

# Guard against COVID-19: Predicting Young People's Pro-Society Actions, the Theory of Planned Behavior

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## 1. INTRODUCTION

Since the outbreak of COVID-19 (also known as SARS-CoV-2), declared by the World Health Organization (WHO) as a global pandemic on March 11, 2020 (Mao *et al.*, 2021), its impact on people has been intense and unprecedented. Besides the social and economic effects, the lifestyle of individuals in many countries became constricted in many ways. The spreading prevalence of the virus prompted the dire need for governments to reduce the mobility and interaction of individuals who traveled from one place to another, internationally or locally (Das *et al.*, 2021). International travel was limited as borders were closed, and mandatory quarantine obligations rendered cross-border travel inconvenient and less desirable. Some regions implemented lockdowns and banned the sale of alcohol. Indoor commercial and community amenities were closed; classroom learning, academic and non-academic, shifted to online mode. Overall, individuals' daily routines and ways of relating with family and friends have been markedly affected (Alex *et al.*, 2021). This COVID-19 pandemic lingers for two years. Clinically tested and approved vaccines were available earlier than the forecast of the United States' public officials (Adiyoso & Wilopo, 2021). By mid-December 2020, the first report of the vaccination information was published (Mathieu *et al.*, 2021). Based on the data provided by The New York Times (Holder, December 19), 58.3 percent of people across the globe have received their first COVID-19 vaccination. Despite high vaccination coverage, COVID-19 cases continue to escalate in many countries. The exponential rate of transmission of the epidemic suggests the uncertainty of the date and way this pandemic will end. Medical experts indicate hastening the universalization of vaccination, raising the coverage rate, and continuing to put into effect preventive measures to thwart and decelerate transmission rates (Adiyoso & Wilopo, 2021; Bian *et al.*, 2021). Owing to the intricate and variable nature of the viruses, more time and cooperative efforts are needed to explore effective medicines to bring a close to the

spread. On a positive note, it is within human power to manage the spread of infections if individuals withhold some of their free will for the greater good (Jetten *et al.*, 2020). Nonpharmaceutical interventions (NPIs) such as maintaining a distance of at least a meter from others, avoiding crowded areas, mandating face masks, staying home more, and frequently washing hands with soap and water or alcohol-based sanitizers are effective means of lowering the risk of contamination (Gibson *et al.*, 2021). Therefore, a pro-society frame of mind is necessary to practice such a health-conscious *modus operandi*.

In Hong Kong, a city with close to 7.51 million people (in mid-2019) living in a land area of 1,110.18 square kilometers (GovHK, 2021), the risk of virus transmission is relatively higher than in low-density places. In December 2020, when the first COVID-19 case was detected in Wuhan, China, Hong Kong citizens were vastly overwhelmed. The traffic flow between Hong Kong and China, by air, sea, and land, was high due to the multifaceted levels of business and social connections between the two places. Learning from the experience of dealing with the SARS pandemic in 2003, the government declared a virus emergency on January 25 (less than a month after the first coronavirus case was reported in Hebei Province in China). Travelers from this province were prohibited from entering Hong Kong, and mainstream borders between Hong Kong and China were blocked. At the same time, the government put stringent measures into place to safeguard its citizens' health (Ho & Chan, 2021). After a few months, Hong Kong achieved interim success in pandemic management. This triumph could not have happened without civil society's efforts and self-disciplinary actions (Wan *et al.*, 2020). For instance, in February 2020, the demand for face masks skyrocketed over its supply. Eyeing this crisis, a team of Hong Kongers took the lead in locally producing surgical face masks (Yiu, 2020) and selling them reasonably. During the trying time, citizens were conscientious in observing the social distancing, sanitizing, face mask-wearing, and other pertinent measures. People's pro-society behaviors cannot be taken for granted. A study conducted in the United States and Canada on attitudes toward wearing face masks during the COVID-19 pandemic showed that 16 percent of the 2,078 participants expressed reluctance to wear face masks as they perceived them as ineffective and felt being coerced into doing so (Taylor & Asmundson, 2021). Hong Kong people's united efforts exemplify Maaravi *et al.*'s (2021) argument that "cultural dimensions may also play a role in explaining the differential effect of the pandemic" (p. 2). People in Hong Kong take to heart the critical need to protect the health of others and themselves. Citizens have become considerably accustomed to the precautionary regimes more than a year into the Coronavirus. Despite this phenomenon, it is worth mentioning that the desire to observe the COVID-19 pandemic measures differs among individuals, as personal traits and self-oriented types of pandemic-related worries can inform such differences (Tabaczel & Kozłowska, 2021). Approved

vaccines have been rolled out; however, concerted NPI efforts to combat the pandemic are crucial. It is timely to look in-depth at the determinants of people's behavior. Knowing the contributing factors is germane to the design of social policies that inform actions that serve the best interest of society. The present chapter hinges on the Theory of Planned Behavior (TPB), investigating the intentions to engage in pro-society behavior as a support to overcome the Coronavirus in a representative sample of the population of university students in Hong Kong.

## 2. LITERATURE REVIEW

The TPB is a well-established behavioral model developed by Icek Ajzen, whose article, "From Intentions to Actions: A Theory of Planned Behavior," published in 1985, shows that human behavior is determined by intention, and three factors form the determinants. Essentially, attitude, subjective norms, and perceived behavioral control influence behavior (Ajzen, 1991; Lehberger *et al.*, 2021). Based on the TPB model, attitude encompasses individuals' overall assessment of their behavior as positive or negative (Albarracin *et al.*, 2001; Beck & Ajzen, 1991; Kim & Han, 2010). Subjective norm refers to societal tensions that have a role in individuals' decision to take or not take an action (LaMorte, 2019). Perceived behavioral control represents individuals' evaluation of the action they are about to take as easy or difficult (as cited in Martin, 2017). The TPB model is widely used to predict and explain human behavior (Abou-Zeid & Ben-Akiva, 2011; Ajzen, 1985; Ajzen, 1991; Catalano *et al.*, 2017; Frounfelder, 2021; Jalilvand, 2012; Kim & Han, 2010; Wang *et al.*, 2014), and is arguably the most often cited framework that enhances understanding of the fundamentals of human behavior (Sussman & Gifford, 2019).

Since the outbreak of the COVID-19 pandemic, empirical studies on a constellation of health behaviors are on the rise (e.g., Bourassa *et al.*, 2020; Maykrantz *et al.*, 2021; Taylor & Asmundson, 2021). There is a substantial body of research on individuals' behaviors using the TPB model (Adiyoso & Wilopo, 2021; Cobanoglu & Corte, 2021; Das *et al.*, 2021; Gibson *et al.*, 2021; Godbersen, 2020; Irfan *et al.*, 2021; Lehberger *et al.*, 2021; Mao *et al.*, 2021; Shmueli, 2021; Wolff, 2021; Trifiletti *et al.*, 2021; Yu *et al.*, 2021). Researchers have targeted people's consumption behavior in the business and hospitality sectors using the TPB model (Han *et al.*, 2020; Lehberger, 2021; Liu *et al.*, 2021; Youn *et al.*, 2021). In medicine, one study borrowed the TPB model to examine medical doctors' perseverance in professional competence (Wiese *et al.*, 2021). In social science, many researchers used the TPB model to investigate COVID-19 prevention efforts (Frounfelder, 2021; Gibson *et al.*, 2021; Godbersen *et al.*, 2020). In China, a team of scholars has explored the commitments of its residents to engage in preventive behavior to enhance public health outcomes (Mao *et al.*, 2021). Some studies focused on the preventive behaviors

of young people (Gabriel *et al.*, 2021; Ullah *et al.*, 2021). One research targeted higher education systems in predicting students' COVID-19 safety behavior (Li *et al.*, 2021). So far, little is known about the intention of young people in Hong Kong to engage in preventive measures. Against this backdrop, this study investigated the behavioral intentions of individuals enrolled in higher educational institutions to engage in pro-society actions that contribute to the uptake of preventive behavior. Specifically, the three key constructs of the TPB (attitude, social norm, and perceived behavioral control) were examined using the Goodness-of-Fit statistics (Ritter & Muñoz-Carpena, 2013) to comprehend the level that these factors influence the behavioral intention of the university students. Findings also help to inform society of essential strategies for coping with future outbreaks.

### **3. THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESIS**

Theory is central to explaining a broad scope of human behavior and provides a vital structure that promotes enhancement in health-related behaviors (Prestwich *et al.*, 2015). Ajzen's TPB model has earned credit for successfully predicting various health behaviors (Lin *et al.*, 2018; Xiao & Wong, 2020). This theory applies to multiple industries and fields. The model presumes that three social cognitive factors are positively related to behavioral intention, which impacts engagement in specific behavior (Frounfreiker *et al.*, 2021; Ullah *et al.*, 2021). The stronger individuals' attitudes, subjective norms, and perceived behavioral control toward a specific behavior, the higher the likelihood these individuals intend to carry out the behavior. In the context of this study, the attitude, social norms, and perceived behavioral control of university students to comply with the precautionary measures to help curb the spread of the COVID-19 pandemic were investigated. Attitude refers to participants' mental appraisal of their supportive action (complying with COVID-19 prevention measures) as favorable or unfavorable. Presupposition cannot be made that everyone sees support of the public health measures as advantageous. For example, during the third week of April 2020, a survey in the United States revealed that 15% of respondents refused to engage in preventive measures (Adiyoso & Wilopo, 2021). The social norm in this study is about individuals' stronger intention to adopt the set of protective measures of personal hygiene, being careful about touching eyes, mouth, and nose, frequent hand washing, wearing face masks when in public areas, social distancing, and using the "leave home safe" mobile app in response to their feeling of the social pressure. For example, they may feel stressed about whether their family, friends, and colleagues should observe those measures. Perceived behavioral control refers to their perceptions of the extent of resources and self-efficacy, such as vigilance of their hygiene practice, availability of face masks, and ability to download the mobile app. The more they see their ability to comply with these measures, the

higher the likelihood of carrying out such behavior (Axsen & Kurani, 2013). The three factors would have a direct impact on participants' behavior intention toward the uptake of the pro-society behavior. As Ajzen (1991) articulates, "the relative importance of attitude, subjective norm, and perceived behavioral control in the prediction of intention is expected to vary across behaviours and situations" (p. 188). Uncovering the weight of the three constructs is critical, as they relate to participants' pro-society actions to help reduce the spread of the Coronavirus. Findings would elucidate the power of each of the constructs as predictors of behavior.

This study aimed to understand university students' intention to comply with preventive measures based on the TPB. It is hypothesized that attitude, subjective norm, and perceived behavioral control would collectively predict intention to engage in preventive measures to guard against the spread of COVID-19. That, in turn, the intention would predict the uptake of the actual behavior of the COVID-19 pro-society action.

## **4. METHODS**

### **4.1 Participants**

Three hundred and seven undergraduate students from universities in Hong Kong participated in the study voluntarily with informed consent. The sample consisted of 165 men and 142 women, with a mean age of 19.6 (SD = 3.61). They all reported that they had not been infected with COVID-19, and none of their family or friends had been infected. The majority of them were enrolled in the bachelor's degree program in social sciences (89.91 percent), while the rest were in medicine (1.95 percent), science (2.28 percent), and business (5.86 percent) programs. They were mainly agnostics (86.32 percent), while some were Christians (11.73 percent), and others were Buddhists (1.95 percent).

### **4.2 Measures**

The questionnaire included demographic questions, measures of attitude, subjective norms and perceived behavioral control, behavior intention to engage in preventive measures to guard against the spread of COVID-19, and the actual implementation of the behavior. Demographic information, such as age, gender, educational level, and religion, was collected. Regarding the TPB measures, items were developed based on Ajzen's (2010) guidelines. All items were measured on a 7-point bipolar scale. Prosocial behaviors to reduce infection and spread of COVID-19 were defined as maintaining good personal hygiene and immunity, avoiding touching one's eyes, mouth, and nose, frequent hand washing, taking body temperature regularly, wearing face masks in public areas, maintaining social distance, and using Mobile App (to

support retail outlets to gauge persons who have been diagnosed have visited the same place at the same time). Participants were then asked to report their attitude, subject norms, perceived behavioral control, and behavioral intention towards prosocial behaviors to reduce infection and spread of COVID-19. Each construct had four semantic differentials, including cognitive and affective evaluations. Scores were averaged to measure attitude, subject norms, perceived behavioral control, and behavioral intention. Concerning the measure for implementing the pro-societal action against COVID-19, participants were asked about the frequency of their practice of each behavior against an 8-point scale, from 0, not at all, to 7, practice every day. Each behavior was assessed with one ad-hoc item.

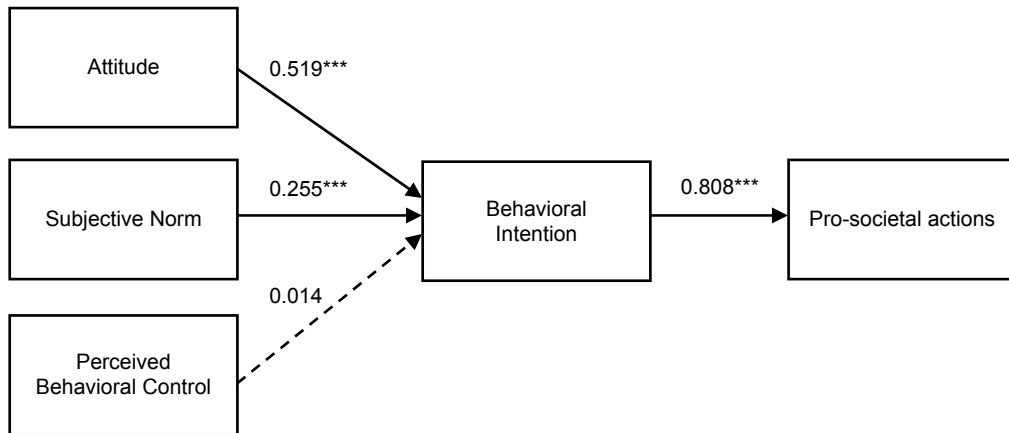
### 4.3 Procedures

Participants were recruited from the online platform Qualtrics (<https://www.qualtrics.com>) using a convenient sampling technique, and their eligibility to participate was assessed (i.e., if they were undergraduate students residing in Hong Kong at the time of this study, and they had not been infected with COVID-19). They were asked to sign an informed consent online and complete an anonymous survey assessing their beliefs and behaviors on pro-society actions to guard against COVID-19.

## 5. EMPIRICAL RESULTS

A regression model for predicting the implementation of pro-societal actions to guard against COVID-19 was tested with R (Sheather, 2009). In the model, attitude, subjective norm, and perceived behavioral control were entered as predictors of behavioral intention, and behavioral intention, in turn, was entered as the predictor of the pro-societal actions to guard against COVID-19 which was the outcome variable. The goodness-of-fit of the test models was evaluated using the chi-square statistics ( $\chi^2$ ), the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root-mean-square error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR) (Hu & Bentler, 1999).

The regression model is shown in Figure 10.1. Goodness-of-fit statistics were satisfactory for the model, including the pro-societal actions to guard against COVID-19 as the outcome variable,  $\chi^2 = 717.274$ ,  $p < .001$ ; CFI = .997; TLI = 1.000; SRMR = .001; RMSEA = .001). As can be seen in Figure 10.1, attitude ( $b = 0.519$ ,  $p < .001$ ) and subjective norm ( $b = 0.255$ ,  $p < .001$ ) were significant predictors of behavioral intention, with attitude being a robust predictor. Behavioral intention, in turn, significantly predicted the pro-societal actions to guard against COVID-19 ( $b = 0.808$ ,  $p < .001$ ). Nevertheless, perceived the path from behavioral control to behavioral intention was insignificant ( $b = 0.014$ ,  $p = 0.628$ ).



**Figure 10.1:** Regression Model Predicting the Implementation of the Pro-societal Actions to Guard against COVID-19

*Note:* The standardized coefficients are reported. The dotted arrow indicates a non-significant path, and \*\*\* indicates  $p$ -value < .01.

## 6. DISCUSSION

The health emergency brought about by COVID-19 has aroused public awareness of the critical role of human behavior in controlling the spread of epidemics (Michie & West, 2020; Trifiletti *et al.*, 2021). Pro-societal actions, such as taking care of personal hygiene, avoiding touching the eyes, mouth, and nose, frequent hand washing, wearing masks in public places, social distancing, and using Mobile Apps are profound ways to prevent the pandemic situation from worsening, at least in the absence of a vaccine or treatment that is 100 percent effective. Therefore, it is crucial to understand the factors underlying the enactment of helpful pro-society actions to guard against COVID-19. Also, because of the rebound of the epidemic caused by the Delta and the Omicron variants, experts in the field of public health reinstate the importance of keeping up with the compliance of relevant preventive measures. The present study showed some crucial findings on TPB constructs in predicting pro-society actions. Counter to our hypotheses, only attitude and subjective norm of the TPB constructs are significant predictors of pro-society actions. At the same time, the influence of perceived behavioral control is less strong than posited. It may sound straightforward to think that human perception of their ability to control their behavior would increase or decrease the chance of their engagement; this may not always be the case. Owing to the life-threatening phenomenon of the COVID-19 pandemic, regardless of some difficulty in performing pro-society actions, individuals are inclined to try their best to commit (Ajzen, 2002). Besides, engaging in these pro-society actions reflects individuals' responsibility for society rather than for themselves. Hence, an

individual's perception that the target behavior is easy or challenging to perform has a lesser role in predicting the uptake of pro-society actions.

Different associations of TPB constructs with intentions to engage in pro-society actions also warrant attention. Attitude exerted a more significant influence than the subjective norm on predicting behavioral intention. Consistent with previous findings in the literature, subjective norm has been regarded as the weaker element of TPB because of its predictive power. A meta-analysis also showed that the average relationship between subjective norms and behavioral intentions was weaker than the relationship between the other constructs and intentions (Armitage & Conner, 2001). Another possible explanation is that the different effects of social norms on behavior may rely on the perceived and objective costs related to implementing the behaviors. Previous studies have suggested that more costly behaviors for a person will be less dependent on normative influence (Chung & Rimal, 2016). In this regard, pro-society actions are behaviors that are perceived as easy to be carried out. Therefore, attitude becomes a more dominant factor in predicting the uptake of pro-society actions.

In contexts where attitude and subjective norms are powerful predictors of pro-society actions, the influence of perceived behavioral control is not significant. It is vitally essential to indoctrinate a positive attitude on all pro-society actions, including personal hygiene, avoiding touching the eyes, mouth, and nose, frequent hand washing, wearing face masks in public places, social distancing, and using the Mobile App. Providing adequate understanding and knowledge on how these measures help safeguard against COVID-19 in the community is crucial. Preventive campaigns and promoting pro-society behaviors should consider the importance of nurturing positive attitudes and harnessing social norms among the public.

Raising awareness of the factors that lead to pro-society behaviors against COVID-19 is critical to informing the government about this topic and providing the public with precise and updated information, which will ultimately benefit relevant stakeholders in the community amid COVID-19. Concerning future investigation, since the present study sample consisted mainly of undergraduate students from the faculty of social sciences, further research should include participants with different backgrounds and developmental stages to enhance understanding of the factors that predict pro-society behaviors against COVID-19. Second, although TPB offers a significant understanding of how people will uptake a particular behavior, it does not directly consider arousal or emotional factors, which suggests that the TPB may be restricted to the rational part of a decision (Conner & Norman, 2005). Therefore, apart from studying the constructs from TPB, the impact of emotion and risk perception on the pandemic situation in predicting pro-society behaviors should also be investigated. Several other models, like the Health Belief Model and Protection

Motivation Theory, can provide a framework to investigate further the role of emotion and threat in predicting individuals engaging in pro-society behavior to guard against COVID-19.

## 7. CONCLUSIONS

A crisis, albeit overwhelming and devastating, is an opportunity in disguise. As the public health crisis looms, taken-for-granted perspectives of life have proven impractical, and people must temper modes of operation for survival and growth. The disastrous and far-reaching effects of the Coronavirus are concerns of national health providers, policymakers, medical experts, researchers, and scholars (Das *et al.*, 2021). This study can serve as a valuable addition to the literature, as it examines the underlying factors of behavioral intentions of university students' uptake of COVID-19 precautionary measures, especially in a densely populated city like Hong Kong. Further, gathering information and awareness of the factors that lead to implementing pro-society actions is crucial to provide a comprehensive overview of the impact of antecedents on individuals' compliance with different pro-societal actions. Such actions will inform scholars and government officials and benefit society at large.

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