have been retained for the final test.

### 3.2. Variables and Measures

This study has six variables, including attitude toward mask-wearing, subjective norms, perceived behavioral control, perceived severity, perceived susceptibility, and the intention to wear masks. The indicators to measure those variables were adapted from previous studies. Each item was measured with a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Attitude toward mask-wearing was adapted from Peters and Templin (2010) and Sumaedi et al., (2016) with five items; subjective norms were measured with four items, adapted from Bao et al., (2017); perceived behavioral control was evaluated with five items adapted from Sumaedi et al., (2016) and Bao et al., (2017); and intention to purchase masks was also evaluated with three items that were adapted from Liu et al. (2018). Because all the scales are in English, they were translated into Vietnamese. Some of the terms in the scales were edited for clarity.

## 4. Results and Discussion

### 4.1. Sample Characteristics

Table 1 shows the demographic profile of the respondents. As illustrated, the number of females and males was almost equal, with 135 males and 108 females. In terms of age, most of the respondents were between 30 and 40 years old (43.62%), followed by those who were between 41–50 years of age (21.4%). The lowest education level was primary school, accounting for 2.06%. Most worked as private company employees (34.98%). There are 51 respondents working as civil servant/police/military personnel.

### 4.2. Descriptive Statistics

To explore the nature of the data and variables, descriptive statistics were analyzed. Table 2 displays the values of minimum, maximum, mean, and standard deviation of these variables.
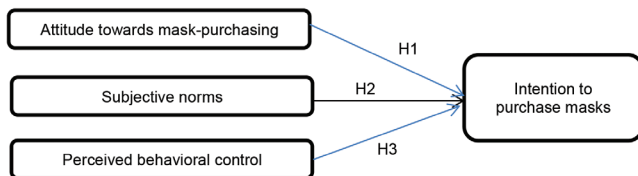
### 4.3. Construct Validity and Reliability Analysis

The study used factor analysis and Cronbach's Alpha to test construct validity and reliability, respectively. The instrument was deemed valid if the factor loading of each indicator was above 0.5, the KMO of the variables was higher than 0.5 and the value of Bartlett's test was lower than 5% (Hair et al., 2010). Moreover, the instrument was reliable only when the Cronbach's Alpha value stands on or above 0.6 (Hair et al., 2010). All of the test results are displayed in Table 3.

**Table 1:** Sample Characteristics

|  |  | Frequency | % |
|---|---|---|---|
| Sex | Male | 135 | 55.56% |
|  | Female | 108 | 44.44% |
| Age | <30 | 42 | 17.28% |
|  | 30–40 | 106 | 43.62% |
|  | 41–50 | 52 | 21.40% |
|  | >50 | 43 | 17.70% |
| Education | Primary school | 5 | 2.06% |
|  | Junior high school | 17 | 7.00% |
|  | High school | 67 | 27.57% |
|  | Bachelor | 114 | 46.91% |
|  | Master | 31 | 12.76% |
|  | Ph.D. | 9 | 3.70% |
| Occupation | Housewife | 12 | 4.94% |
|  | Student | 58 | 23.87% |
|  | Entrepreneur | 18 | 7.41% |
|  | Private company employees | 85 | 34.98% |
|  | Civil servant/ Police/Military personnel | 51 | 20.99% |
|  | Other | 19 | 7.82% |

### 4.4. Multiple Regression Analysis

Before carrying out the multiple analyses, the study applied the correlation coefficients to find out the level of relationship between two or more variables. The results are provided in Table 4; the independent factors have a positive correlation of 0.228 to 0.717 with the dependent factor. Perceived behavioral control has the strongest correlation to the dependent variable, while attitude toward mask-wearing has the lowest correlation to the dependent variable.

Then, the estimation of the regression model is performed. The estimated results are shown in Table 5. This table provides the details of the results of the multiple regression model to test the impact of critical factors on intention to wear masks. VIF indexes vary from 1.037 to 1.220 (less than 10) and tolerance indicators are higher than 0.1, which means very low multicollinearity among the variables.

The adjusted $R^2$ of the regression model of 0.587 implies that 58.7% of the variance of the dependent variable is generally explained by independent variables in the model. The $F$-value with significance at $p < 0.001$ indicates that the outcome model is very suitable for the collected data, and there is a good fit between the dependent variable and predictors ($F$ value = 74.176; $F$ sig. = 0.000). All three independent variables are affecting the dependent variable at a statistically significant level ($p < 0.001$). These variables also positively impact on intention to purchase mask during the COVID-19 pandemic. They are ranked as following orders: Perceived behavioral control ($\beta_1 = 0.610$); subjective norms ($\beta_2 = 0.244$); and attitude toward mask-wearing ($\beta_3 = 0.132$). These results confirm all the research hypotheses.

### 4.5. Theoretical Implication

COVID-19 is a global problem that needs to be overcome. While waiting for the vaccine for all the people, the only hope is to prevent and avoid it. It is considered that people's behaviors become the main solution to flatten the curve and minimize the effect of COVID-19. Nevertheless, research that investigated people's behavior related to COVID-19 prevention is still limited. This study has filled the gap by adopting TPB to develop and test a model that clarifies the intention to purchase masks.

**Table 2:** Descriptive Statistics

| Constructs | Minimum | Maximum | Mean | S.D |
|---|---|---|---|---|
| Attitude towards mask-wearing | 2 | 5 | 4.158 | 0.524 |
| Subjective norms | 1 | 5 | 4.296 | 0.701 |
| Perceived behavioral control | 1 | 5 | 4.137 | 0.594 |
| Intention to purchase masks | 2 | 5 | 4.018 | 0.514 |

**Table 3:** The Results of Construct Validity and Reliability Analysis

| Construct | Item Code | KMO | Bartlett's Test of Sphericity | Factor Loading | Cronbach' Alpha |
|---|---|---|---|---|---|
| Attitude towards mask-purchasing | AT2 | 0.779 | 0.000 | 0.781 | 0.745 |
| | AT1 | | | 0.760 | |
| | AT3 | | | 0.640 | |
| | AT4 | | | 0.633 | |
| | AT5 | | | 0.619 | |
| Subjective norms | SN2 | 0.796 | 0.000 | 0.813 | 0.802 |
| | SN4 | | | 0.806 | |
| | SN3 | | | 0.717 | |
| | SN1 | | | 0.704 | |
| Perceived behavioral control | PBC2 | 0.892 | 0.000 | 0.749 | 0.793 |
| | PBC5 | | | 0.739 | |
| | PBC4 | | | 0.723 | |
| | PBC1 | | | 0.705 | |
| | PBC3 | | | 0.683 | |
| Intention to wear masks | IWM3 | 0.620 | 0.000 | 0.804 | 0.704 |
| | IWM1 | | | 0.745 | |
| | IWM2 | | | 0.695 | |

**Table 4:** Pearson Correlation Between the Study Variable

| | IWM | AT | SN | PBC |
|---|---|---|---|---|
| IWM | 1 | 0.228** | 0.509** | 0.717** |
| AT | | 1 | 0.190** | 0.082 |
| SN | | | 1 | 0.395** |
| PBC | | | | 0.1 |

The model includes three variables: attitude toward mask-purchasing, subjective norms, and perceived behavioral control.

The first finding indicates that perceived behavioral control is the strongest factor influencing the intention to purchase masks. Empirically, previous studies supported this finding (Ates, 2019; Close et al., 2018). People tend to engage in certain behavior if they felt like they were in control. In this case, the control means necessary resources and reasonable hindrances. In the case of COVID-19, if people had the recourses to purchase the masks and feel no barriers to do so, people would be more likely to buy them.

The next finding shows that a significant and positive impact of subjective norm on the intention to purchase masks during the COVID-19 pandemic. This finding is aligned with TPB. If someone felt the social pressure to do something, he would follow it, especially in a collectivist culture. This result is similar with previous studies (Al-Swidi et al., 2014; Chan & Tsang, 2009; Ham et al., 2015).

The last finding illustrates that attitude toward mask-purchasing has a positive and significant impact on the purchasing intention of mask. If someone saw the behavior of purchasing masks during COVID-19 pandemic as positive behavior, he would like to do it. This finding confirmed TPB and also previous studies (Chan & Tsang, 2009; Close et al., 2018).

### 4.6. Managerial Implication

The results generated several managerial implications for public managers and other related actors. This study found that a positive attitude created a tendency to purchase masks during COVID-19. Hence, the government is responsible for the policy to ensure and enhance positive attitudes. In other words, citizens should be aware that wearing masks in public places during the COVID-19 pandemic is good and useful. Therefore, it is essential to continue to promote through campaigns the benefits of masks, especially in times of infectious disease outbreaks. Through realizing the benefits of masks, it will promote people's self-awareness and gradually develop habits.

**Table 5:** Regression Analysis

| Independent Variables | Beta Coefficient | *t* Value | Sig. | Tolerance | VIF |
|---|---|---|---|---|---|
| AT | 0.132 | 3.145 | 0.002 | 0.964 | 1.037 |
| SN | 0.244 | 5.336 | 0.000 | 0.819 | 1.220 |
| PBC | 0.610 | 13.573 | 0.000 | 0.844 | 1.184 |
| Adjusted $R^2$ = 0.587 | Durbin–Watson = 1.910 | *F* value = 115.618 | | *F* sig. = 0.000 | |

Subjective norms also positively and significantly affected the intention to buy masks. Based on this finding, the authorities must identify public figures that have substantial followers and advise them to create consistent messages and behaviors to encourage mask purchasing through various forms of media.

Furthermore, perceived behavioral control also positively and significantly affected the intention to purchase masks during the COVID-19 pandemic. Hence, the government must realize the need and usage of the masks and produce more masks to fulfill the demand of the consumers. The shortage of masks may encourage the public to make their own fabric masks.

## 5. Conclusion

This current study results show that intention to purchase masks during the COVID-19 pandemic are positively and significantly influenced by attitude toward masks, subjective norms, and perceived behavioral control. Basically, Vietnam is one of the leading consumer markets, and the opportunities for the retailing industry are vast. The consumers' purchasing intention is mostly based on services, quality, recognition, and awareness. However, in the prevailing situation of COVID-19, the people purchase masks because they have a positive attitude toward masks, subjective norms, and perceived behavioral control.

Although the present research provides some novel insights into the literature of COVID-19, still it is not beyond limitations, which offers opportunities for future research. First, it only assessed the perception and intention of citizens of Ho Chi Minh City with limited samples. Secondly, we used cross-sectional data, which prevents the generalizability of the findings and causality of inference. In the future, researchers might adopt longitudinal data or mix methods for a robust test. Given Vietnam as the context of our study, the validity of the model cannot be ensured for other countries.

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