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Original article

Factors Affecting Intention to Wear Face Masks among Thai People

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Abstract

This study examined the factors influencing Thais' intention to wear face masks. The predictors of intention to wear face masks included attitude, face mask cost, the pandemic risk perceptions, perceived benefits and face mask availability. This study gathered data using online questionnaires among 391 respondents recruited through convenience sampling. The conceptual framework was examined with the partial least squares path modelling and structural equation modelling (PLS-SEM) using the ADANCO software program (version 2.2.1) and SPSS (version 27). The empirical findings show the relationship between factors and intention to wear face masks. The results revealed that attitude had the most significant influence on intention to wear a face mask, followed by the perceived benefit of a face mask, pandemic risk perceptions, availability of face masks, and face mask cost. The respondents' pandemic risk perceptions significantly influenced attitude. Also, their attitude was a significant mediator between their pandemic risk perceptions and their intention to wear face masks. Our study assists healthcare policymakers in developing strategies to encourage wearing face masks as part of infection prevention protocols. Policy makers can better understand the public's factors that may increase their intention to wear a face mask during the COVID-19 pandemic by predicting the power of attitude, face mask cost, the pandemic risk perceptions, perceived benefits and face masks availability.

Keywords: Attitude, perceived benefit of face masks, the pandemic risk perceptions, face mask availability

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Introduction

Since the first coronavirus disease (COVID-19) patient was identified in December 2019 in Wuhan, Hubei Province, China, the virus has spread globally, resulting in a new public health crisis (Zhao, 2020; Zhou et al., 2021). Furthermore, the outbreak of a novel coronavirus (COVID-19) has become a substantial public health concern worldwide (Irfan et al., 2021). To cope with COVID-19, countries worldwide have implemented various containment and mitigation strategies to slow the increase in patient surges and flatten the curve so that the number of new cases is spread out over a larger amount of time. These actions allow the healthcare system more time to prepare for and handle the current confirmed patients (He, 2021). Also, most scientists have developed epidemiological models based on the little that was known about COVID-19 at that time (Stevens, 2020). Regular handwashing with soap or sanitisers, and wearing masks in public places are simple, cost-effective ways to reduce the spread of COVID-19. Wearing a face mask is recommended to prevent the spread of COVID-19 and respiratory disease (Chu et al., 2020; Tso & Cowling, 2020). Before the Covid-19 pandemic, medical face masks were primarily used by public health personnel. Now, the general public requires these single-use masks to protect themselves daily (Thampanishvong & Wibulpolprasert, 2020). Wearing masks in public places is an effective way to prevent the spread of COVID-19. This solution is highly recommended in several countries worldwide (Tran, 2021). Irfan et al. (2021) stated that it is crucial to assess public willingness to wear face masks during the COVID-19 pandemic. Numerous factors influence people's desire to wear face masks, including perceived behavioural control, attitude toward face masks, social norms, cost of face masks, risk perceptions of the pandemic, and availability of face masks (Irfan et al., 2021; Tran, 2021). Thus, factors affecting people's intention to wear a face mask during the COVID-19 pandemic are a crucial topic to study.

Problem Statement

COVID-19 has presented the world with a new and compelling challenge in the present era. As a result, the purchase of anti-corona virus products, such as face masks and hand sanitisers, are increasing (Shah et al., 2020). In Thailand, it is mandatory to wear a face mask when leaving the house to prevent the spread of Covid-19 (Wancharoen, 2021). Thus, it is critical and beneficial to understand individuals' intention to wear face masks during the COVID-19 pandemic.

Research Objective

This study identifies the main factors affecting the general public's intention to wear a face mask during the COVID-19 pandemic in Thailand.

Research Question

What are the main factors affecting the Thai general public's intention to wear a face mask during the COVID-19 pandemic?

Factors Affecting Intention to Wear Face Masks During COVID-19

Wearing a face mask is a simple and effective way to protect against the spread of many diseases, including COVID-19 (Chaabna et al., 2021; Tran, 2021). Therefore, it is critical to assess the public's willingness to wear face masks in response to the COVID-19 pandemic by analysing the factors influencing people's intention to wear them (Irfan et al., 2021).

Attitude was defined as a person's positive or negative evaluation of specific behaviour. It is a crucial component of the theory of planned behaviour (Ajzen, 2001). Previous research has found a positive relationship between attitude and willingness to wear face masks (Irfan et al., 2021).

Cost information is a critical factor in the economic losses associated with the purchasing process (Al-Marri et al., 2018). There is a correlation between the face mask

cost and the intention to wear them (Irfan et al., 2021; Kesselheim, 2013)

Risk perceptions are critical for taking preventive measures, but they are frequently biassed. Effective management of new epidemic infectious disease risks in the absence of treatment or vaccination relies heavily on population precautionary behaviour. Many health behaviour theories include risk perception as a critical component (Brug & Richardus, 2009). The pandemic risk perceptions significantly influence individuals' intention to wear face masks (Ahmad et al., 2020; MacIntyre & Chughtai, 2020; Irfan et al., 2021).

The perceived benefits of face masks refer to people's understanding and awareness of the benefits that face masks provide in controlling and preventing the transmission of infectious viral diseases (MacIntyre et al., 2009). Perceived benefits of face masks have a significant influence on individuals' intention to wear face masks (Burnett & Sergi, 2020; Feng et al., 2020; Shukman, 2020)

Significant numbers of individuals had to purchase protective tools, such as face masks, on their own because they were not provided by the hospitals or the government (Bhargava et al., 2021). Face mask availability significantly influences individuals' intention to wear face masks (Bhargava et al., 2021; Irfan et al., 2021).

Intention to Wear Face Masks

Wearing a face mask is a simple and effective way to protect against the spread of many diseases, including COVID-19 (Chaabna et al., 2021; Tran, 2021). However, the use of face masks remains contentious, with international variation in practice. Egan et al. (2021) investigated the effects of visual representations of guidance or infographics on knowledge of appropriate face mask usage in a representative UK cohort. That study enrolled a total of 4,099 adult participants. The findings revealed that there was a high willingness to use a mask. In addition, to ensure that face masks are used correctly, as required by UK law, guidance should provide sufficient information while remaining understandable. According to Irfan et al. (2021), it is critical to assess the public's willingness to wear face masks in response to the COVID-19 pandemic by analysing the factors that influence people's intention to wear face masks. Attitudes, pandemic risk perceptions, and perceived benefits of face masks significantly impact the public's willingness to wear face masks. In contrast, the face mask's cost and the limited availability can make face mask usage prohibitive.

Research Hypotheses

H1: The participants' risk perceptions of the pandemic significantly affect intention to wear face masks.

H2: Face mask availability significantly affects intention to wear face masks.

H3: Face mask cost significantly affects intention to wear face masks.

H4: Perceived benefits of face masks significantly affect intention to wear face masks.

H4: Attitude significantly affects the intention to wear face masks.

H5: Pandemic risk perceptions significantly affect attitude.

H6: Attitude is a significant mediator between participants' risk perceptions of the pandemic and intention to wear face masks.

Research Methodology

Closed-end online questionnaires (Likert's Rating Scale) were used to collect data in this study. The questionnaire items were based on previous research. The dependability and validity of the measurement instruments were assessed. Validity refers to how well an instrument measures the researcher's concept to quantify (Zikmund, 2003). The main variables in this study were measured using a five-point Likert Scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Questions about respondents' demographics were

derived from the study conducted by Siripipatthanakul & Vui (2021). The questionnaire items about factors affecting intention to wear face masks were based on a previous questionnaire created by Irfan et al. (2021). The questionnaire was developed from reliable sources and content validity was proved by three experts in business, healthcare and education fields.

Study Population and Sample

Initially, the study's target population was unknown. The researchers conducted a typical survey that has a confidence level of 95%, following the recommendation of Zikmund (2003). A minimum of 385 cases at p=0.5 must be collected using convenience sampling from Thailand's five different geographical regions (Northern, Southern, Eastern, Central and Northeastern), with a sample error of 5% and a precision level of 95%. The study included 391 participants in total.

Data Collection

Self-administered questionnaires were used to collect data. The researchers used convenience sampling to recruit participants. Before delivering online questionnaires, it was critical to inform respondents about the study's objectives and solicit their participation.

Data Analysis

The collected data were analysed using the SPSS program (version 27) and the partial least squares-structural equation modelling program, called ADANCO, (version 2.2.1). The researchers calculated descriptive statistics for the demographic characteristics of the respondents, and found the mean and standard deviation for each variable and questionnaire item. Reliability tests and factor loadings were used to determine the data's reliability and validity.

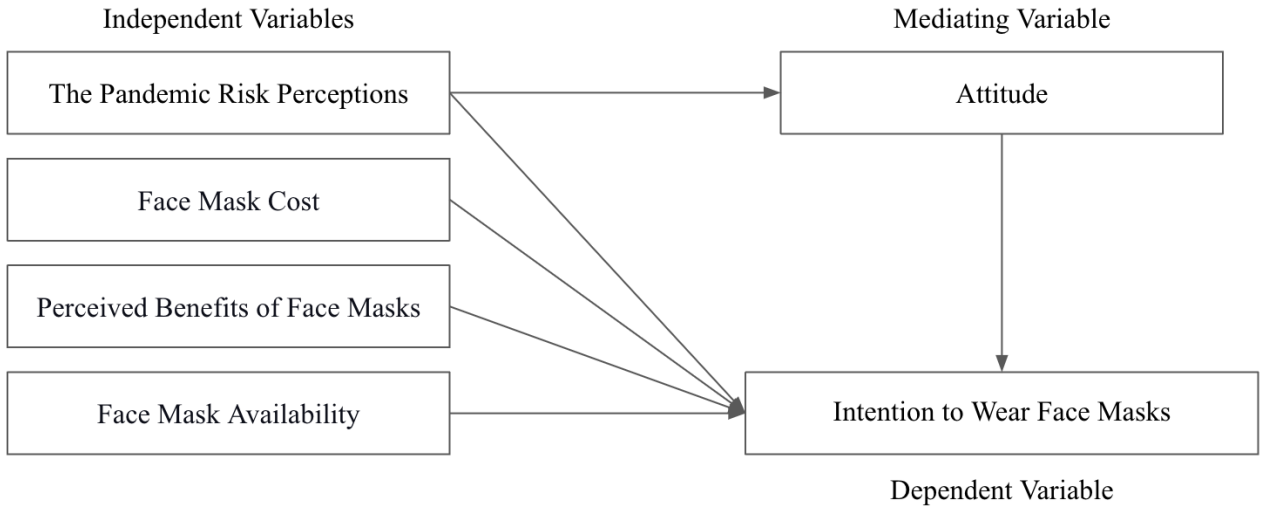

Figure 1. Conceptual Framework of the Study.

Results

Three hundred and ninety-one (391) respondents completed questionnaires. Most respondents were female (69.1%), between the age of 18-25 years old (49.6%), single (83.4%), and earned monthly income below 10,000 baht. Most of them always wear a face mask when going outside (96.4%). Participants usually used 1-2 pieces of face mask (74.2%).

Table 1. Scale Reliability of Different Constructs Associated with Intention to Wear Face Masks Including Cronbach's Alpha and Average Variance Extracted

Construct	Cronbach's Alpha	Average Variance Extracted
Attitude	0.7513	0.6704
Face Mask Cost	0.8828	0.7399
The Pandemic Risk Perceptions	0.7936	0.6199
Perceived Benefits of Face Masks	0.8472	0.6842
Face Mask Availability	0.8191	0.7340
Intention to Wear Face Masks	0.7209	0.5435

Cronbach's Alphas were over 0.7 and AVE were over 0.5, following the recommendation of Jung et al (2014).

Table 2. Total Effects Inference Between Different Factors and Intention to Wear Face Masks

Effect	Original Coefficient	Standard Bootstrap Results					Percentile Bootstrap Quantiles			
		Mean Value	Standard Error	T-Value	P-Value (2-Sided)	P-Value (1-Sided)	0.5%	2.5%	97.5%	99.5%
Perceived Benefits → Intention to Wear Face Masks	0.2987	0.2987	0.0588	5.0802	0.0000	0.0000	0.1596	0.1917	0.4148	0.4478
Attitude → Intention to Wear Face Masks	0.3047	0.3009	0.0716	4.2522	0.0000	0.0000	0.1322	0.1716	0.4483	0.5017
Face Mask Availability → Intention to Wear Face Masks	0.1589	0.1603	0.0390	4.0715	0.0001	0.0000	0.0622	0.0855	0.2403	0.2751
Pandemic Risk Perceptions → Intention to Wear Face Masks	0.4031	0.4011	0.0694	5.8072	0.0000	0.0000	0.2163	0.2549	0.5303	0.5688
Pandemic Risk Perceptions → Attitude	0.7108	0.7053	0.0696	10.2091	0.0000	0.0000	0.4912	0.5546	0.8256	0.8484
Face Mask Cost → Intention to Wear Face Masks	-0.0627	-0.0634	0.0363	-1.7270	0.0845	0.0422	-0.1592	-0.1318	0.0193	0.0453

Table 3. Summary of Hypothesis Testing of Factors Associated with Intention to Wear Face Masks Based on Path Analysis from Structural Equation Modelling

Hypotheses	Results	Actions
H1: The pandemic risk perceptions significantly affect intention to wear face masks.	β=0.187 at p<0.01	Supported
H2: Face mask availability significantly affects intention to wear face masks.	β=0.159 at p<0.001	Supported
H3: Face mask cost significantly affects intention to wear face masks.	β= - 0.063 at p<0.05	Supported
H4: Perceived benefits of face masks significantly affects intention to wear face masks.	β=0.299 at p<0.001	Supported
H4: Attitude significantly affects the intention to wear face masks.	β=0.305 at p<0.001	Supported
H5: The pandemic risk perceptions significantly affect attitude.	β=0.711 at p<0.001	Supported
H6: Attitude is a significant mediator between the pandemic risk perceptions and intention to wear face masks.	R^2=0.505 at p <0.01	Supported
Overall, the relationship can be explained by 57.0% (R^2=0.570).		

Figure 2 shows the specific β coefficients, R^2 values, and p-values for the associations between different factors and intention to wear face masks based on the PLS-Structural Equation Model for our study. All factors the researchers examined were related to the intention to wear face masks (R^2=0.570, p<0.001). Attitude (AT) had the most influence on the intention to wear face masks among Thais (β=0.305, p<0.001), followed by perceived benefits of face masks (PB; β=0.299, p<0.001), the pandemic risk perceptions (RP; β=0.187, p<0.01), face mask availability (AVL; β=0.159, p<0.001). Face mask cost has a significant adverse effect on the Thais' intention to wear face masks (CST, β= -0.063, p<0.05). The participants' risk perceptions of the pandemic have a significant influence on the intention to wear face masks, which accounted for about 50.5% of the variability in intention to wear (β=0.711, p<0.001, R^2=0.505) Attitude was a mediator between participants' risk perceptions of the pandemic and their intention to wear face masks (β=0.305, p<0.001, R^2=0.505).

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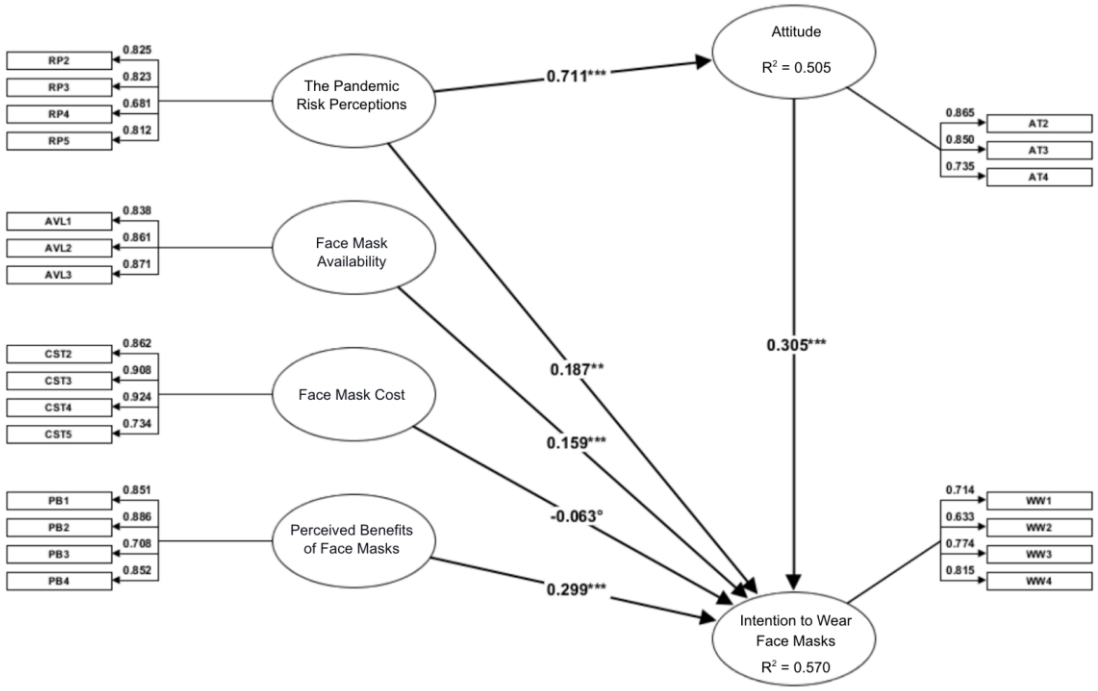

Figure 2. PLS-Structural Equation Model of the Study (SRMR=0.782).

RP=the pandemic risk perceptions; AVL=face mask availability; CST=face mask cost; PB=perceived benefits of face masks; AT=attitude; WW=intention to wear face masks.

Discussion

The study's main objective was to identify the factors affecting the general public's intention to wear a face mask during the COVID-19 pandemic in Thailand. All of our a priori hypotheses were tested and confirmed. The results from this study supported the previous research of Zhang et al. (2021) that residents' positive attitudes toward face mask-wearing influence their behavioural intention to wear face masks. Also, our results also supported the previous studies of Irfan et al. (2021) and Larebo & Abame (2021) that there is a positive relationship between attitude and the intention to wear face masks. Kesselheim (2013) found that wearing face masks has emerged as a critical policy issue globally. The costs of face masks strain people's budgets and contribute directly to adverse outcomes. Our results supported research by Irfan et al. (2021) that the likelihood of the general public wearing face masks decreases if the cost of purchasing face masks rises. Our results supported the previous research of Irfan et al. (2021) that face mask availability impacts the public's intention to wear them. In addition, our research findings supported findings from Bhargava et al. (2021) and Chughtai & Khan (2020) that the availability of face masks has a significant impact on individuals' intention to wear them. Our results supported the previous research of Ahmad et al. (2020), MacIntyre & Chughtai (2020), and Irfan et al. (2021) that the pandemic risk perceptions have a significant influence on individuals' intention to wear face masks.

Conclusion

Our empirical findings show the relationships between factors and intention to wear face masks. Our study reveals that participants' attitude, their risk perception of the pandemic, perceived benefits, and face

mask availability significantly impacts their willingness to wear them. However, increased face mask cost harms the intention to wear face masks. Furthermore, participants' risk perceptions of the pandemic have a significant impact on attitude. Thus, attitude is the mediator between participants' risk perception of the pandemic and the intention to wear face masks among the general public in Thailand.

Research Implication

To ensure that face masks are used correctly, guidance should provide adequate information while remaining understandable (Egan et al., 2021). Our research findings benefit healthcare policymakers in developing strategies to encourage the general public's awareness about wearing face masks to prevent the spread of COVID-19. Our research contributes to better understanding of how perceptions and different factors may increase the intention to wear a face mask among Thais during the COVID-19 pandemic. Specifically, we provide evidence that the general public's attitude, risk perception of the pandemic, perceived benefits of the face mask, as well as environmental factors including the cost of face masks and availability of face masks can affect intention to wear face masks.

Limitations and Recommendations

This study was a self-administered questionnaire. Qualitative research, such as interviews and focus groups could provide more insight into future research. Furthermore, numerous studies support that antecedents of willingness to wear face masks could include other factors, which may not be included in this study. Thus, further research is recommended. For example, Weiss et al. (2007) identified four barriers that may discourage people from wearing face masks: (1) discomfort, particularly in hot weather; (2) the presence of chronic lung disease; (3) inconvenience, due to the need to remove face masks when eating or drinking; and (4) youth, because face masks are not designed for children, and even if they were, children were found to be unlikely to wear them for long periods. The present study did not examine the negative effect of these barrier factors. These factors should be considered further. Moreover, the law and regulations may impact a willingness to wear face masks in Thailand. It is unclear whether other significant regulations and barriers may impact Thai people wearing face masks. Thus, future research will be required to investigate more variables influencing wearing face masks among Thais. Also, several demographic factors influence the public's willingness to wear face masks. As a result, the researchers should consider demographic factors as independent variables in future research.

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