Effectiveness of the Covid-19 vaccination on travel intentions: case of Iran

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Abstract

Purpose – *This paper aims to examine tourists' behavioral changes in response to health crises, this study examines the individual's uncertainty and adaptability to the challenges using behavioral coping strategies.*

Design/methodology/approach – *The study combines the theory of planned behavior (TPB) and protection motivation theory. Using the PLS-SEM technique, this study examines the relationship between the destination's competitive profits and travel intention of Iranian tourists in the post-Covid-19 pandemic.*

Findings – *The social-support coping (Instrumental) does not incorporate tourists' adaptive behaviors. Vulnerable vaccination significantly affects the extremeness of an individual's problem-focused coping, which affects tourist's adaptive behaviors in crisis time, indicating the effectiveness of the Covid-19 vaccination on travel intention.*

Research limitations/implications – *The findings may assist tourism authorities and planners develop unique tourism products and services based on tourist behavior following the health crises.*

Originality/value – *This study contributes to development of the TPB method, indicating that visa exemption and competitive profits of a destination would motivate travel intention existing inefficacy of local government and its negative background, reshaping and thus influencing changing behavior.*

Keywords *Tourist behavior, Post-covid-19 pandemic, Theory of planned behavior, Competitive profits, Health crisis, Iran*

Paper type *Research paper*

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Introduction

In current century, global health-related crises have severely damaged vulnerable industries such as tourism, which are drivers of countries' economic development (Ghaderi *et al.*, 2021). Given experiences of dealing with previous diseases (Gössling *et al.*, 2020), tourism industry has received unprecedented damage in more than two years with outbreak of Coronavirus. Rapid spread of novel Coronavirus in Wuhan, China, which began in late 2019 (China National Health Commission, 2020) and, posed significant challenges for tourism and hospitality industries (Jones and Comfort, 2020) Since first virus cases were reported in Iran in March 2022, Covid-19 pandemic has claimed 138,116 lives out of 7,096,318 infected individuals (WHO, 2022) To effectively control disease and reduce physical contact, many countries, including Iran, imposed restrictions on movement internationally or domestically (Weible *et al.*, 2020). However, concerns about its further spread have led to widespread fear among humans, resulting in potentially unpredictable behavioral reactions. One of the effects of Covid-19 in the education framework is the need to use online classes for students. A study indicates a positive relationship between self-efficacy and their educational performance, which consequently contributes to any strategic academic goals at the universities (Alvarez-Risco *et al.*, 2020). The consequence of Covid-19 on the fragile economic conditions of countries, especially the price of inferior goods, is also proven. Studies in Peru have demonstrated that comparing Covid-19 with other previous crises, the prospects of economic rescue are high since previous economic crises represent a large lowering in money fluctuation

Received 17 May 2022
Revised 11 July 2022
23 August 2022
Accepted 12 October 2022

The authors want to thank Professor Zahed Ghaderi for his advice and encouraging words to write a concrete paper.

with a high recovery rate (Leiva-Martinez *et al.*, 2021). In Asian countries, India's job loss in tourism and hospitality has been estimated at 38 million, which is 70% of the industry workforce (Radhakrishna, 2020). India's tourism and hospitality industry has experienced a significant impulse for education in tourism and hospitality when facing Covid-19.

The bad news from previous research is that due to high economic and financial losses of pandemic outbreak, post-Covid_19 tourism recovery process will probably be difficult and slow in future (Yeh, 2021). Corona has branded tourism as a dangerous activity, despite its critical role in bringing people together physically (Zheng *et al.*, 2021). Due to dissemination of biased news on social media platforms, this health crisis has caused behavioral and perceptual inconveniences to tourists on a much larger scale than previous crises (Fung and Fung, 2014). It has severely reduced market demand for international travel. Sphere of influence of disease and effects of pandemics have been highly variable. Vaccination as a preventative strategy will reduce concerns and facilitate control of tourist behavior. However, predicting behavior of tourists in health-related tourism crises is important and much research is required to investigate possible tourist behavioral changes (Cahyanto *et al.*, 2016; Wen *et al.*, 2005). Furthermore, tourists' behavior is also fundamentally influenced by motivational factors that develop their attitudes to choose travel destinations such as Chinese tourists, who traveled to Hong Kong despite different barriers (Biran *et al.*, 2014; Rittichainuwat, 2008). However, pandemics have caused some post-crisis behavioral responses to take on adaptive and coping characteristics due to an individual's anxiety and stress.

The concept of protection motivation as an essential element in many contexts of health information (Fry and Prentice-Dunn, 2005) can make people produce protection motivation (Rogers, 1975, p. 1) through a variety of coping strategies (Folkman and Lazarus, 1980); since avoiding fear can raise individual's threshold, helping them to moderate their perceived losses and adapt to post-crisis period (Rodriguez-Llanes *et al.*, 2013). According to previous studies, fear caused by threats can affect people's choice of tourism destinations (Kang *et al.*, 2012; Mura, 2010). Nevertheless, what is main reason for tourists' efforts to adapt to unstable conditions created by Covid-19 crisis while benefitting from vaccination?

To fill the research gap, present study aims to consult on future behavioral reactions of tourists, despite preventive measures in post-Covid_19 such as vaccination. This study will include theoretical framework of protection motivation theory to examine relationship between health-based preventive action (vaccination) and people's coping methods to their future behavior (planned behavior theory).

The study aims to provide a broader perspective on critical tourist psychological dimension in context of planned behavior, which can support future destination policy and tourism development strategies. Key research questions are as follows;

RQ1. How did vulnerable vaccination, behavioral beliefs, competitive profits and visit intention interact for Iranian tourists impacted by uncertainty perceived?

Undoubtedly, with proper management, destination management organizations and affiliated executive agencies will have a great responsibility to moderate situation in post-Covid-19 to more closely monitor behavior of tourists. This study highlights that lack of discipline policy in preventive actions complements temporal outbound travel. Findings of this study provide suggestions and a broader view of executive overseers in context of health crisis management, especially in tourism and help accelerate process of moderating travel demand in future.

Literature review

Tourists protective behaviors

Since coronavirus outbreak, people have feared disease, referred to as danger, pain or injury (Vann *et al.*, 2022). Epidemics are a recurring phenomenon that causes anxiety among masses (Roy *et al.*, 2020). Implementing quarantine health policies and imposing community-level restrictions

can have negative psychological impacts. Different dimensions of fear threaten society's mental health and make healthy people anxious (Fischhoff, 2020). Anxiety is a transient emotional state characterized by anxious thoughts and feelings of apprehension (Gaudry *et al.*, 1975) and is associated with negative consequences (Gudykunst and Hammer, 1988). With global expansion of Covid-19, tourism and hospitality industry is facing one of its most serious operational, commercial and financial crises (Strielkowski, 2020). While early research indicated that virus was not as contagious as Severe Acute Respiratory Syndrome (SARS) and Middle East respiratory syndrome (MERS)-related coronavirus), rapid increase in human-to-human transmission showed that virus was more contagious than in previous strains (Chan *et al.*, 2020; Huang *et al.*, 2020; Wang *et al.*, 2020). Therefore, tourists are often exposed to infectious diseases, especially when they are unaware of dangers of an unknown environment (WHO and OECD, 2020). As tourists face many dangers, with lack of preventive measures and medical care, their fear of infection and death may lead to long-term feelings of helplessness and anxiety about traveling during an outbreak of an epidemic. However, existing literature on tourists' response to crises focuses mainly on uncertainty perceived and post-crisis travel behavior (Prentice-Dunn and Rogers, 1986) generating planned behavior constructs.

Tourism studies mainly apply models to explore tourists' motivation and protective behaviors toward risky destinations and activities. In short, an analysis of studies and reports on tourism during Covid-19 pandemic reveals that tourists' habits, behaviors and sentiments have changed substantially, and many of these changes will persist into future, impacting restructuring of tourist behavior. Therefore, purpose of this study is to examine these changes to provide a better understanding of tourists' future behavioral changes in response to health crises.

During and post-pandemic coping behaviors

Behavior explains into individual, behavioral and environmental factors (Ajzen, 1991). These three factors are inextricably linked to experience. From this perspective, neither internal forces nor external stimuli alone can advance individual performance. However, human action is a triple interaction in cognitive, individual factors, environmental events, and behavioral patterns. They all act as common determinants of each other (DeBarr, 2004). Unfortunate consequences of virus outbreak have led to a change in attitude of host community (Gössling *et al.*, 2020) and a difference in their interactions with tourists (Strielkowski, 2020). Significant host-guest interactions at destinations have also been suspended (Thams *et al.*, 2020). Host community is aware of health ethics and treatment standards (Ranasinghe *et al.*, 2020). It seeks to minimize public uncertainty and risk through new behavioral changes (do's and don'ts), led by individual's preferences for visiting destinations (Lapointe, 2020; Shahabi Sorman Abadi *et al.*, 2021) because health, mental and sociophysical of host community have a higher priority than benefits of tourists (Tremblay-Huet, 2020). Covid-19 pandemic is a timely reminder of how it has changed life, work, interaction, people and communities. It raises need to strengthen local systems to prevent infectious diseases as a necessary principle (Foo *et al.*, 2021). When a person travels, safety consequences of past infections, cultural preferences, customs and behavior patterns help him behave intellectually (Wilson, 1995). General precautions by travelers to any high-risk destination can significantly reduce risk of exposure to infectious agents. Behavior, visible aspect of culture, usually has a spatial manifestation.

Posing behavior and cognitive efforts to manage individual needs can be of an external origin (Nicholls *et al.*, 2005). Travel demand has also forced people to adopt coping strategies due to pandemic under unfavorable conditions (Lin and Yusoff, 2013). In current pandemic environment, coping is examined from two paths of physical and mental health, which are either problem-focused (e.g. (planning) or emotion-focused (self-blame) coping approaches). When it comes to confrontation, people want to meet a problem personally without blaming others and are responsible for solving it (Shimazu and Schaufeli, 2007; Zeidner and Saklofske, 1996). Meanwhile, they may use support to prevent hardships on problem-solving pathway. They apply societal supports to lessen depression when coping with challenges. Instrumental supports improve an individual's troubled mood and psyche. It provides a high diversity of information, knowledge and

perspective (Klyver *et al.*, 2018). Instrumental support for advice, assistance or information is a way to deal with stress and chronic illness in order to improve living conditions and personal health and plays an essential role in reducing stress caused by illness (Park *et al.*, 2008).

In tourism sphere, social support involves infrastructure, information centers and tour guides (Berno and Ward, 2005), contributing to tourists' positive psychological results. During crisis, populated countries endangered large tourist communities in various places. In absence of adequate management and supervision of propulsion organizations in crisis prevention, low security for tourists will ultimately increase response performance to multisource stresses and improve mutation (Yin *et al.*, 2019). Covid-19 pandemic, which caused a great deal of damage to tourists' safety and health, will double tendency to adaptability. In a pandemic situation, adopting various coping methods is prevalent.

According to post-pandemic behavior studies, such as Ebola virus, tourism demand has declined over time (Cahyanto *et al.*, 2016). In China, due to SARS epidemic, social distances were applied to avoid contact with people as avoidance behavior during travel (Wen *et al.*, 2005) People with a significant level of psycho-resilience can have avoidance behaviors to protect themselves onward a pandemic and play a planned behavior. Studies posit that people's psycho resilience contributes to moderate losses and increases adaptability toward stressful events such as illnesses caused by pandemics over last two decades (Hou *et al.*, 2010; Li *et al.*, 2015). It is not ended but resilience, which could exist as a personal ethic to play dynamically in protective process of an individual's behavioral intentions raised from their coping methods (Seery, 2011; Stratta *et al.*, 2015).

In our research, Iranian tourists opt for outbound travel to get vaccinated in July 2021 because of ineffectiveness of local vaccination, which seems to be a big problem. Intention is to protect themselves against any stress or reduce tension of not getting vaccinated on time. Personal cognition and information on social media help them diminish fear and take over uncertainty made by administration.

The theory of planned behavior

Concept of theory of planned behavior (TPB) has recently been used in tourism studies to understand tourist behavior using several variables (Ferdous, 2010; Park *et al.*, 2017) depending on tourists' positive or negative reactions (Ajzen, 1991; Rivis *et al.*, 2009). It predicts a person's behaviors and beliefs, raising from individual's perceptions. It is argued that a person, using their resources, capacities and experiences, should control their perceived behavior to carry out a specific behavioral action (Hsu and Huang, 2012). Some of these resources come from tourism enterprises that enable tourists to travel comfortably, including visa exemption, unintentionally attracting international tourism receipts. Visa exemption affects behavior and travel decisions of tourists. According to Lee *et al.* (2010), visa exemption for Korean outbound tourism to Japan since signing an agreement between two countries in 2006 showed that South Korean outbound tourism receipts increased by 37.1% in two years ahead. Visa exemption has strengthened communication between governments and tourists flow, increasing their demand for international travel. Tense pandemic has made tourists behave differently due to potential tourists' lack of confidence and satisfaction in injecting local vaccines in Iran. Considering abolition of travel visas to Iran's neighboring countries, some tourists traveled to Armenia to get vaccinated, as it was unaffordable in Iran: a country that has already been a popular destination for Iranian tourists. Visa exemptions have facilitated access to vaccination. Under influence of mismanagement in health crisis preventive actions, tourists have reshaped outbound tourist trend receiving travel services from target market.

Apart from driver's factors leading to travel intention in current situation discussed as facilitators (Dimoska and Trimcev, 2012), what has exacerbated lack of proper implementation of vaccination is imposition of historic sanctions (European Union (EU), United States (US) and United Nations (UN) council) on citizens of countries such as Iran. Sanction regimes have raised

many concerns about lack of access to vaccine reservoirs (Seyfi *et al.*, 2020). This inequality has made country worse off against Covid-19. Issue of international sanctions as a geopolitical tool restricting mobility is a structure for implementing countries' foreign policies stemming from nationalist thinking of decision-making bodies of developed countries (Seyfi and Hall, 2019a). On other hand, nations are primarily responsible for providing vaccines to their populations. Vaccine nationalism has increased sphere of influence of strong countries as vaccine suppliers. This view does not attend to world's health equity and merely sees vaccine as a market commodity (Katz *et al.*, 2021). Thus, an insufficient supply of vaccines in face of severe boycotts and nationalism co-influenced improper management of vaccine injection process.

Thus, we proposed hypotheses as follows;

H1. There is a relationship between vulnerable vaccination and individuals' uncertainty.

H2. Vulnerable vaccination significantly affects individual's problem-focused coping

H3. Vulnerable vaccination significantly affects individual's social-supported coping (Instrumental)

H4. Individuals' uncertainty affects tourist's adaptive behaviors (affected by competitive profits).

H5. Problem-focused coping affects tourist's adaptive behaviors (affected by competitive profits).

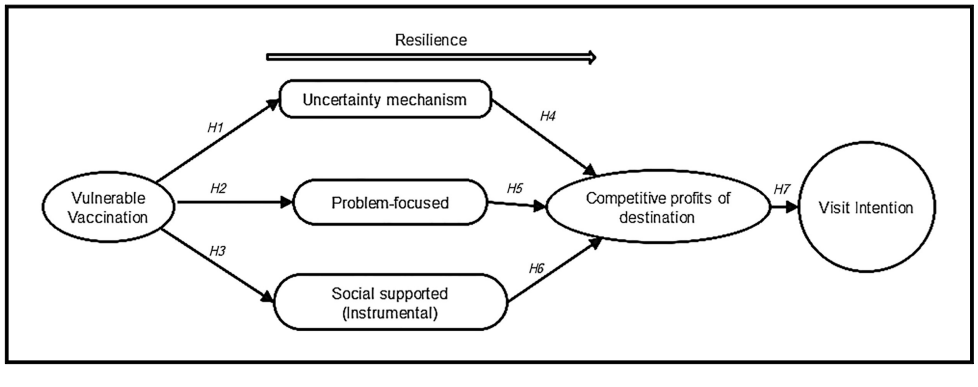
H6. Social-supported coping affects tourist's adaptive behaviors (affected by competitive profits).

H7. Competitive profits affect tourist's visit intention.

Study model

To help understand possible future changes in tourist behavior in context of a health crisis, this study contributed to development of TPB method. According to the research model, visa exemption and competitive profits would motivate travel intention, reshaping and thus influencing behavior. These variables extended theory by re-explaining roles of previously defined predictor forms in extended model. Furthermore, current extended model altered TPB by directing links from vaccination towards attitudes. Original TPB model cannot demonstrate a suitable plate for interpreting connection between potential hypotheses in proposed research model. Therefore, mentioned extended model can determine path to predicting next stages in tourist's travel intention. Built model is shown in Figure 1, focusing on vulnerable vaccination as an independent variable.

Figure 1 The proposed research model



Methodology

Sampling method

The study's population included Iranian outbound travelers who traveled abroad to get vaccinated. We used a convenience sampling structure because valid population information based on population size was not accessible due to the noncredibility of Iranian tourism statistics (Ghaderi, 2015; Seyfi and Hall, 2019b). Possible respondents were invited to complete survey via an Internet link sent to travel bloggers through social media platforms in Iran or directly to respondents. Anonymity and confidentiality of data have also been adhered. Survey was conducted when Iranian travelers were concerned about getting vaccinated on time. Meanwhile, country still suffers from Covid-19 pandemics in summer 2021, with a high death toll after several waves (WHO, 2021). Period was significant for suppositions testing because of domestic vulnerable vaccination process. Of 350 questionnaires obtained, 308 were validated for further analysis.

Questionnaire development and scale measurement

This study analyzed travelers' coping behavior and intention to travel abroad postinvented vaccines. Self-administrated online questionnaires are properly adapted mechanisms for healthy governing roles during pandemics. Apart from demographic variants, in developing survey, paradigms for constructs were adjusted from previous studies to ensure data validity (Tables 1 and 2). Uncertainty' affected by imposed sanctions and lack of sufficient vaccine reservoirs (Seyfi and Hall, 2019a) was used as a single paradigm to know sensations when thinking about traveling abroad to get vaccinated postpandemic (National travel restrictions have been lifted). Measurements for tourists' self-coping methods, including problem-focused and social supported (Zeidner and Saklofske, 1996), were adopted from previous tourism research studies. Competitive profits of destinations were used in present study known as part of a destination marketing program that facilitates travel and increases tourists' satisfaction with destination (Buhalis, 2000; Dimoska and Trimcev, 2012). Travel intention was examined through Khuong and Ha (2014) and Horng *et al.* (2012) studies.

Data analysis

Version 22 of Statistical Package for the Social Sciences (SPSS) software provided descriptive data. partial least squares-structural equation modeling (PLS-SEM) technique was deployed to explore model's rightness and hypothesis testing. Study applied SEM to examine complete models and track assessments (do Valle and Assaker, 2016). Covariance-based structural equation modeling (CB-SEM) develops a theoretical covariance matrix formulated in a specified setting of structural equations. PLS-SEM is established on route and regression analysis (Olya, 2020) and seeks to extend explained variance of latent dependent variables. PLS-SEM has several benefits in investigating intricate models, like reducing parameter assessment preferences, being suitable for various data classes and being slightly susceptible to test size and residual allotments (Henseler *et al.*, 2009). In this research, Smart PLS 3 was utilized to perform examinations.

Table 1 Respondents characteristics

Age	*%*	*Education*		*Sex*		*Marital status*	*%*
<18	1.6	Diploma	4	Female	46.5%	Married	51.3
18–25	16.9	Bachelor	52	Male	53.5%	Single	48.7
25–35	41.9	Master	117		*Travel interests*		
35–55	26.3	PhD	108		More than one	39.9	
55–55	9.1	Other	27		One	21.8	
>55	4.2				Not-interested	38.3	
N = 308							

Table 2 Research constructs and measurements

No	Research constructs	Cross loadings	Cronbach Alpha	CR	AVE
	Vulnerable vaccination		*0.824*	*0.858*	*0.506*
1	I think economic sanctions affect timely vaccination	0.630			
2	I think lack of international financial exchanges with country will affect timely vaccination	0.661			
3	It seems disruption in purchase of Coronavirus medicines affects timely vaccination	0.779			
4	I think economic sanctions are creating inequality in access to corona vaccine	0.763			
5	Vaccine production is a tool for implementing countries' foreign policies	0.821			
6	Indeed, every country is primarily responsible for providing vaccines to its citizens	0.632			
	Uncertainty mechanism		*0.820*	*0.893*	*0.736*
7	I am dissatisfied with general vaccination process in country	0.877			
8	This is the same situation the country faced in previous crisis	0.886			
9	Responsiveness quality might be like previous crisis the country faced	0.808			
	Problem-focused		*0.880*	*0.913*	*0.678*
10	I am afraid I cannot get vaccinated on time	0.665			
11	I plan to travel to another country to get vaccine	0.747			
12	In my opinion, this trip will be both for vaccine injection and touring	0.591			
13	Ultimately, I am responsible for my physical and mental health	0.504			
	Social supported (instrumental)		*0.921*	*0.941*	*0.761*
14	I will get vaccinated in one of neighboring countries	0.917			
15	I think speed and management of vaccine injection is more appropriate in these countries	0.917			
16	Timely vaccination ensures my physical and mental health	0.883			
17	After getting vaccine, I like to walk around city a bit	0.838			
18	Visiting several touristic places boosts my morale and confidence	0.801			
	Competitive profits		*0.901*	*0.927*	*0.717*
19	I prefer this trip to be cheap	0.846			
20	I prefer distance of this trip to be short	0.806			
21	I prefer to have enough air and terrestrial travel path	0.877			
22	I would like to have good travel facilities	0.665			
23	I would like to buy souvenirs after vaccine is given	0.747			
	(Visit intention)		*0.897*	*0.936*	*0.830*
24	I plan to travel to a near place to my country	0.936			
25	I will try to travel to a nearby country, and Covid-19 cannot affect my decision	0.931			
26	I decide to travel to a country without considering Covid-19	0.863			

Results

Demographic analysis

53.5% of study respondents were males, displaying a higher interest in participation than females (Table 1). Majority of respondents had traveled internationally before, according to numbers summed up at 61.7. Figure for those who traveled to more than one country is equal to those not interested in traveling under undisciplined condition of vaccination process, respectively, at 39.9 and 38.3.

Content and convergent facts

Content validity of constructs was initially considered using existing well-established literature and adapting validated constructs from previous research. Convergent, besides discriminant validity, was also deployed to objectify content validity (Ap and Crompton, 1998). Cronbach's alpha, composite reliability (CR) and average variance extracted (AVE) were also used to provide valid results (Ali *et al.*, 2020). Having Cronbach's alpha and CR more than 0.8 (Gefen *et al.*, 2000) and AVE more than 0.5 (Fornell and Larcker, 1981) were faithfully posited. Study reveals that all measures exhibited vital dependability and facts higher than suggested criteria. According to which it is theoretically related, loadings o measurement constructs on their chosen latent variable should be more significant than those of other constructs (Gefen and Straub, 2005).

Discriminant facts

Discriminant validity, except other measures, confirms that a construct uniquely measures a particular criterion and sensation of interest (Foster and Cone, 1995).

Despite sensitivities and questions raised by previous research, Fornell-Larcker criterion cross-loading methods were used for reflective constructs to catch discriminant validity, particularly Heterotrait-Monotrait (HTMT), which is more reliable and proper than other criteria used in prior research (Henseler *et al.*, 2015; Rasoolimanesh, 2022). As HTMT 0.85 and HTMT 0.90 are two notations accepted earlier by authors as predefined thresholds (Clark and Watson, 1995; Kline, 2011; Teo *et al.*, 2008), if HTMT value is higher than threshold, one can argue there is a lack of discriminant validity for constructs. As shown in Table 3, none of variables traveled over HTMT0.9, an absolute threshold level in estimating HTMT values (Henseler *et al.*, 2015), implying measurement standard matches discriminant validity.

Structural model measurement

R^2 and Q^2 both predict model's power along with *t*-values and *p*-values (Henseler *et al.*, 2014). Variance prediction R^2 demonstrates portion of variance defined by exogenous measures (Henseler and Sarstedt, 2013). Explained variance values of 0.19, 0.33 and 0.67 could be interpreted as weak, moderate, and substantial (Cuong, 2020). Q^2, besides R^2, is another evaluating criterion that focuses on prediction power of model (Jafarali and Hajialiakbari, 2019; Stone, 1974). Values more than zero show exogenous variables' predictive power and are disliked if *Q* value is less than zero (Chin, 2010). R^2 and Q^2 variables results are illustrated below in Table 3.

Hypothesis testing (bootstrapping technique–mediation effect analysis)

SPSS and PLS 3 calculated relationship between variables, correlations and path coefficients. Relationship between vulnerable vaccination and individual uncertainty is well established as

Table 3 Discriminant validity of Heterotrait-Monotrait Ratio (HTMT)

	Competitive profits	*Problem focused*	*Social supported*	*Uncertainty mechanism*	*Visit intention*	*Vulnerable vaccination*
Competitive profits						
Problem focused	0.742					
Social supported	0.781	0.770				
Uncertainty mechanism	0.782	0.807	0.688			
Visit intention	0.915	0.923	0.758	0.746		
Vulnerable vaccination	0.696	0.674	0.597	0.693	0.652	

H1 (β: 0.651**, t: 3.276, α 0.001). In H2 and H3, vulnerable vaccination positively affected self-supported emotional coping methods, either problem-focused or social supported respectively (β: 0.674**, t: 34.717, α 0.000) and (β: 0.571**, t: 33.322, α 0.001). In H4 and H5, uncertainty mechanism and problem-focused coping methods were supported. H6 (β: 0.091**, t: 20.491, 0.000) was rejected in testing as shown in Tables 4 and 5. Finally, results showed a positive relationship between competitive profits and visit intention indicated H7 (Figure 2). The mediating variable (Competitive profits) reveals the process through which affects the strength and direction of the variables relationship (Table 6).

Discussion and conclusion

In dealing with crises, tourism has undergone most transformations due to nature of movement of people. Meanwhile, it is critical to conduct research on possible future behaviors in response to new conditions to analyze effective crisis management in developing countries (Hall *et al.*, 2020; Robinson and Novelli, 2005). To understand sociopsychological behavior of tourists, present study measured relationship between uncertainty caused by fragility in vaccination and their planned behavior according to condition. The study defined that fear by itself cannot lead to planned behavior in crisis situation, thereby; For various reasons, fear, worry and uncertainty in decision-making process are preconditions for adopting a planned behavior in a crisis leading to travel (Buhr and Dugas, 2009; Zheng *et al.*, 2022). However, when coupled with various reasons in decision-making process, relocation as a critical pillar of tourism has led to a wave of international travel to meet needs that have nothing to do with primary purpose of tourism (entertainment and sightseeing). Present study investigated relationship between perceived uncertainty in crisis management and appropriate adaptive behaviors. Next, impact of destination country's competitive profits on adaptive behavior that ultimately leads travel intentions of tourists was examined. Current empirical research attempts to understand influence of competitive profits from tourism destination on pandemic crisis and governments' mismanagement in vaccination approach. Except for H6 in testing hypotheses, all were accepted.

With proliferation of various variants of Covid-19 and rapid direction of countries in timely vaccination, our research has shown that vulnerability in local vaccination leads to uncertainty in individuals' future decisions. Besides restrictions discussed earlier, uncertainty is sometimes affected by time delays (Greenleaf and Lehmann, 1995) in formal action of administrations

Table 4 R^2 and Q^2 values

Variables	R^2 *(variance predictor)*	Q^2 *(Relevance intention)*
Competitive profits	0.913	0.399
Problem focused	0.454	0.388
Social supported	0.326	0.475
Uncertainty mechanism	0.424	0.370
Visit intention	0.680	0.471

Table 5 Path coefficient

	p-*value*	t-*value*	*sig()*	*Supported/Rejected*
H1	0.651	3.276	0.001	Supported
H2	0.674	20.491	0.000	Supported
H3	0.571	33.322	0.001	Supported
H4	0.826	12.808	0.000	Supported
H5	0.879	0.528	0.598	supported
H6	0.091	20.491	0.000	Rejected
H7	0.825	34.717	0.000	Supported

Figure 2 PLS path analysis of *t*-values

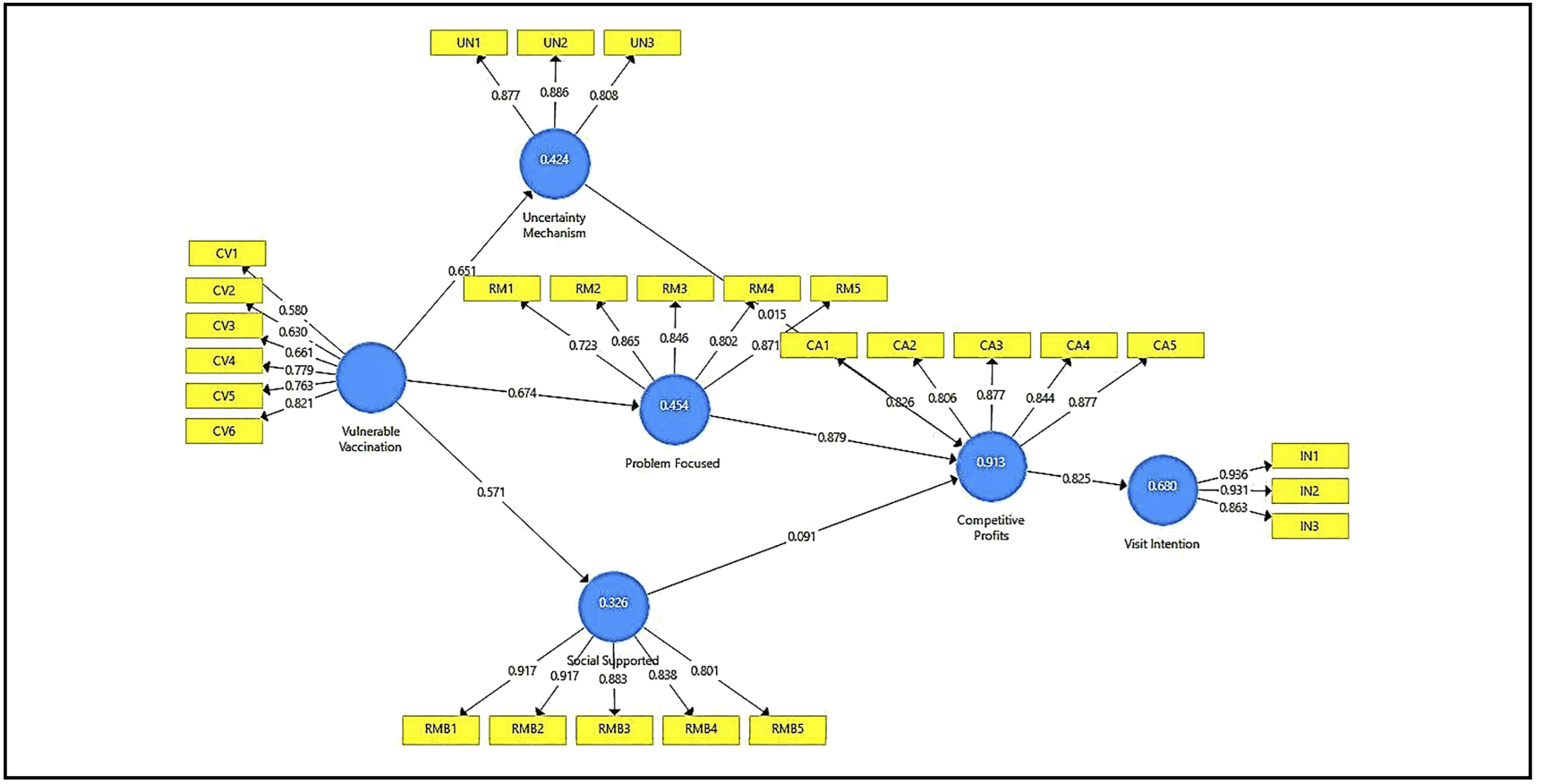


Table 6 Results of hypothesis testing (mediation)

Médiation relationship	*Path coefficient (low vs high competitive Profit)*		*Path coefficient différence*	*p-value difference (one-tailed)*		*Supported*
	Low	*High*		*Henseler's MGA*	*Permutation test*	
IU → AB	0.340	0.610	0.470	0.293	0.295	Yes
PFC → AB	0.210	0.320	0.110	0.162	0.164	Yes
SSC → AB	0.280	0.705	0.425	0.340	0.351	Yes

R^2	*Low competitive profit*	*High competitive profit*	R^2 *difference*
Adaptive behavior	0.294	0.236	0.058

Note(s): IU= Individuals' Uncertainty; PFC= Problem-Focused Coping; SSC= Social-Supported Coping; AB = Adaptive Behavior

based on external causation toward unexpected behavioral shifts (H1) (Walters and Holling, 1990). Findings suggested that individuals reduce stress and respond to pandemic by accepting problem-solving issue. In this way, they used external tools as another arm in decision-making to achieve satisfaction. By achieving more knowledge (Fotis *et al.*, 2011) they try to adopt a decent behavior among available options to address concerns. Support in societal context made by media bodies, either official or unofficial (Zeng and Gerritsen, 2014), consequently contributes to revisiting destinations already experienced if crisis did not exist. Present research admitted that even in a crisis, willingness can be greater for several visits. This may be possible due to impact of Covid-19 pandemic on traveler behavior intention (Chebli and Ben Said, 2020).

Study demonstrated that tourists, if probable, tend to benefit from travel facilitators to relieve perceived threat and fear, which does not necessarily wait for preventive actions in their future travel intentions; thus, travel facilitators, such as visa exemption followed by weak vaccination trends, might attract Iranian outbound tourists to behave typically in popular destinations. Depending on type of perception at origin, pull factors as provisional motives cause different behavioral changes in travel to destination (Bansal and Eiselt, 2004; Khan *et al.*, 2017). People actively managed to meet needs in crisis by focusing on problem towards outbound travel (Shimazu and Schaufeli, 2007) while improving their psycho-resilience (Stratta *et al.*, 2015). Hypothesis 6, contrary to expectation, showed that when it came to instrumental tools to reduce stress and restore mental health, tourists relied on their prior knowledge and not merely government support (local vaccination plan) to get vaccinated. As discussed in travel transportation studies, disabled people could accept autonomous vehicles to relieve stress based on prior knowledge. Disabled individuals might be known as passive people searching for freedom to pass over crisis, and administration plays as such vehicles (Bennett *et al.*, 2019).

Tourists travel to a suitable country with reasonable competitive profits to address their concerns. Profits pulling tourists to a destination due to safety, accessibility and travel facilitators (Vicinity of Armenian international border to Iran, etc.) as crucial attributes to attractions and personal concerns affected by mismanagements in administration, can push them from origin to a destination which has been affirmed earlier in travelers' post-disaster behavior studies (Biran *et al.*, 2014). Our research identified that tourists travel abroad due to accommodations when inefficacy in crisis management accompanies fear of infecting Covid-19. In last hypothesis, despite importance of following health guidelines during pandemic (Mirzaei *et al.*, 2021), as borders opened, respondents stated that they would like to be vaccinated at a destination close to where they live. What strengthens travel intention in crisis is individuals' general knowledge and experience in making decisions. Most of these decisions are subject to administrative records of local government. Before pandemic, unsatisfactory performance of officials (Abbas *et al.*, 2021) increased significantly people's willingness to travel. Of

course, role of deliberate crises (sanctions, etc.) cannot be ignored (Seyfi and Hall, 2020). Our study revealed that tourists in health-related crises do not pay any attention to managerial mechanism of administration. Perceived uncertainty outweighs any unsuitable performance.

Theoretical contribution

Theoretically, this research highlighted significant role of TPB in comprehending tourist behavior, as findings may assist tourism authorities and planners in developing unique tourism products and services based on tourist behavior following health crisis. Additionally, this study's extended research model based on TPB (Figure 1) can be used to investigate tourist behavior during times of health crises while considering a destination's competitive profits. Facilities (e.g. visa exemption and vicinity of borders) can significantly affect ultimate behavior of individuals when dealing with crisis. Such research can make future predictions to assess behavioral transformation of tourists in a particular type of travel. Study showed that external factors (social-instrumental support) in turbulent crises could not significantly affect people's intention to travel. Of course, impact of Covid-19 crisis is incomparable to other health crises in world. It can be interpreted that if there are ways out (infrastructure facilities) from the point of view of individuals, the power of speculation outweighs the perceived fear of crisis. The study found that the psychological preconditions would not necessarily affect any further adapted behavior but intellectual inner pre-thoughts and knowledge followed by experiences.

Practical contribution

In health crisis management, hypotheses such as vulnerability are associated with increased uncertainty, a shift toward problem-solving, and a reliance on social instruments. However, instrumental support is not related to facilities of a destination. Critical reason is that due to importance of proper crisis management in countries, in exceptional cases, where severity of inefficiency is influenced by other factors such as sanctions, etc., appropriate public perception and how to deal with crises become difficult. This is where Iranian government's communication and facilitative role in supporting vaccination in neighboring countries comes into play. On other hand, results showed that individuals depend on their previous experiences to improve their mental and physical health as an essential element of material life and reach a behavioral psycho-resilience. According to findings, it should be noted that destinations with codified executive medical and health infrastructures experience fewer negative consequences during crises, indicating that these destinations will be more competitive in future health crises by providing tourists with incentives and competitive profits (Kaewkitipong *et al.*, 2021), which governments should consider in future tourism reopenings.

Lack of effective communication within the system can increase the tourists' protectionism mechanism. Crisis management at high levels of risk goes beyond the ancillary infrastructure used under normal circumstances and embedded by managers and policymakers. If the accommodation facilities in Iran and Armenia are equal, other variables such as sanctions will disrupt the competitive environment between them. Therefore, the importance of crisis management for such countries will be much higher. The recommendation is that destinations must be timely and prepared when dealing with uncertainty in tourism after health crisis to receive economic benefits regardless of changes in tourist behavior. Thus, governments require an action-oriented framework to continuously monitor unforeseen events and crises. Given that crises can play a part in transforming tourist behavior, findings of this study may assist Destination Management Organizations (DMOs) in developing future tourism scenarios for destinations, as scenario planning allows decision-makers to better understand complexity of future, improve resilience, establish guidelines, and then develop and implement tourism policies (Makian and Nematpour, 2021).

Limitations and future research

Some limitations should be considered. Present study has not investigated behavioral differences between vaccinated and non-vaccinated tourists regarding their planned behavior. Additionally,

findings may not represent all outbound tourists' behavioral patterns to health crises, as study population consists solely of Iranian outbound tourists, a country that has been subjected to sanctions. However, given that future is uncertain, and Covid-19 pandemic remains a crisis for tourism, our study lays groundwork for a more in-depth examination of tourists' planned behavior, providing theoretical direction for future tourist behavioral research.

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Further reading

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