# TRAVELER'S ADOPTION OF TRAVEL ADVISORY SYSTEM: A CASE OF HONG KONG'S OUTBOUND TRAVEL ALERT SYSTEM

**ABSTRACT**. This study attempts to test the applicability of the theory of protection motivation (PMT) model and explores the effect of travel-related and sociodemographic factors on travel advisory compliance intention. The findings revealed that travelers' behavioral intention to follow travel advice is driven by self-efficacy, response efficacy, perceived severity, and the insignificant benefit of maladaptive behaviors. The results also indicated that female travelers, travelers who aged 45 or above, have young child/children, with high-income, prefer packaged travel, and incline to buy travel insurance tend to consult and adhere to travel advice.

**KEYWORDS** Travel advisory, Protection Motivation Theory, perceived severity, perceived vulnerability, self-efficacy, response efficacy, response cost, benefit of maladaptive behaviors, Hong Kong, Outbound Travel Alert System

## INTRODUCTION

Travel safety has been widely recognized as one of the most important factors influencing travelers' destination choice (see Hsu, Tsai, & Wu, 2009; Jang & Cai, 2002; Lam & Hsu, 2006). To assist travelers in selecting a safe destination, many tourist-generating markets, such as Canada, Hong Kong, Germany, Korea, the United States, and the United Kingdom, have been operating a travel advisory system to provide recommendations on the suitability of traveling to a foreign destination to their residents (Beirman, 2013; Wilks & Moore, 2004). While the earliest official travel advisory was issued by the United States in 1914 (Löwenheim, 2007) and travel advisories are not a new concept, few studies have been undertaken in this area (Beirman, 2006, 2013; Henderson, 2004; Löwenheim, 2007; Sharpley et al., 1996; Tourism Concern, 2003). Existing research has largely focused on travel advisories in Western settings, overlooking travel advisories in other countries. Further, the research is limited to discussion papers on the performance of travel advisories (e.g., Beirman, 2006; Tourism Concern, 2003) or the impact of travel warnings on tourist-receiving destinations (e.g., Henderson, 2003; Sharpley et al., 1996). However, empirical studies

investigating how tourists perceive and react travel advisories are scarce. The importance of knowing about the ultimate users' (potential travelers') thought prompted the emergence of this study to explore travelers' motivations for consulting and adhering to travel advice. This study contributes in enhancing researchers, industry stakeholders, and government authorities' understanding towards the present travel advisory service. It also helps governments to fine-tune their travel advisory systems and develop effective strategies to promote the use.

With regard to theoretical concepts, the subject of travel advisories has not yet been investigated in a theoretical setting. As mentioned previously, existing research has either aimed at assessing the impact of travel warnings on tourist-receiving destinations (Henderson, 2004; Sharpley et al., 1996) or evaluated the consequences and deficiencies of travel advisories (Beirman, 2006; Tourism Concern, 2003). No attempts appear to have been made to explore how theory may be used to understand how travel advisories are perceived by travelers. We adopted Protection Motivation Theory (PMT) to explain travelers' intention to consult travel advisories because this theory highlights the roles of perceived risks (perceived severity and perceived vulnerability) and efficacy (response efficacy and self-efficacy) to explain and predict travelers' tendency to follow travel advice. Hence, this study expects to increase the explanation power of the theory by testing its utility in the tourism field and the current research aims to:

- operationalize PMT in the tourism context and examine the factors that influence travelers' intention to adopt government travel advice, using Hong Kong's Outbound Travel Alert (OTA) system as a case study in Asia;
- investigate the associations between travelers' demographic and travel-related factors and adherence intention; and
- provide practical implications and recommendations for travel intermediaries and policy makers to fine-tune their current travel advisory system.

## LITERATURE REVIEW

### Hong Kong's Outbound Travel Alert System

Since the OTA system in Hong Kong was established in October 2010, it has covered 85 countries to indicate the level of travel risk with three symbolic colors (amber, red, and black). Amber represents the lowest level of travel risk, whereas black indicates the highest level of risk. Assessments are made by the Hong Kong Security Bureau, which considers the nature, level and likely duration of the threat as well as the probability of tourists becoming victims. However, the system has been observed to be underdeveloped, inadequate, unreliable, and incomprehensive (Cheng, 2013; Chugani, 2014; SCMP, 2011; Winn, 2013a, 2013b, 2014). A pressing need exists for the government to modify its current system.

### Protection Motivation Theory

*Concept and Definition*

Several theories have sought to explain how people respond to public policy announcements, such as Social Cognitive Theory (Bandura 1977, 1986), Health Belief Model (HBM) (Becker, 1974; Janz & Becker, 1984; Rosenstock, 1966), Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), TPB, and PMT (Rogers, 1975, 1983, 1985). Among these representative theories, PMT is considered the most useful, as it combines some of the features of HBM, TRA, and Self-efficacy Theory (Cismaru, 2006). PMT originated from the research on fear appeals by Rogers (1975). A fear appeal is an informative communication about a threat to an individual's well-being, supplemented with details of the threat and suggested measures to be taken to avert or lessen its impact (Wong, 2017). In this study, the persuasiveness of travel advisory depends on how travelers process its messages.

Three components, namely perceived severity, perceived vulnerability, and perceived response efficacy, form the basis of the theory (Rogers, 1975) and they could be further characterized as threat appraisal and coping appraisal. Threat appraisal relates to the process of assessing how threatened an individual feels by the communicated threats. PMT variables that capture threat appraisal are perceived severity, perceived vulnerability, and fear arousal. On the other hand, coping appraisal concerns the process of evaluating an individual's perceptions of the coping behaviors regarding the appraised threat. Response efficacy is considered the main factor of the coping appraisal (Rogers, 1983).

In 1983, the PMT was revised by Rogers into a more general theory of cognitive change (Boer & Seydel, 1996) and three critical changes were made. First, the theory expanded and covered a broader spectrum of information sources, including environmental sources (e.g. verbal persuasion, observational learning, and mass media) and intrapersonal sources (e.g. personality and prior experience) (Boer & Seydel, 1996). Second, appraisal processes leading to maladaptive coping responses were added (Milne, Sheeran, & Orbell, 2000); for example, PMT was applied to predict cigarette smoking intention among adolescents (Yan et al., 2014). Last, but foremost, new variables were added to the threat and coping appraisals. In particular, the benefit of not following the coping response was incorporated into the threat appraisal (Rogers, 1983) and self-efficacy and response cost were included in the coping appraisal of the revised model (Milne et al., 2000, as cited in Wong, 2017). Following mainstream PMT studies, the current research includes six major PMT variables: perceived severity, perceived vulnerability, benefit of maladaptive behaviors, response efficacy, self-efficacy, and response cost. External information sources and alternative appraisal processes leading to maladaptive behaviors of travel advisory are not assessed. Following the conceptualization from Wong (2017), the six PMT variables and their association with adaptive behavioral intention are explained below.

*I. Perceived Severity*

Perceived severity measures the seriousness of the consequences of a threat or negative event. For instance, it appraises the level of seriousness of the consequences of the threats that a travel advisory advises against, such as the consequences of encountering political unrest and terrorism. The consequences may include medical impact (e.g. death, disability, and pain) and possible social influence (e.g. effects of the conditions on work, family life, and social relations). It is expected that the higher is the perceived severity of a negative event, the greater is the intention to follow the advised behaviors (Boer & Seyel, 1996; Henson, Cranfield, & Herath, 2010; Prentice-Dunn & Rogers, 1986).

*II. Perceived Vulnerability*

Perceived vulnerability assesses how personally susceptible an individual feels to the communicated threat. In this study, it refers to the perceived probability that an individual will encounter the negative events that a travel advisory advises against, such as terrorism and natural

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disasters. It is estimated that the higher is the perceived vulnerability to a negative event, the greater is the intention to follow the recommended behaviors (Floyd, Prentice-Dunn, & Rogers, 2000).

### III. Response Efficacy

Response efficacy refers to a person's belief that the recommended behaviors will be effective in reducing or eliminating the danger. In this study, it relates to travelers' level of agreement that adopting travel advice could reduce the consequences of travel risks, such as getting injured or even death, and it is expected that the greater is the perceived response efficacy, the higher is the intention to follow the advice (Floyd et al., 2000).

### IV. Benefit of Maladaptive Behaviors

Benefit, which is also known as reward, of maladaptive behaviors, evaluates the advantages of not taking the advised behaviors. For instance, travelers could avoid complicated refund procedures by disregarding travel advice and continuing with their travel plan. It is predicted that the greater is the benefit of taking the maladaptive response, the less likely the individual is to adopt the advised behaviors (Milne et al., 2000; Lin, Zhang, Gu & Peng, 2017).

### V. Self-efficacy

Self-efficacy is the perceived ability of an individual to perform the recommended response (Rogers, 1983). In this study, it assesses the confidence level of an individual in himself/herself to be able to follow travel advice. It is expected that the higher is the perceived self-efficacy, the stronger is the intention to follow the advice (Floyd et al., 2000).

### VI. Response Cost

Response cost concerns the sum of all barriers to performing the suggested behaviors (Milne et al., 2000). This can include any negative physical, monetary, psychological, emotional, and/or social outcomes. For instance, elderly travelers who only have limited knowledge of information technology may find it difficult to obtain travel advisory information via the Internet as the response cost for them to acquire the requisite computer skills and access to the travel advisory information may be huge. Therefore, it is estimated that the higher is the cost of engaging in the advised behaviors, the lower is the intention to follow the coping response (Floyd et al., 2000).

*VII. Behavioral Intention*

Behavioral intention reflects the effectiveness of the attempted persuasion by examining the individual's intention to engage in certain behaviors (Sapp, 1991). Throughout the past few decades, behavioral intention have been the center of studies in the tourism context, such as understanding passengers' post-purchase behavior in the luxury cruise sector ( Han & Hyun, 2019) and full-service and low-cost airlines (Han, Koo & Hyun, 2020), investigating convention travelers' environmentally responsible behavior (Han & Hwang, 2017), examining senior tourists' overseas travel motivations and preferences (Otoo, Kim & Choi, 2020), exploring backpackers' motivations, preference and contribution to sustainable tourism development (Nok, Suntikul & Agyeiwaah & Tolkach, 2017) and determining the influence of tourists' autonomy in trip planning behavior (Fernández-Herrero, Hernández-Maestro & González-Benito 2018). In this study, we conceptualize behavioral intention as travelers' willingness to consult travel advisory information and follow travel advice.

According to PMT, the persuasion and effectiveness of the OTA system is maximized when (1) the threat is perceived as severe; (2) the individual feels vulnerable to the threat; (3) the adaptive response is believed to be an effective means of averting the threat; (4) the person is confident in his or her ability to perform the adaptive response; (5) the benefit associated with the maladaptive behavior is small; and (6) the cost related to the adaptive response is insignificant. Such factors produce protection motivation and, subsequently, the act of the adaptive response (Maddux & Rogers 1983; Prentice-Dunn & Rogers 1986; Rogers 1975, 1983, Milne et al., 2000, as cited in Wong, 2017).

*Applications of PMT Model in Previous Studies*

PMT was originated from studies on individual fear. Over time, it has been adopted as a more general model of decision making pertinent to threats (Maddux, 1993). The purposes of previous PMT studies was generally to persuade individuals to follow the communicator's recommendations and evaluate the effectiveness of the persuasion. PMT has been applied to a diverse array of topics, the majority being health-related issues, including prevention of HIV (Bengel, Belz-Merk, & Farin, 1996), AIDS (Eppright, Tanner, & Hunt, 1994), and cancer (Courneya & Hellsten, 2001; McClendon & Prentice-Dunn, 2001), the evaluation of antismoking

advertisements (Pechmann et al., 2003), the practice of safe sun exposure behaviors (Grunfeld, 2004), the consumption of functional foods and supplements (Cox et al., 2004), and the prediction of cigarette smoking (Yan et al., 2014). Besides health promotion and disease prevention, PMT has been extended further and applied to injury risk (Taylor & May, 1996; Huang et al., 2007), environmental concerns (Kantola, Syme, & Nesdale, 1983), and an extensive research in the field of information technology (Herath & Rao, 2009; Crossler, 2010; Lee, 2011; Ifinedo, 2012; Johnson et al., 2012; Vance, Siponen, & Pahnila, 2012; Crossler et al., 2013; Siponen, Mahmood, & Pahnila, 2014). Thus, the protection motivation concept can involve any threats for which there is an effective recommended response that can be employed by the individual. To the best of the author's knowledge, applications of PMT in the tourism context are rare (Wong, 2018). An example is from Horng, Hu, Teng, and Lin (2014) who adopted this theory to explain tourist pro-environmental behaviors, but this study served as a pioneer to expand the use of PMT to the study of travel safety. Grounded on PMT, we proposed that:

H1. Perceived severity positively influences travelers' intention to take OTA advice.

H2. Perceived vulnerability positively influences travelers' intention to take OTA advice.

H3. Response efficacy positively influences travelers' intention to take OTA advice.

H4. Self-efficacy positively influences travelers' intention to take OTA advice.

H5. Response cost negatively influences travelers' intention to take OTA advice.

H6. Benefit of not taking OTA advice negatively influences travelers' intention to take OTA advice.

**Travelers' Factors**

Previous literature has demonstrated significant differences in risk perception and risk reduction intention among tourists. This can be attributed to the tourists' factors, including gender (Boksberger, Bieger, & Laesser, 2007; Byrnes, Miller, & Schafer, 1999), age (Hallahan, Faff, & McKenzie, 2004; Gibson and Yiannakis, 2002; van Dalen & Henkens, 2012), employment status and income (Floyd & Pennington-Gray, 2004), traveling with young child/children (Wong & Kwong, 2004), frequency of travel (Lepp & Gibson, 2003; Sönmez & Graefe, 1998a), and travel mode (Lo, Cheung, & Law, 2011). Adding to these factors, this study proposes that the effect of buying travel insurance be considered in the investigation to examine differences in OTA

behavioral intention across different types of tourists. The conceptual framework of this study are exhibited in Figure
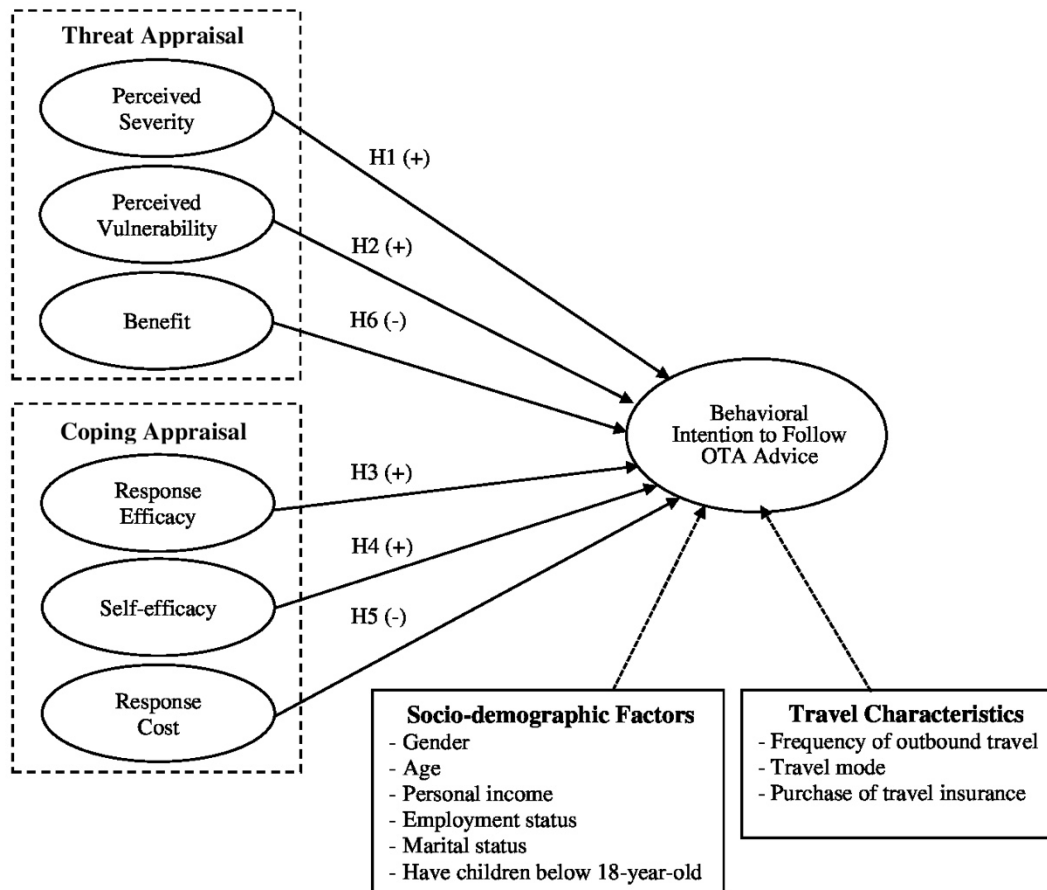


**Figure 1. Conceptual model of the study**

## METHODOLOGY

As an explanatory study, this study employed a quantitative research approach to investigate how PMT can help explain Hong Kong travelers' intention to consult and adhere to OTA advice.

## Measures

The questionnaire was developed to collect the primary data on protection motivation and behavioral intention of travel advice, travel advisory information source, impact of OTAs on previous travel plans, travel factors, and demographic variables of Hong Kong travelers. The items scored on 7-point Likert scales were mainly derived from previous studies to measure the study constructs. The protection motivation scale was adapted from Hassani et al. (2014), Lee (2011),

Lwin, Li, and Ang (2012), Vance, Siponen, and Pahnila (2012), and Zhang et al. (2014), whereas measures of behavioral intention were developed based on Han and Yoon (2015).

To assess content validity, three academic experts were invited to rate the appropriateness of each item and suggest alternatives where necessary. Further, four Hong Kong residents were asked to evaluate the readability of the questionnaire. An online pilot test was then undertaken with a sample of 246 Hong Kong potential outbound travelers through Qualtrics software . The results of the screening and pilot test provided valuable information on the questionnaire's design and wording as well as the reliability of measurement scales. A reliability analysis (Cronbach's alpha) was performed to test the reliability and internal consistency of the attributes. The results showed that the alpha coefficients for all attributes were high, ranging from 0.88 to 0.90, well above the minimum value of 0.5 which is considered acceptable as an indication of reliability (Nunnally, 1997).

**Data collection**

Prior to obtaining the approval from the Airport Authority, the main survey was distributed at the Departure Hall of Hong Kong International Airport over two weekends. 15 Hong Kong local students who were good at both Cantonese and English and had adequate experience in on-site data collection were hired as interviewers. The survey targeted Hong Kong potential outbound travelers aged 18 years old or above who had traveled abroad during the previous five years and had heard of the OTA system. Convenience sampling method, together with quota sampling method in terms of gender and age groups, were employed to generate a relatively more representative sample. A total number of 726 questionnaires were collected. Data were screened before further analysis. Outliers and cases with extensive missing responses were excluded. A total of 710 valid cases were used for the analysis.

**Data Analysis**

Descriptive statistics were used to analyze the distribution of respondents' demographic profile, preferences in travel factors, and measurement items of the study. Factor analysis, reliability test, and regression analysis were conducted to explore the dimensions of the PMT attributes, the reliability of the measurement scales, and the impact of the PMT dimensions on adherence to travel advice. Independent sample *t* test and analysis of variance (ANOVA) were employed to determine

whether there was a significant relationship between respondents' profiles and their preferences regarding adopting OTA recommendations.

**FINDINGS**

**Respondents' Demographic Profile**

The respondents' profile is presented in **Table 1**. The gender of the respondents was evenly distributed, with female (49.9%) slightly outnumbering male (48.3%). Most of the respondents were under 35 years old (66%). Over 60% of the respondents were single and 36% were married. The majority of the respondents (53%) had earned a bachelor's or higher degree. Nearly half of the respondents (49%) were full-time workers and 35% were students, earning less than HK$10,000 (40%).

Table 1. Demographic profile of the respondents ($N = 710$)

| | % | | % |
|---|---|---|---|
| **Gender** | | **Personal monthly income (HKD)** | |
| Male | 48.3 | Less than $6,000 | 32.8 |
| Female | 49.9 | $6,000-9,999 | 6.9 |
| | | $10,000-14,999 | 12.0 |
| **Age** | | $15,000-19,999 | 13.2 |
| 18-25 | 45.4 | $20,000-24,999 | 9.7 |
| 26-35 | 20.6 | $25,000-29,999 | 8.0 |
| 36-45 | 12.5 | $30,000-39,999 | 6.3 |
| 46-55 | 12.1 | $40,000-49,999 | 3.8 |
| 56-65 | 7.6 | $50,000-59,999 | 1.7 |
| 66 or above | 1.3 | $60,000-79,999 | 2.1 |
| | | $80,000-99,999 | 1.1 |
| **Education level** | | $100,000 or above | 1.4 |
| Primary school or below | 0.6 | | |
| Secondary school | 25.5 | **Marital status** | |
| Higher diploma/associate degree | 20.0 | Single | 61.1 |
| Undergraduate degree | 44.6 | Married | 35.6 |
| Postgraduate degree or above | 8.6 | Others | 3.3 |
| | | | |
| **Employment status** | | | |
| Working full-time | 49.2 | **Have child/children under 18 years old** | |
| Working part-time/casual | 6.5 | Yes | 18.9 |
| Homemaker | 2.7 | No | 81.1 |
| Student | 34.6 | | |
| Retired | 4.4 | | |
| Others | 2.1 | | |

**Travel Factors**

**Table 2** shows that majority of the respondents preferred independent travel (79%), travel with family (58%) or friends (54%), and would definitely or always buy travel insurance before traveling abroad (83%). Nearly half (47%) preferred to travel two or three times per year. Regarding sources of travel advisory information, most travelers heard about OTAs from television (89%). Some heard about OTAs from family and friends (32%), newspapers (29%), and radio (22%), and only a few respondents (15%) stated that they had heard about them from the OTA website. Around 22% of the respondents had experienced a Red or Black OTA issued against their intended travel destination. Approximately 10% of the respondents claimed that the OTAs had no impact on their travel plan, while some had postponed travel (6%), changed to another travel destination (5%), or abandoned their travel plan (4%).

Table 2. Trip profile of the respondents ($N = 710$)

| | % | | % |
|---|---|---|---|
| **Frequency of outbound travel** | | **Experienced intended travel destination issued with a Red or Black OTA** | |
| Less than 1 time per year | 11.6 | | |
| 1 time per year | 24.9 | | |
| 2-3 times per year | 47.2 | Yes | 22.2 |
| 4-5 times per year | 9.5 | No | 77.8 |
| Over 5 times per year | 6.9 | | |
| | | **Impact of previous OTA on travel** | |
| **Major travel mode** | | No impact and traveled as scheduled | 9.9 |
| Package tour | 21.0 | Changed to another travel destination | 5.1 |
| Independent travel | 79.0 | Postponed travel | 6.1 |
| | | Abandoned travel plan | 3.8 |
| **Trip purpose(s)** | | Others | 0.3 |
| Leisure | 89.2 | | |
| Visiting family and friends | 16.9 | **Source(s) of OTA information** | |
| Business | 10.3 | Television | 89.2 |
| Others | 7.6 | Radio | 21.8 |
| | | Newspapers | 28.6 |
| **Travel companion(s)** | | Family and friends | 32.0 |
| Alone | 22.8 | OTA website | 14.8 |
| Family and relatives | 58.2 | Others | 4.9 |
| Tour group | 4.5 | | |
| Spouse/partner | 33.2 | **Purchase of travel insurance** | |
| Friends | 54.4 | Definitely yes | 63.8 |
| Colleagues | 7.2 | Always | 19.1 |
| Others | 0.1 | Sometimes | 14.8 |
| | | Definitely no | 2.3 |

**Protection Motivation and Behavioral Intention of Adhering to Travel Advice**

The descriptive statistics of the study variables are listed in **Table 3**. For protection motivation variables, the attribute with the highest mean score was reflected in travelers' perceived ability to avoid all travel if a Black OTA is issued (6.17). On the contrary, "Not following OTA recommendations saves time and effort" had the lowest mean score (3.75), implying that the time and efforts spent on following OTA advice is generally insignificant to the travelers. Regarding results on behavioral intention, "I will cancel my travel plan to the destination if a Black OTA is issued" had the greatest mean score (5.92), followed by "I would follow OTA recommendations whenever possible" (5.47), and "I will adjust my travel plan or avoid traveling to the place if a Red OTA is issued" (5.42). The lowest mean score was "I will visit the OTA website to obtain the latest OTA information before travel" (4.39).

Table 3. Factor analysis of travel advisory compliance intention

| Factors/items | Loadings | Eigenvalues | Variance explained | Cronbach's alpha |
|---|---|---|---|---|
| **Perceived vulnerability** | | 8.672 | 27.100 | .885 |
| PV5 | .864 | | | |
| PV1 | .828 | | | |
| PV4 | .758 | | | |
| PV3 | .748 | | | |
| PV2 | .699 | | | |
| | | | | |
| **Response cost** | | 5.220 | 16.312 | .877 |
| C3 | .820 | | | |
| C4 | .797 | | | |
| C5 | .761 | | | |
| C2 | .728 | | | |
| C1 | .699 | | | |
| | | | | |
| **Response efficacy** | | 2.715 | 8.485 | .910 |
| RE2 | .916 | | | |
| RE3 | .850 | | | |
| RE1 | .756 | | | |
| RE4 | .705 | | | |
| | | | | |
| **Behavioral intention** | | 1.732 | 5.412 | .830 |
| BI6 | .693 | | | |
| BI2 | .686 | | | |
| BI5 | .671 | | | |
| BI1 | .642 | | | |
| BI3 | .632 | | | |
| BI4 | .477 | | | |
| | | | | |
| **Perceived severity** | | 1.520 | 4.749 | .859 |
| PS4 | .806 | | | |
| PS1 | .803 | | | |

| Factors/items | Loadings | Eigenvalues | Variance explained | Cronbach's alpha |
|---|---|---|---|---|
| PS2 | .794 | | | |
| PS5 | .700 | | | |
| PS3 | .556 | | | |
| | | | | |
| **Benefit of not following OTA advice** | | 1.360 | 4.249 | .910 |
| B2 | .967 | | | |
| B3 | .818 | | | |
| B1 | .799 | | | |
| B4 | .732 | | | |
| | | | | |
| **Self-efficacy** | | 1.152 | 3.600 | .806 |
| SE3 | .845 | | | |
| SE2 | .815 | | | |
| SE1 | .429 | | | |
| KMO = 0.892, Bartlett's test of sphericity: $\chi^2$ = 14,259.216, df = 496, $p < 0.000$. | | | | |

Since the Kaiser-Meyer-Olkin Measure of Sampling Adequacy was above .50 and the p-value for Bartlett's Test of Sphericity was significant to ensure that the data is suitable for exploratory factor analysis (Lo, Wu, & Tsai, 2015), an exploratory factor analysis with Promax rotation was used to derive the dimensions of travel advisory compliance behaviors. By adopting a factor loading of 0.4 as the benchmark, the analysis extracted seven dimensions, namely, perceived severity, perceived vulnerability, response efficacy, self-efficacy, response cost, benefit of maladaptive behavior, and behavioral intention, that explained 69.906% of the total variance to fit with the conceptualization of PMT (**Table 3**). The reliability of these seven dimensions was supported, because the Cronbach's alpha values ranging from .830 to .910 were greater than .70 (Lin, Au, Leung, & Peng, 2020). Mean scores for the seven dimensions The descriptive statistics of the seven extracted dimensions are shown in **Table 4**.

Table 4. Descriptive statistics of protection motivation variables and behavioral intention (N=710)

| Constructs/items | | Mean | S.D |
|---|---|---|---|
| **Perceived severity** | | | |
| PS1 | Encountering attacks | 5.98 | 1.120 |
| PS2 | Encountering natural disasters | 5.71 | 1.144 |
| PS3 | Involving in demonstrations | 4.84 | 1.352 |
| PS4 | Contracting infectious diseases | 5.76 | 1.174 |
| PS5 | Involving in violent clashes | 5.43 | 1.229 |
| | | | |
| **Perceived vulnerability** | | | |
| PV1 | Encountering attacks | 4.62 | 1.296 |
| PV2 | Encountering natural disasters | 4.95 | 1.231 |
| PV3 | Involving in demonstrations | 4.45 | 1.249 |
| PV4 | Contracting infectious diseases | 4.74 | 1.256 |

| Constructs/items | | Mean | S.D |
|---|---|---|---|
| PV5 | Involving in violent clashes | 4.53 | 1.260 |
| **Self-efficacy** | | | |
| SE1 | I am able to monitor the situation and exercise caution in the advised destination when an Amber OTA is issued. | 5.33 | 1.172 |
| SE2 | I am able to adjust travel plans and avoid non-essential travel to the advised destination when a Red OTA is issued. | 5.78 | 1.154 |
| SE3 | I am able to avoid all travel to the advised destination when a Black OTA is issued. | 6.17 | 1.169 |
| **Response efficacy** | | | |
| RE1 | OTA recommendations are useful for my travel safety. | 5.46 | 1.066 |
| RE2 | OTA recommendations will allow me to effectively deal with an emergency situation abroad. | 5.30 | 1.107 |
| RE3 | By following OTA recommendations, I can strongly reduce the probability of being injured abroad. | 5.32 | 1.103 |
| RE4 | OTA information facilitates me in evaluating the security situation abroad. | 5.45 | 1.104 |
| **Response cost** | | | |
| C1 | It takes a considerable amount of time and effort to be familiar with and follow OTA recommendations. | 3.86 | 1.378 |
| C2 | There are too many costs associated with following the OTA recommendations. | 4.23 | 1.300 |
| C3 | It makes me feel unhappy to follow OTA recommendations. | 4.12 | 1.406 |
| C4 | It makes me feel overly nervous for my travel by taking OTA into travel planning consideration. | 3.97 | 1.300 |
| C5 | Taking OTA into consideration confuses my travel planning. | 4.03 | 1.320 |
| **Benefit of not following OTA advice** | | | |
| B1 | Not following OTA recommendations allows me to travel as scheduled. | 3.90 | 1.306 |
| B2 | Not following OTA allows me to travel to any destinations that I want to. | 3.80 | 1.349 |
| B3 | Not following OTA recommendations saves time and effort. | 3.75 | 1.314 |
| B4 | By ignoring the OTA recommendations, I could travel to the destination at a lower price. | 3.80 | 1.391 |
| **Behavioral intention** | | | |
| BI1 | I will check whether there is an OTA imposed on the country where I intend to visit before travel. | 5.03 | 1.338 |
| BI2 | I will visit the OTA website to obtain the latest OTA information before travel. | 4.39 | 1.519 |
| BI3 | I will adjust my travel plan (including change of travel date or destination choice) or avoid traveling to the place if a Red OTA is issued. | 5.42 | 1.144 |
| BI4 | I will cancel my travel plan to the destination if a Black OTA is issued. | 5.92 | 1.210 |
| BI5 | I would follow OTA recommendations whenever possible. | 5.47 | 1.061 |
| BI6 | I intend to recommend others to comply with OTA recommendations. | 5.22 | 1.224 |

| **Average** | Rank | Mean | S.D |
|---|---|---|---|
| Self-efficacy | 1 | 5.76 | 0.420 |
| Perceived severity | 2 | 5.54 | 0.439 |
| Response efficacy | 3 | 5.38 | 0.084 |

| Constructs/items | | Mean | S.D |
|---|---|---|---|
| Behavioral intention | 4 | 5.24 | 0.513 |
| Perceived vulnerability | 5 | 4.66 | 0.196 |
| Response cost | 6 | 4.04 | 0.141 |
| Benefit of not following OTA advice | 7 | 3.81 | 0.063 |

*Note*. Items were measured on a 7-point Likert scale.

## Determinants of Travel Advisory Compliance Intention

Multiple linear regression analysis was performed to explore the impact of the six PMT factors on the travelers' intention to consult and follow OTA advice. As presented in **Table 5** and **Figure 2,** the results indicated a satisfactory goodness-of-fit ($F = 75.512$, $p < .01$) to demonstrate that 39.2% of the variation of the overall OTA compliance behaviors was explained by the six independent variables. Four independent variables, perceived severity ($t = 4.348$, $p < .01$), response efficacy ($t = 5.995$, $p < .01$), self-efficacy ($t = 1.536$, $p < .01$), and benefit of maladaptive behavior ($t = 7.964$, $p < .01$), were found to statistically significant increase travelers' intention to consider OTA advice, thereby supporting H1, H3, H4, and H6. However, H2 and H5 were not supported because the impacts of perceived vulnerability ($t = 1.568$, $p = .117$) and response cost ($t = -4.270$, $p = .125$) were found insignificant. Besides, the standardized $\beta$ values revealed that response efficacy ($\beta = .311$) has the highest weight on travelers' OTA compliance behaviors, followed by self-efficacy ($\beta = .218$), perceived severity ($\beta = .162$), and benefit of maladaptive behavior ($\beta = -.151$).

Table 5. Results of multiple linear regression analysis (N=710)

| Independent variables | Coefficient estimates ($\beta$) | $t$ value | $p$ value |
|---|---|---|---|
| Perceived severity | .162 | 4.348 | 0.000 |
| Perceived vulnerability | .053 | 1.568 | 0.117 |
| Response efficacy | .311 | 5.995 | 0.000 |
| Self-efficacy | .218 | 1.536 | 0.000 |
| Response cost | .055 | -4.270 | 0.125 |
| Benefit of maladaptive behavior | -.151 | 7.964 | 0.000 |
| $R = .626$; $R^2 = .392$; Adjusted $R^2 = .387$ | | | |

Note.  ⟶ Denotes a significant relationship between the constructs;
       ---▶ Denotes an insignificant relationship between the constructs
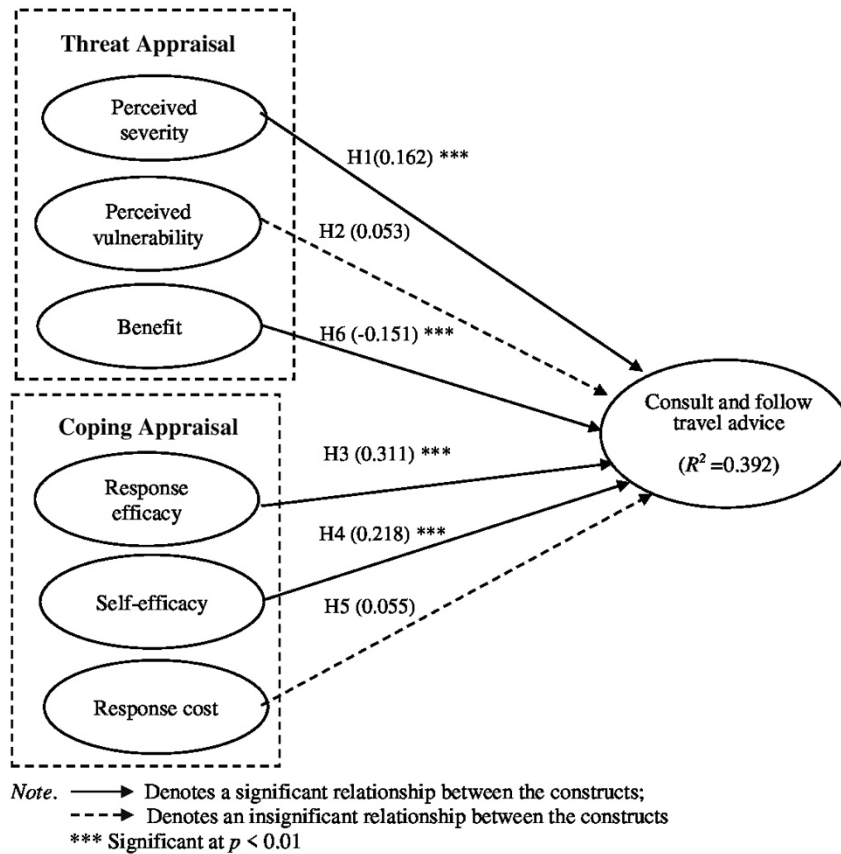       *** Significant at $p < 0.01$

**Figure 2. Results of the research model**

**Effect of Sociodemographic Factors on Travel Advisory Compliance Intention**

**Table 6** shows the results of the comparison of the respondent groups based on their different sociodemographic factors. Factors including age, personal income, employment status, and marital status were divided into subgroups for ANOVA and Tukey's post hoc test while gender and the question about having a child or children below 18 years old were analyzed by independent $t$ test. When considering gender differences, female respondents were more likely to "adjust travel plan in view of Red OTA" and "cancel travel plan in view of Black OTA" compared to male respondents.

Respondents of different age groups were also compared and significant differences were observed. Those belonging to the age group of 46-65 were more likely to "consult OTA information before travel", "visit OTA website before travel", "adjust travel plan in view of Red OTA", and "cancel travel plan in view of Black OTA" than respondents below the age of 25 and between 26 to 45. Respondents at the age of 46 or above also reported the highest intention to "follow OTA advice whenever possible" and "recommend others to follow OTA advice".

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In addition, respondents were divided into four categories based on their personal income – namely low income group (less than HK$10,000), medium income group (HK$10,000 to HK$24,999), medium-high income group (HK$25,000 to HK$49,999) and high income group (HK$50,000 or above) – to compare their possible differences when considering OTA advice. It was revealed that the highest income group had a significantly higher likelihood of "consulting OTA information before travel" compared to the low and medium income groups.

Regarding employment status, respondents who were "working full-time" and "working part-time/casual" were integrated into the "working" group, whereas respondents who considered themselves a "homemaker" were combined into the "others" group. It was observed that respondents of different employment status had significant differences in their likelihood of following OTA advice. Particularly, retired respondents were more likely to "consult OTA information before travel" than the working group and students. They were also more likely to "visit OTA website before travel" than students, and to "follow OTA advice whenever possible" and "recommend others to follow OTA advice" than other groups.

In terms of marital status and whether respondents had a dependent child or children below 18 years old, there were significant differences in OTA compliance behavior. Those respondents who were married indicated a higher tendency to "consult OTA information before travel", "adjust travel plan in view of Red OTA", "cancel travel plan in view of Black OTA", and "follow OTA advice whenever possible" than those who were unmarried. This group of respondents were also more likely to "visit OTA website before travel" and "recommend others to follow OTA advice" compared to respondents who were single. Further, the results indicated that respondents with a child or children below 18 years old were more inclined to comply with OTA behaviors.

Table 6. The effect of socio-demographics on travel advisory compliance intention

| | Gender | | | | t value | Age | | | | | | | | F value | Post hoc Tukey's |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | | Female | | | 25 or below (a) | | 26 to 45 (b) | | 46 to 65 (c) | | 66 or above (d) | | | |
| | Mean | SD | Mean | SD | | Mean | SD | Mean | SD | Mean | SD | Mean | SD | | |
| Consult OTA information before travel | 5.03 | 1.33 | 5.00 | 1.35 | 0.317 | 4.80 | 1.30 | 4.95 | 1.34 | 5.63 | 1.26 | 5.56 | 0.88 | 13.946*** | c > a, b |
| Visit OTA website before travel | 4.43 | 1.53 | 4.34 | 1.50 | 0.857 | 4.16 | 1.47 | 4.37 | 1.50 | 4.86 | 1.55 | 5.33 | 1.00 | 8.367*** | c > a, b |
| Willing to adjust travel plan in view of Red OTA | 5.30 | 1.20 | 5.52 | 1.07 | -2.542* | 5.30 | 1.11 | 5.31 | 1.19 | 5.81 | 1.05 | 5.89 | 1.36 | 7.996*** | c > a, b |
| Willing to cancel travel plan in view of Black OTA | 5.78 | 1.35 | 6.05 | 1.04 | -2.883** | 5.82 | 1.21 | 5.82 | 1.26 | 6.27 | 1.02 | 6.22 | 1.99 | 5.464** | c > a, b |
| Follow OTA advice whenever possible | 5.37 | 1.14 | 5.55 | 0.98 | -2.211* | 5.34 | 1.05 | 5.34 | 1.08 | 5.86 | 0.97 | 6.44 | 0.53 | 11.839*** | c, d > a, b |
| Recommend others to follow OTA advice | 5.15 | 1.30 | 5.27 | 1.15 | -1.317 | 5.08 | 1.24 | 5.16 | 1.19 | 5.55 | 1.12 | 6.44 | 0.88 | 8.263*** | c, d > a, b |

*(Continued)*

Table 6. (continued)

| | Personal income | | | | | | | | F value | Post hoc Tukey's |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low (e) | | Medium (f) | | Medium high (g) | | High (h) | | | |
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD | | |
| Consult OTA information before travel | 4.95 | 1.27 | 4.95 | 1.39 | 5.11 | 1.28 | 5.62 | 1.51 | 3.763* | h > e, f |
| Visit OTA website before travel | 4.24 | 1.50 | 4.36 | 1.52 | 4.61 | 1.42 | 4.82 | 1.75 | 3.146* | N/A |
| Willing to adjust travel plan in view of Red OTA | 5.39 | 1.10 | 5.40 | 1.16 | 5.40 | 1.14 | 5.64 | 1.38 | 0.677 | N/A |
| Willing to cancel travel plan in view of Black OTA | 5.87 | 1.23 | 5.92 | 1.20 | 5.92 | 1.21 | 6.16 | 1.22 | 0.722 | N/A |
| Follow OTA advice whenever possible | 5.45 | 0.99 | 5.46 | 1.10 | 5.37 | 1.11 | 5.46 | 1.13 | 1.454 | N/A |
| Recommend others to follow OTA advice | 5.20 | 1.16 | 5.16 | 1.13 | 5.22 | 1.09 | 58.58 | 1.23 | 1.488 | N/A |

*(Continued)*

Table 6. (continued)

| | Employment status | | | | | | | | F value | Post hoc Tukey's |
|---|---|---|---|---|---|---|---|---|---|---|
| | Working (i) | | Student (j) | | Retired (k) | | Others (l) | | | |
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD | | |
| Consult OTA information before travel | 5.00 | 1.35 | 4.88 | 1.32 | 6.10 | 0.83 | 5.41 | 1.28 | 8.844*** | k > i, j |
| Visit OTA website before travel | 4.43 | 1.50 | 4.16 | 1.53 | 5.13 | 1.52 | 4.79 | 1.41 | 5.263** | k > j |
| Willing to adjust travel plan in view of Red OTA | 5.37 | 1.14 | 5.37 | 1.13 | 5.84 | 1.32 | 5.79 | 1.04 | 3.020* | N/A |
| Willing to cancel travel plan in view of Black OTA | 5.87 | 1.23 | 5.91 | 1.19 | 6.45 | 1.18 | 5.94 | 1.10 | 2.218 | N/A |
| Follow OTA advice whenever possible | 5.42 | 1.08 | 5.43 | 1.04 | 6.23 | 0.72 | 5.59 | 1.05 | 5.971** | k > i, j, l |
| Recommend others to follow OTA advice | 5.20 | 1.20 | 5.16 | 1.22 | 6.00 | 1.13 | 5.06 | 1.48 | 4.690** | k > i, j, l |

*(Continued)*

Table 6. (continued)

| | Marital status | | | | | | F value | Post hoc Tukey's | Have children below 18-year-old | | | | t value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Single (m) | | Married (n) | | Others (o) | | | | Yes | | No | | |
| | Mean | SD | Mean | SD | Mean | SD | | | Mean | SD | Mean | SD | |
| Consult OTA information before travel | 4.85 | 1.31 | 5.37 | 1.32 | 4.65 | 1.37 | 13.138*** | n > m, o | 5.29 | 1.41 | 4.96 | 1.31 | 2.600* |
| Visit OTA website before travel | 4.19 | 1.50 | 4.74 | 1.51 | 4.22 | 1.35 | 10.908*** | n > m | 4.80 | 1.47 | 4.28 | 1.51 | 3.614*** |
| Willing to adjust travel plan in view of Red OTA | 5.29 | 1.12 | 5.68 | 1.10 | 4.83 | 1.37 | 12.625*** | n > m, o | 5.62 | 1.05 | 5.36 | 1.16 | 2.337* |
| Willing to cancel travel plan in view of Black OTA | 5.81 | 1.22 | 6.16 | 1.10 | 5.13 | 1.63 | 11.933*** | n > m, o | 6.17 | 1.08 | 5.85 | 1.23 | 2.754** |
| Follow OTA advice whenever possible | 5.32 | 1.07 | 5.77 | 0.97 | 5.00 | 1.13 | 17.643*** | n > m, o | 5.77 | 0.95 | 5.39 | 1.07 | 4.011*** |
| Recommend others to follow OTA advice | 5.03 | 1.25 | 5.53 | 1.12 | 5.22 | 1.17 | 13.890*** | n > m | 5.57 | 1.05 | 5.13 | 1.25 | 3.801*** |

*Note.* *p < .05, ** p < .01, *** p < .001; SD: Standard deviation.

**Effect of Travel-Related Factors on Travel Advisory Compliance Intention**

**Table 7** presents the results of the comparison of respondent groups based on their different travel-related factors. Factors related to frequency of outbound travel and purchase of travel insurance were examined by ANOVA and Tukey's post hoc test while travel mode was evaluated by independent *t* test.

The results demonstrated that respondents who usually traveled fewer than one time per year preferred joining package tours, and those who usually purchased travel insurance were more likely to follow OTA behaviors. In particular, travelers who preferred to travel fewer than one time per year were more likely to "consult OTA information before travel" than more frequent travelers and they demonstrated a higher propensity to "adjust travel plan in view of Red OTA" than respondents who travelled four times or more per year. Moreover, travelers who preferred joining package tours were more likely to "consult OTA information before travel", "visit OTA website before travel", "adjust travel plan in view of Red OTA", "cancel travel plan in view of Black OTA", "follow OTA advice whenever possible", and "recommend others to follow OTA advice". Similarly, respondents who definitely or always bought travel insurance demonstrated a greater inclination to "consult OTA information before travel", "adjust travel plan in view of Red OTA", "cancel travel plan in view of Black OTA", "follow OTA advice whenever possible", and "recommend others to follow OTA advice".

Table 7. The effect of travel-related factors on travel advisory compliance intention

| | Frequency of outbound travel | | | | | | F value | Post hoc Tukey's | Travel mode | | | | t value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fewer than 1 time per year (a) | | 1-3 times per year (b) | | 4 times or above per year (c) | | | | Package tour | | Independent traveler | | |
| | Mean | SD | Mean | SD | Mean | SD | | | Mean | SD | Mean | SD | |
| Consult OTA information before travel | 5.37 | 1.15 | 5.00 | 1.30 | 4.90 | 1.57 | 3.295* | a > c, b | 5.34 | 1.37 | 4.94 | 1.32 | 3.200** |
| Visit OTA website before travel | 4.66 | 1.51 | 4.31 | 1.50 | 4.52 | 1.60 | 2.344 | N/A | 4.76 | 1.53 | 4.29 | 1.50 | 3.420** |
| Willing to adjust travel plan in view of Red OTA | 5.43 | 1.01 | 5.47 | 1.07 | 5.13 | 1.46 | 4.349* | a > c | 5.72 | 1.09 | 5.33 | 1.15 | 3.733*** |
| Willing to cancel travel plan in view of Black OTA | 5.89 | 1.32 | 5.96 | 1.15 | 5.76 | 1.37 | 1.290 | N/A | 6.22 | 1.12 | 5.84 | 1.22 | 3.401** |
| Follow OTA advice whenever possible | 5.49 | 1.11 | 5.50 | 1.00 | 5.28 | 1.26 | 1.980 | N/A | 5.85 | 1.02 | 5.36 | 1.05 | 5.075*** |
| Recommend others to follow OTA advice | 5.34 | 1.28 | 5.24 | 1.15 | 5.03 | 1.47 | 1.911 | N/A | 5.47 | 1.24 | 5.15 | 1.21 | 2.894** |

*(Continued)*

Table 7. (continued)

| | Purchase of travel insurance | | | | | | F value | Post hoc Tukey's |
|---|---|---|---|---|---|---|---|---|
| | Definitely yes/always (d) | | Sometimes (e) | | Definitely no (f) | | | |
| | Mean | SD | Mean | SD | Mean | SD | | |
| Consult OTA information before travel | 5.10 | 1.34 | 4.65 | 1.30 | 4.38 | 1.20 | 6.959** | d > e |
| Visit OTA website before travel | 4.44 | 1.54 | 4.13 | 1.41 | 3.69 | 1.35 | 3.664* | N/A |
| Willing to adjust travel plan in view of Red OTA | 5.48 | 1.12 | 5.09 | 1.20 | 5.06 | 1.44 | 5.946** | d > e |
| Willing to cancel travel plan in view of Black OTA | 6.00 | 1.17 | 5.44 | 1.32 | 5.88 | 1.54 | 9.501*** | d > e |
| Follow OTA advice whenever possible | 5.53 | 1.04 | 5.13 | 1.16 | 5.31 | 0.95 | 6.552** | d > e |
| Recommend others to follow OTA advice | 5.27 | 1.24 | 4.91 | 1.13 | 4.88 | 1.09 | 4.472* | d > e |

*Note.* *$p < .05$, ** $p < .01$, *** $p < .001$; SD: Standard deviation.

**DISCUSSION AND IMPLICATIONS**

**Motivation Factors of Travel Advisory Adherence Intention**

The finding that self-efficacy was the most important factor for respondents to this survey might demonstrate travelers' considerable need to feel confident and comfortable in acquiring information about and following OTA recommendations. Consistent with the meta-analyses conducted by Floyd, Prentice-Dunn, and Rogers (2000) and Milne, Sheeran, and Orbell (2000), the association between self-efficacy and compliance intention was reported the most robust of all associations between PMT variables and adherence intention regarding adaptive behaviors. In addition, an interesting finding was observed in this study: the higher the level of OTA, the greater the self-efficacy perceived by travelers. This may be attributable to the less ambiguous recommendations of higher OTAs from the travelers' point of view (Tsang, Wong, & Prideaux, 2018). Specifically, the travel advice of the three symbolic OTAs are as follows: Black OTA – avoid all travel, Red OTA – adjust travel plans and avoid non-essential travel, and Amber OTA – monitor situation and exercise caution (Hong Kong Security Bureau, 2017).

To improve travelers' self-efficacy and accessibility to OTA information, greater marketing and promotion efforts of the OTA system are certainly required. As well as disseminating frequent OTA advertisements via mass media, the Security Bureau can develop a closer collaboration with the industry. For example, Cathay Pacific Airways has presented travel alert information on their company website, as shown in Figure 3. This reminds travelers of the present travel alerts before they make a travel decision. To increase the convenience and visibility of the travel warnings, it is suggested that popular travel destinations with high levels of warning (the Black and Red OTAs) are listed rather than only indicating the number of travel alerts. Airlines, travel intermediaries, and insurance companies can take note of the example of Cathay Pacific Airways to provide OTA information, and may further supplement this with their updates regarding and responses to different levels of OTAs, such as refund procedures. Furthermore, an alternative approach to raise travelers' self-efficacy is through the modeling effect. For instance, to improve addictive gamblers' self-efficacy in reducing gambling, Munoz, Chebat, and Suissa's (2010) study provided a recommendation of showing cases of previous patients who successfully overcame pathological gambling behavior. Likewise, the policy makers of the OTA system could invite celebrities or tourism ambassadors to promote safe travel and OTA compliance behaviors to the public. Whenever travelers find it easy to reach the OTA information and are confident in

their ability to search for and follow the advice, it is likely that they will comply with the OTA advised behaviors (as cited in Wong, 2017).

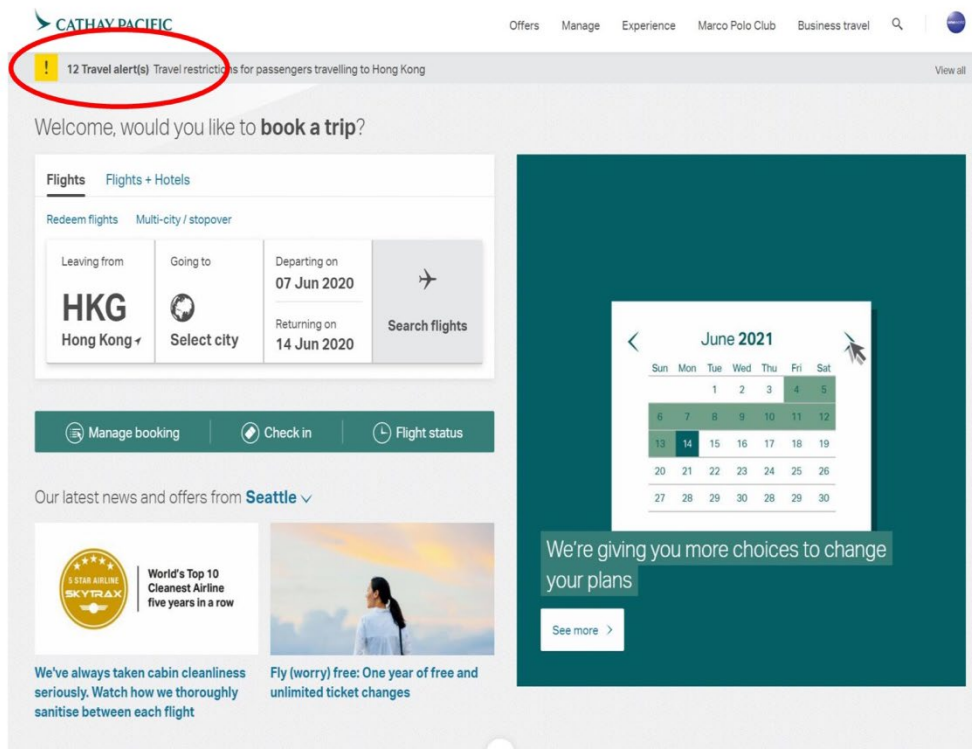Figure 3. Travel Alert Information from Cathay Pacific Airways's Webpage (extracted on March 2020)



**Figure 3. Travel alert information from Cathay Pacific Airways's Webpage (extracted on March 2020)**

Furthermore, the results show that response efficacy is the second most influential attribute affecting travelers' intention to follow OTA advice. Its significant positive effect on behavioral intentions is consistent with PMT and existing studies (i.e. Lwin et al., 2012; Milne et al., 2000; Poussin, Botzen, & Aerts, 2014). It produces policy makers with three key practical contributions to increase the response efficacy of travelers. First, they should incorporate more travel destinations into the present system if the destination coverage of the existing OTA system is less extensive than a number of foreign travel advisories, such as those of France, Belgium, Canada, and the UK; if the travel advisory system does not cover extensive travel destinations, the system could hardly be useful for all potential travelers. Second, OTA advice has to be informative; for example, it needs to incorporate information on how to deal with emergency situations abroad.

Third, the government should follow UNWTO's (n.d.) suggestions to provide the firsthand safety and security information of the destinations and present timely travel advice.

In addition, this study confirms the PMT model and the findings of most of the literature that perceived severity has a positive influence on behavioral intention (i.e. Gao, Li, & Luo, 2015; Yoon, Hwang, & Kim, 2012). For example, in Yoon et al.'s (2012) study, which investigated students' behavioral intention to practice information security, it was proposed to expose students to the severity of losses due to security negligence and educate the students about how proper measures can prompt favorable results in order to increase the perceived severity. Though it is not possible to expose travelers to the severity of losses in the case of OTAs to raise their perceived severity, the Security Bureau may provide video clips or photos of the destinations with high OTAs to reveal the severe situation and report the casualty figures. Another implication of the results on perceived severity was that epidemic disease was regarded as the most serious threat for travelers. As such, it can be expected that travelers are more likely to follow OTA if it is issued because of health reasons. The threat of political unrest, however, received the lowest rating compared with other physical risks. Hong Kong travelers' low sensitivity to or ignorance of political instability may be due to their past experience or impression of the recurring unstable situation in Thailand and the Hong Kong Occupy Central campaign in late 2014 (Tsang et al., 2018).

The reward or benefit component of PMT was only included in very few studies, such as those of Bockarjova and Steg (2014) and Yan et al. (2014). Milne et al. (2000) and Abraham, Sheeran, Abrams, and Spears (1994) attributed its cause to the difficulties in operationalizing benefit as it could also be viewed as a response cost by the same token. For instance, in this study, the opposite of the response cost of consuming considerable time and effort in collecting OTA information is indeed the benefit of saving time and effort by ignoring OTAs. Thus, it explains why benefit appears to have been neglected in most PMT research. Nonetheless, this study reveals a weak negative relationship between the benefit of maladaptive behaviors and OTA adherence intention, which means that the higher is the benefit of not following OTAs, the lower is the intention to adhere to them.

The study also found that perceived vulnerability and response cost were insignificant in explaining travelers' intention to follow OTA advice. Yoon et al.'s (2012) study reported a similar finding that perceived vulnerability did not have any significant impact on the behavioral intention to practice information security and it was justified by the reason that the target sample was

constrained to students only. In the present study, the insignificant impact of OTAs may be explained by the trend that most travelers would choose safe and popular destinations rather than high risk ones (Tsang et al., 2018, as cited in Wong, 2017), and therefore they were less likely to think about themselves encountering a crisis during their trip. Besides, people may perceive the response cost as negligible to take OTA advice, because the technological development has resulted in extensive information spread on the Internet.

**Travelers' Sociodemographic Factors and Travel Advisory Adherence Intention**
Travelers' perceptions of travel advice and their corresponding reactions are likely to be heterogeneous in connection with their sociodemographic and travel-related factors. Focusing on the sociodemographic aspect, this study revealed that there was a significant difference between males and females in adoption intention regarding OTA advice. Female travelers were more likely to consult and follow OTA advice. This corroborates the majority of tourism literature on gender difference that claims women are more susceptible to physical risk than men (Yang, Khoo-Lattimore, & Arcodia, 2017) because of socially constructed gender norms (Lepp & Gibson, 2003; Qi et al., 2009). For instance, "by virtue of their social position, female travelers are always more vulnerable to violence" (Qi et al., 2009, p. 61); "the influence of socialization whereby some females have learned not to take as many risks as their male counterparts" (Lepp & Gibson, 2003, p. 618). Therefore, female travelers were more inclined to adhere to OTA advice. From the standpoint of tourism authorities, they may consider presenting travel advice specific to women traveling abroad in addition to the existing general advice addressed to all travelers. For instance, the British travel advisory website provides travel tips for women for staying safe in accommodation and in public areas, avoidance of drug-assisted rape, and other travel tips (FCO, 2017).

Another noticeable finding was that the high-income group has a significantly higher propensity to adopt travel advice. This is congruent with the result of Lo, Cheung, and Law's (2011) study that those from the low-income group in Hong Kong had a significantly lower likelihood of adopting information-related risk reduction strategies given that this group of people typically have lower educational levels, are less knowledgeable, are less active in search for external travel information, and are therefore more dependent on advice from their family and friends. Another plausible reason is that adjustment and withdrawal of travel plans owing to OTA alerts issued

towards intended destinations may involve paying extra administrative fees or forgoing the travel expenses already paid. It is believed that owing to a higher financial affordability, those in the high-income group are more willing to comply with OTA advice and switch to a safe travel destination. To encourage all travelers to follow OTA advised behaviors, tourism authorities have to stipulate and review the terms and conditions and the maximum administration fees which can be charged by travel intermediaries in response to high travel alerts issued on travel destinations.

In terms of different age groups and number of young children, the study found that travelers aged 45 or above and travelers traveling with a young child or children were more likely to comply with travel advice than younger travelers and those without children. It is perceived that travelers aged 45 or above often have formed a family and may have children, thus they would be more concerned about travel safety and pay greater attention to OTA advice. This confirms Wong and Kwong's (2004) study, which finds that people who are traveling with family members tend to have greater concern regarding facilities, safety, and symbolic accessibility factors than those who are traveling alone. Also, Roehl and Fesenmaier's (1992) study affirms that tourists who focus on specific organizational risk are usually traveling with young children. By knowing this, tourism administrators may incorporate travel tips for traveling with children into their travel advisories. For instance, the Canadian travel advisory website provides tips for healthy travel with children covering vaccines for malaria, transportation risks, environmental and recreational risks, and travel-related stress in children (Government of Canada, 2017).

Further, this study revealed that retired travelers are more likely to conform to OTA advice than travelers of other employment statuses. This may possibly be due to the limited information sources on travel safety information available to the retired group and their time flexibility to rearrange travel compared to those who are working or studying. To promote adoption of travel advisory behaviors, travel intermediaries are recommended to offer flexible schedules if tours or travel packages have to be suspended because of high OTAs issued against the intended destinations.

**Travelers' Travel-related Factors and Travel Advisory Adherence Intention**
Apart from the demographic factors, varied travel-related factors may also influence travelers' likelihood of adopting OTA advice. The study indicated that the difference between inexperienced and experienced travelers was significant. Inexperienced travelers were more likely to check and

follow OTA advice, implying that inexperienced travelers are less familiar with traveling abroad and have a greater concern regarding travel risks, whereas experienced travelers usually have a lower general risk perception (Fuchs & Reichel, 2011; Sönmez & Graefe, 1998a, 1998b).

Besides, the study discovered an interesting phenomenon that packaged travelers were more likely to adhere to travel advice than independent travelers. Travelers choosing packaged travel are sensitive to risks (Lo et al., 2011) and safety is usually recognized as one of their most important travel considerations (Wong & Kwong, 2004). Moreover, since itineraries of packaged travel are likely to be influenced by OTAs, packaged travelers would pay greater attention to and be more likely to follow OTA advice. However, an independent traveler could decide not to comply with OTA advice even if a high level of OTA is imposed on their intended destination.

Finally, travelers who definitely or always bought travel insurance before their trips were more likely to adhere to OTA advice. This is in line with the assumption that travelers would consistently adhere to different forms of advocated behaviors, such as the purchase of travel insurance and adherence to OTA advice.

**CONCLUSION**

To conclude, the current study is an initial attempt to explore the motivating behavioral factors affecting the intention of potential travelers to follow government travel advice and is the first to apply a PMT framework to the area of TAS. PMT appeared to be a useful framework for predicting travelers' adherence to travel advice and the results stimulate thought about policy implications for tourism management.

First, the results show that travelers generally had a positive intention to adhere to OTA advice despite their low awareness of OTAs as suggested in the earlier qualitative study conducted by the authors (Tsang et al., 2018). This implies that the majority of Hong Kong travelers are willing to follow OTA advice, yet they are not likely to look for the information proactively. Hence, the government should expand their distribution channels to promulgate OTA messages. In addition to the mass media and social media, the Departure Hall at Hong Kong International Airport and tourism intermediary websites are some potential engagement points.

Second, self-efficacy, response efficacy, perceived severity, and the insignificant benefit of maladaptive behaviors were found to significantly influence travelers' intention to consult OTA advice. Tourism companies, airlines, and insurance companies may provide clear refund policies

and other updates associated with OTAs on their websites to raise their operational transparency. These practices can help enhance travelers' self-efficacy. OTAs might not be able to generate more businesses for the companies; however, if the industries can handle such situations in a smooth and appropriate manner, it could at least reduce customer dissatisfaction and the number of complaints received (Wong, 2017). Moreover, it is also suggested to invite celebrities or tourism ambassadors to promote safe travel and OTA compliance behaviors to increase public awareness of OTAs. To increase response efficacy, governments have to fine-tune the current travel advisory system, making it more comprehensive by incorporating more travel destinations and travel tips and by always presenting firsthand safety and security information of the destinations in a timely manner. To raise perceived severity, tourism authorities may consider providing video clips or photos of the destinations to better explain and reveal the severe situation.

Lastly, previous studies on communication have noted that the key to successful persuasion is providing a personally relevant message that is tailored to the knowledge, interests, and needs of the receivers (Ballantyne & Hughes, 2006; Wan, 2008). Hence, the relationship between travelers' factors and their likelihood of following travel advice was examined in this study. The results suggested that gender, age, personal income, employment status, marital status, having young child/children, travel frequency, travel mode, and custom of purchasing travel insurance tend to affect adherence intention regarding travel advice. Thus, it is recommended that tourism authorities profile different types of travelers and provide them with specific travel advice (e.g. for women, elderly persons, and those traveling with family and /or children).

**LIMITATONS AND FUTURE RESEARCH**

As the current study focuses primarily on Hong Kong's OTA system, future research could examine whether this study can be replicated in other tourist-generating countries, particularly in destinations with long-established travel advisory systems, such as those in the US, the UK, and Australia. As such, similarities and differences in the adoption of travel advice between travelers from different countries or regions can be identified. Furthermore, future studies could extend PMT with additional variables, such as credibility of travel advice and influence of travel party on compliance with travel advice. This would be useful in examining whether incorporating more variables would increase the predictive power of PMT. Moreover, future work could test the utility of PMT for predicting other types of travel behaviors related to travel safety or the adoption of risk

reduction strategies, such as purchasing travel insurance, staying at hostels or bed and breakfasts, or taking low-cost airlines. Future research may adopt a qualitative approach to interview with policy makers in devising and operating the travel advisory system to complement the pure demand-oriented discussion of this study. Last but not least, since, according to the theory of social desirability bias, people typically overstate their intention to adopt behaviors (Bockarjova & Steg, 2014; Grimm, 2010), it is recommended that people are surveyed at the time of crisis outbreak in a travel destination, such as political instability or natural disasters, in order to discern travelers' intended and actual travel behavior. In sum, this research has shown that PMT is relevant for predicting adaptive behaviors in the domain of travel safety and is suitable as a promising area for future research.

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