

# Understanding the new post-COVID-19 risk scenario: Outlooks and challenges for a new era of tourism

Teresa Villacé-Molinero<sup>a,\*</sup>, Juan José Fernández-Muñoz<sup>b</sup>, Alicia Orea-Giner<sup>c</sup>,  
Laura Fuentes-Moraleda<sup>a</sup>

<sup>a</sup> Faculty of Social Sciences and Law. Business Economics Department. Rey Juan Carlos University, C/ Camino Del Molino S/n, 28943, Fuenlabrada, Madrid, Spain

<sup>b</sup> Faculty of Health Sciences. Department of Psychology, Rey Juan Carlos University, Avd. Atenas S/n, 28922, Alcorcón, Madrid, Spain

<sup>c</sup> Faculty of Social Sciences and Law. Business Economics Department. Rey Juan Carlos University, Paseo de Los Artilleros S/n, 28032, Vicálvaro, Madrid, Spain

## ARTICLE INFO

### Keywords:

COVID-19  
Travellers' risk perception  
Decision-making process  
Communication strategy  
Reactivation of tourism

## ABSTRACT

This paper explores the new travel risk scenario by analysing travel risk perception during the pandemic and proposes measures to improve traveller confidence based on the issue-attention cycle. The study was conducted during two stages of the pandemic. During the initial stage, travellers' decision-making process was studied to learn why travellers chose to maintain or cancel travel plans and what variables influenced their travel risk perception. An online survey was conducted with data collected from 1075 travellers residing in 46 countries (52 nationalities). The second stage of the study started at the beginning of de-escalation in Europe. A qualitative study was conducted in which 28 international hospitality experts were interviewed. They were asked about specific measures to encourage tourism from a global perspective. The results help tourism authorities and companies better understand tourist behaviour and provide concrete measures for restarting tourism.

## 1. Introduction

The COVID-19 pandemic is an event without precedent in our lifetime. It has disrupted the economic, financial and social systems of most countries, and its short- and long-term consequences will be difficult to appraise. With the unparalleled introduction of travel restrictions across the world, the UNWTO (2020b) expects that international tourist arrivals will be 20–30% lower in 2020 than in 2019. Movement restrictions started in China. In early February 2020, 59 airline companies suspended or limited flights to mainland China, and several countries (United States, Russia, Australia and Italy) imposed government-issued travel restrictions (Chinazzi et al., 2020).

Due to the magnitude of the pandemic, one of the aspects that might be worth studying is the behavioural change linked to the perception of the risk posed by COVID-19. According to the protection motivation theory, the evaluation of the severity of a threat is one of the cognitive processes behind the decision to engage in protective behaviour (Parady, 2020; Rogers and Pretince, 1997). Given the importance of behavioural factors in managing pandemics, it is crucial to assess behavioural responses to the situation and determine how perceived risk

is linked to engagement in protective behaviors (Wise et al., 2020).

This study is carried out from a global perspective. It is based on the issue-attention cycle (Downs, 1972, p. 38; Shih et al., 2008) reports the findings of both quantitative and qualitative studies. The quantitative study looks at traveller's viewpoint. It examines the decision-making process to learn why travellers maintain or cancel their travel plans and what variables influence their travel risk perception under a scenario in which the travels were still possible in many European and American countries.

The quantitative study was started at the beginning of the health crisis in Europe, which coincided with the second stage of the issue-attention cycle when restrictions in most countries were still low-key. Different types of people had different perceptions of the risk posed by the pandemic (Kozak et al., 2007) and thus, different ways of deciding whether to travel or cancel plans. For example, during the first few weeks of March, some tourists decided to maintain their travel plans (despite the initial restrictions and the authorities' social isolation recommendations), while others, perceiving a higher risk, chose to cancel. Uncertainty in these early stages of the pandemic caused a greater need for information and communication (Gursoy, 2019) whether from

\* Corresponding author.

E-mail addresses: [teresa.villace@urjc.es](mailto:teresa.villace@urjc.es) (T. Villacé-Molinero), [juanjose.fernandez@urjc.es](mailto:juanjose.fernandez@urjc.es) (J.J. Fernández-Muñoz), [alicia.orea@urjc.es](mailto:alicia.orea@urjc.es) (A. Orea-Giner), [laura.fuentes@urjc.es](mailto:laura.fuentes@urjc.es) (L. Fuentes-Moraleda).

<https://doi.org/10.1016/j.tourman.2021.104324>

Received 16 July 2020; Received in revised form 21 January 2021; Accepted 24 March 2021

Available online 1 April 2021

0261-5177/© 2021 The Authors.

Published by Elsevier Ltd.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

official or non-official sources (e.g., programmes broadcast by the media or messaging with families and friends). So, travel decisions were strongly influenced by information from news and social media (Fan et al., 2018; Gössling et al., 2020; Kantar, 2020; Kristiansen et al., 2007) and travellers' risk perception. Given the continual spread of COVID-19 around the world, a better understanding of travellers' behaviour and decision making in the early stages will enable strategies to be implemented quickly, and it may moreover prove instructive for countries assessing their strategies' effectiveness at preventing large-scale epidemics (Wang et al., 2020). Nevertheless, there is limited evidence on reactions to prior pandemics in the early stages when preventative measures are most necessary (Bish & Michie, 2010) as well as a clear need to provide researchers and practitioners with a better understanding of how individuals, communities, and even nations should prepare for and respond to such calamities (Burns & Slovic, 2012). Only recent research (Wise et al., 2020) has approached this field.

The qualitative study, on the other hand, explores the viewpoint of experts from the tourism industry at the beginning of de-escalation in Europe. The goal of this second study is to learn what international experts think about the measures needed to reactivate the tourism business, restore traveller confidence and thus reduce risk perception.

The specific research questions (RQs) are:

RQ1. Has travel risk perception changed after the onset of the COVID-19 crisis?

RQ2. What variables influence travel risk perception and therefore tip the decision to maintain or cancel a trip in the early stages of the pandemic?

RQ3. Is previous travel experience an influential factor in the travellers' decision-making process in a pandemic situation?

RQ4. Which type of communication has more influence on travellers' decision-making processes at an early stage of a pandemic?

RQ5. What are the main recommendations that countries should follow in order to maintain confidence and trust?

## 2. Theory

### 2.1. The issue-attention cycle and the stages of the COVID-19 crisis

On December 31, 2019, pneumonia of an unknown cause was detected first in Wuhan, China, and reported to the local WHO office (UNWTO, 2020c). One month later, the World Health Organization (WHO) declared the viral outbreak a public health emergency of international concern. The most effective way to contain a viral outbreak inside a country is to avoid close contact at the individual level and social meetings (Remuzzi & Remuzzi, 2020). A variety of measures was accordingly implemented worldwide to reduce the spread of the virus, and, with the rise in COVID-19 cases in an increasing number of countries (beginning in Europe with Italy and Spain), the number of travel restrictions grew as well (UNWTO, 2020d). At the beginning of the crisis, two main categories of travel restrictions were observed, destination-specific travel restrictions aimed at passengers coming from a country that had confirmed COVID-19 cases, and visa restrictions (UNWTO, 2020a). On May 18, 2020, the UNWTO (2020d) identified four broad categories of travel restrictions in place at 217 destinations. The main restrictions were: a) complete or partial border closure (85% of destinations); b) suspension of flights (5%); c) destination-specific travel restrictions (5%) and d) various measures (5%), such as quarantine or self-isolation for 14 days, visa measures or submission of a medical certificate upon arrival.

While recent research findings show that early countrywide lockdown seems to be the key to containing the disease (Cheng & Khan, 2020; Kraemer et al., 2020), other studies (Chinazzi et al., 2020) indicate that travel restrictions to COVID-19-affected areas have modest effects. That transmission reduction intervention provides the most significant benefit for mitigating the epidemic. It is difficult to calculate

the exact level of traffic reduction imposed by these measures (Chinazzi et al., 2020). Nevertheless, global travel restrictions and stay-at-home orders are the measures that have caused the most severe disruption of the global economy (Gössling et al., 2020), and that disruption has hit the tourism industry hard. According to the International Civil Aviation Organization (ICAO, 2020) the possible outcome of the impact of COVID-19 on global passenger traffic scheduled for the entire year 2020, compared to the baseline (originally planned situation), would be an overall reduction ranging from 32% to 59% of the seats offered by airlines and a general reduction from 1815 to 3213 million passengers. This represents a potential loss of approximately USD 236 to 419 billion in gross airline operating income. This also affects other sectors; Cruise Lines International Association (2020) reports that from mid-March, when the suspension of cruise operations began, until the end of September, the worldwide impact will be a loss of USD 50 billion in economic activity, 334,000 jobs and USD 15 billion in wages.

Under these circumstances, the World Economic Forum (WEF, 2020) demands that all stakeholders, especially global businesses, must urgently come together to minimise the impact on public health and limit its potential for further disruption to lives and economies around the world.

The literature discusses several kinds of tourism crises, like terrorist attacks and natural disasters (Cossens and Gin, 1994; Hall, 2011; Mansfeld, 1992; Roehl & Fesenmaier, 1992). However, only a few researchers have explicitly investigated health-related crises (Yu et al., 2020).

Authors such as Hall (2002), Shih et al. (2008) and Downs (1972, p. 38) have identified the stages after a crisis, dividing the various stages of an issue, problem or risk perception into an 'issue-attention cycle'. Research suggests a similar cycle with a five-stage pattern, although in a different realm of application (terrorist attacks, health epidemics, ecology). These stages reflect the relationship between risk perception and the influence of media communications during the crisis.

Downs' (1972) initial proposal of the issue-attention cycle referred to the ups and downs of the attention an environmental issue receives, either from the public or from mass media. Downs (1972, p. 38) was followed by Shih et al. (2008), who took the issue-attention cycle as a theoretical framework for examining how print media frame public health epidemics. They studied the patterns of media attention to the avian flu, the West Nile virus and the mad cow disease, and identified potential similarities and differences. The phases of the issue-attention cycle spanning the stages of the COVID-19 crisis are the following:

- a) '*Pre-problem stage*': The problem exists but has not drawn much public attention. Only a small proportion of experts or interest groups are aware of it. This phase covered the months when the disease was known in China, but other countries perceived a low probability of infection.
- b) '*Alarmed discovery and euphoric enthusiasm*': Public awareness is raised, and the problem is discovered, but awareness is often accompanied by the optimistic belief that taking certain measures will suffice to solve the problem within a relatively short time. This stage covered the expansion of the virus to other continents, beginning with Europe. The first travel restrictions were implemented in this phase. According to the consumer sentiment findings by McKinsey and Company (2020) (using information from China, Italy, Spain, the UK and the US), consumer optimism is higher at the start/end of a pandemic and varies between countries (Gössling et al., 2020). The quantitative research reported in this paper falls within this early phase.
- c) '*Realisation of the cost of significant progress*': The third stage starts when people begin to realise that the cost (in terms of economics, social benefits, etc.) of solving the problem is beyond their estimate or the extent they are willing to tolerate. The tourism industry gauges the size of its losses due to the pandemic, and measures for national and international recovery begin to be proposed. The qualitative

research presented in this paper falls within this phase, with the resumption of tourism.

- d) '*Gradual decline of intense public interest*': During the fourth stage, public interest in the problem gradually wanes. This stage begins when the virus is found to be fading, and the risk perception has lessened.
- e) '*Post-problem stage*': In this final stage, the issue has been replaced by other concerns and is subject to 'spasmodic recurrences of interest' (Downs, 1972, p. 38, pp. 39–40). Once the virus is under control (due to vaccine or containment), other political and economic topics reclaim their space in the media.

Therefore, the issue-attention cycle of the COVID-19 crisis is influenced by awareness of the severity of the disease, risk perceptions that affect the travel decision-making process and attitudes toward the disease, which are mainly influenced by what is available in the media.

This is in line with the results obtained by Wise et al. (2020), showing that, during the first week of the pandemic (March 11th–16th 2020), although most individuals are aware of the risk caused by the pandemic to some extent, they typically underestimate their personal risk relative to that of others; an example of optimism bias. Their results also point to candidate targets for intervention in public information campaigns during pandemics on this scale. Clear communication of risk could aid the development of accurate risk perception, in turn facilitating engagement in protective behaviours. Also, results from Parady et al. (2020) suggest that in the context of non-binding requests, soft measures, such as campaigns to promote a reduction of non-essential travel, might be more effective if they (i) properly convey the severity of the threat posed by COVID-19 as well as its coping mechanisms, and (ii) appeal to the group, rather than the individual, emphasising the behaviour (or at least the perception of behaviour) of others.

The potential influence of perceived health risk on the travel behaviour of tourists posts the COVID-19 crisis in relation to the first two stages of the decision-consumption process (Matiza, 2020), whereby COVID-19 induced perceived risk will most likely influence tourists' decisions before they decide to travel to a particular destination. This is supported by previous literature stating that health risk predicts tourist information seeking and the decision-making stage of tourist behaviour (Chien et al., 2017; Matiza, 2020). Chien et al. (2017) revealed that individuals' level of worry plays a significant role in determining their travel health risk perceptions. Specifically, the more worried individuals are about potential risk events, the higher their level of perceived travel risk.

Specifically, health epidemic research (Shih et al., 2008) shows the amount of news coverage covariates with the number of infected cases and with the type of government actions taken: different stages in the media attention cycle reflect different narrative considerations, and this pattern varies with the disease. Yu et al. (2020) propose that future research could focus on the quarantine-induced issues of epidemic crises and their implications for travel planning and decision making.

## 2.2. The travel decision-making process under pandemic circumstances: cancelling or maintaining travel plans

The issue of health advice to tourists is complicated by a range of factors which have a significant impact on the perceived level of risk (Lawton and Page, 1999). This is even more complicated under a pandemic scenario at a global scale that is positively modifying tourist travel patterns. As Page (2009) pointed "yet, we cannot manage risk out of tourism" (Page, 2009, p. 157). Risk perceptions affect the travel decision-making process (Roehl & Fesenmaier, 1992; Sönmez, Apostolopoulos and Tarlow, 1999; Sönmez & Graefe, 1998a). Tourists perceive travel risks differently (Floyd & Pennington-Gray, 2004).

The literature confirms that travel decision making is influenced by travellers' external information search (Gursoy & Chen, 2000; Gursoy & Umbreit, 2004; Lawton and Page, 1999). Gursoy et al. (2018) verify that

the level of risk that travellers perceive during the process of deciding whether to travel to domestic and/or international tourist destinations determines whether they use more personal information or online information sources. International travellers use more personal information sources (such as friends and family, travel agents, print travel magazines and print tour guides) than online sources.

Communication style also affects travel decisions. Kozak et al. (2007) conclude that tourism authorities should provide more transparent information on risk incidents in their regions if they are keen on attracting more visitors with a higher level of confidence. However, media sensationalism has a negative impact on perceptions of destination safety (Sönmez & Graefe, 1998b). After receiving communications, some tourists do not alter their travel plans, and some change them, some delay them and some cancel (Hajibaba et al., 2015). In this new scenario, communication plays a crucial role, not only in mitigating the effects of disasters but also as a form of cultural entertainment. Loftstedt (2010) suggests that risk communication enables the causal connectiveness between two or more factors to be intellectualised. This intellectualisation process involves multiple stakeholders or social actors, and transcends the boundaries of nationhood, taking on international repercussions. Mass media create a feeling that the world is an insecure place to be.

Another factor affecting the travel decision-making process is traveller type. Cohen (1972) identified four types of international tourists based on their preferences for either familiarity or novelty: the organised mass tourist, the individual mass tourist, the explorer and the drifter. Lepp and Gibson (2003) researched how the perception of risk associated with international tourism varies depending on the tourist's role and preferences for familiarity or novelty. According to Kozak et al. (2007), experienced visitors perceive less risk than inexperienced visitors. Inexperienced international travellers appear to be sensitive to any kind of risk (terrorist attack, natural disaster or infectious disease) at their potential destination. Experienced travellers are likely to base their decisions on an internal search (Fodness & Murray, 1999). Pearce (1996) established that less-experienced travellers are more concerned over potential safety-related risks and health (Lepp & Gibson, 2003). Reisinger and Mavondo (2005) confirmed that perceptions of health risk have a significant influence on the perceived level of safety.

In addition to experience, a traveller's culture and nationality are also identified as influential factors in the travel decision-making process. Kozak et al. (2007) identified five levels of travel experience (inexperienced; not very experienced; about average; experienced; very experienced). People from risk-tolerant cultures are less likely to cancel their travel plans (Kozak et al., 2007). Asian tourists, for example, perceive risk levels as higher than do Western tourists (Law, 2006).

## 3. Method

### 3.1. Sample and procedure

#### 3.1.1. Quantitative study

The population of the study was people who wanted to make a national or international trip during the next months, not being necessary that the trip was already booked. The initial sample in each geographical area was selected, taking into account tourist with different gender, purchasing power, and traveller profile. So that each participant invites other individuals similar to him or her to participate in the research, thus guaranteeing the representation of any type of traveller in the research.

Data were obtained by launching an e-questionnaire addressed to travellers, who were asked a various question related to their level of risk as perceived before and after the COVID-19 outbreak and their reasons for travelling or cancelling their international travel plans. The questionnaire was distributed over an international survey platform (Google Forms) and a China-specific survey platform (Changsha WJX) due to inaccessibility of Google in China. The sampling method was the exponential version of snowball sampling. With this version, each

participant invites other individuals to participate. This technique was chosen because it provides ways of communicating with populations that are hard to reach (Johnston & Sabin, 2010) or the size of the complete network is unknown or very large (Pattison *et al.*, 2013). In our case, it was difficult, if not impossible, to identify all the national and international tourists that had either cancelled or gone ahead with their travel plans. Therefore, the population was unknown, and it was impossible to apply a probabilistic sampling method. The main limitation of snowball sampling is its sensitivity to sampling biases. Sampling biases may occur when the initial group selection is not diverse enough. In order to reduce this limitation, a group of travellers from different countries with different ages and social positions was created, enabling the rest of the groups that were generated to have the same characteristics. According to Handcock and Gile (2010), one of the procedures for carrying out snowball sampling is a design-based approach that attempts to assess specific population-level network characteristics in a way that makes no particular assumptions about the form of the network. Despite its limitations, snowball sampling is considered an appropriate tool for exploring travellers' decision-making processes under pandemic circumstances. The data were collected between March 10, 2020 and March 25, 2020.

The final sample was made up of 1075 tourists from several countries (participants from different continents: Europe 44.3%, Asia 45.5%, North America: 4.7%, South America: 4.6%; Oceania: 0.8% and Africa: 0.1%). The most represented were the continents where the first cases began. The sample members were 60.6% females and 30.4% males. Their average age was 31.94 (SD = 13.04) with an age range of 18–80 years. In terms of education level, 1.6% had less than high school education, 8.7% had completed high school, 19.8% had attended a college/university, 46.5% had completed a university degree, and 23.4% had completed a postgraduate degree. Regarding the income, 37.5% earned less than €9,000, 35.5% earned between €9001 and €27,000, 15.4% earned between €27,001 and €45,000 and 11.6%, more than €45,001. Of all respondents, a majority share (66%, 710 individuals) decided to cancel their planned trip, while only 13.7% (147 individuals) decided to go ahead. The rest of the sample (20.3%) had no plans to travel in the following months.

By traveller type (Cohen, 1972), the sample was made up of 18.6% organised mass tourists, 53.7% individual mass tourists, 23.3% explorers and 4.4% backpackers. In terms of the level of experience (Kozak *et al.*, 2007), 11.1% were self-considered inexperienced; 20.5%, not very experienced; 32.4%, about average; 25.2%, experienced and 10.9%, very experienced.

### 3.1.2. Qualitative study

At first 50 international experts from the tourism industry were contacted for interviews, but, due to availability issues as the crisis reached its peak, 28 experts were ultimately interviewed. The selection criterion was based primarily on having representation from both public and private organisations at both national and international levels. The initial sample also included institutes and associations related to tourism quality. Secondly, companies from the main tourism sub-sectors were selected in order to cover all sectors and areas of tourism. The first participants were contacted directly by the researchers, and later they themselves facilitated additional suitable individuals through horizontal networking (Geddes *et al.*, 2018). The sample was selected according to a number of criteria (national/international scope, sector of the tourism industry, position and experience), in the attempt to cover all sectors and areas of tourism. Interviewees' occupations ranged from mid-level positions to executive positions, at businesses and organisations related to the tourism industry.

The final sample of 28 experts, was composed by nine public organisations (six at Spanish organisations and three at international organisations), and five leading Spanish tourism institutes and associations affiliated with the UNTWO. The other fourteen were private companies in various sectors of the tourism industry: six intermediaries/

distributors, three hotel owners, one transport professional, two tourist consultants, one employee of a tourism technology provider and one employee of a media outlet specialising in the tourist industry.

Due to the Spanish government's mobility restrictions, the 28 interviews were conducted by telephone and by remote systems (Microsoft Teams). Several studies confirm this method's strengths when used to collect data for qualitative analysis in a range of sectors and consider telephone interviewing a valid, effective methodology (Cachia & Millward, 2011; Holt, 2010). The interviews were conducted from May 22, 2020 to June 8, 2020, at the beginning of de-escalation in Europe.

## 3.2. Instruments

### 3.2.1. Quantitative study

The travellers' questionnaire contained six sections. The first section concerned the tourist's profile: type of traveller and level of experience (Cohen, 1972; Kozak *et al.*, 2007). The second section inquired into the impact of COVID-19 on travel intentions. The third section evaluated travel risk perception through questions related to the probability of catching an infectious disease and the magnitude/level of threat (Kozak *et al.*, 2007). The fourth section contained questions related to the decision-making process: reasons for carrying on with or cancelling the planned trip and the factors influencing the decision (types of communication that influenced the decision (Kozak *et al.*, 2007) and measures that strengthened confidence). The fifth section included questions related to change in risk perception before and after COVID-19 and the intention to travel in future. The last section addressed sociodemographic items (age, nationality, residence, gender, annual income and education) (see appendix).

The original version of the English questionnaire was also translated into Chinese by a native researcher. A pre-test was done with a group of 35 international travellers to detect possible mistakes. A total of 1075 useable questionnaires was collected from international visitors.

### 3.2.2. Qualitative study

For the qualitative study, a script designed to unify the interview criteria was used for the sole purpose of guiding the interviews. The interviews lasted a mean of approximately 45 min.

The semi-structured interview was prepared in advance, as recommended (Corbetta, 2007), following the category map constructed on the basis of the major areas of measures proposed by international organisations (UNWTO and WHO). Nine categories of measures were set out, in two levels: a) overall measures (cross-country coordination, financing and tax measures, health safety measures, employment measures) and b) industry-specific measures (certification, use of technology, communication, organisational changes and human resource management).

## 3.3. Analysis

### 3.3.1. Quantitative study

A binary logistic model, also known as a logit model, was implemented using SPSS 25.0 statistics software (IBM Corp, 2017). We used the generalised linear model (glm) function, where the binomial particularity of the dependent variable is specified as a parameter (family = 'binomial').

For the first logit, the model included three groups of variables concerning why the tourist did not cancel the trip. The first group contained variables related with the main reasons for maintaining the trip (I had already paid for it; Prices were lower at the destination; There were fewer people at the destination; It was for work reasons and I couldn't cancel it; I didn't think the risk was high enough to cancel it). The second group contained variables related to the confidence factors and the influence of communications received, for instance, government communications, insurance and rules.

Similarly, for the second logit regression (analysing why the tourist

did cancel the trip), three groups of variables related to the main reasons for cancellation were included. The first group held variables related with the main reasons for cancelling the trip (Because the country or the airport was closed; Because of the government’s recommendation not to travel; Due to a personal disease; Due to the uncertainty of the trip; For fear of getting sick). The second group and third group contained the same variables as in the first logit regression.

3.3.2. Qualitative study

The interviews were transcribed in full to record the complete contents of the discourse. The information was subsequently processed using the Nvivo 12 program. The analysis was conducted according to Navarro and Díaz’s (1999) recommendations. Recording units were made up of sentences or paragraphs clearly discernible on the basis of syntactic criteria (full stop, new paragraph), semantic criteria (change of concept under discussion) and pragmatic criteria (turns at speaking or changes of dynamics). The correlations among the nine identified categories of the study were analysed (Pearson’s correlation coefficient). Next, the most frequent terms in the nine categories were detected on the basis of the 50 most frequent words in the interviews. The results were placed in the dendrogram form (see Fig. 1). Highly correlated words are grouped together as a hierarchy of clusters (Chen et al., 2017).

4. Results

4.1. Quantitative results

Various analysis techniques were applied to achieve the objective of the study and find answers to the research questions. First of all, the relationship between intention to cancel or maintain the trip and several variables related to traveller type, experience and travel risk perception was analysed (see Table 1). Significant relationships were found with probability of infection ( $X^2 = 16.86, p < .01$ ), level of threat ( $X^2 = 17.42, p < .01$ ), travel again ( $X^2 = 19.38, p < .01$ ) and nationality ( $X^2 = 14.36, p < .01$ ). The percentages are given in the column for each of the variables (intention to cancel or not to cancel the trip).

To analyse the set of variables that explain the reasons for cancelling or not cancelling the trip, Student’s t-test for related samples was applied to check the influence of infectious disease on the perception of travel risk before and after COVID-19. Significant differences were found ( $t = -21.30, p < .01$ ) for travel risk perception before and after COVID-19 ( $M_{before} = 3.25, SD = 1.38, Range = 1-5, M_{after} = 4.02, SD = 1.08, Range = 1-5$ ).

Table 2 describes the output of the logistic regression for the intention to maintain the trip: no perceived risk ( $W = 6.689, p < .05$ ), communication delivered over special programs on COVID-19 ( $W = 7.245, p < .01$ ), communication or news read on social networks ( $W = 9.981, p < .01$ ), personal recommendations from health professionals ( $W = 5.526, p < .05$ ), confidence in communications from local government about personal safety and security ( $W = 10.893, p < .01$ ) and confidence in protection measures ( $W = 8.454, p < .01$ ). This means that these variables (confidence in communications from local government about personal safety and security, personal recommendations from health professionals and no perception of risk) have a positive impact on the probability of maintaining travel plans, while communications delivered by special programs on COVID-19, communications or news read on social networks and confidence in protection measures have a negative impact. The strongest impact belongs to confidence in communications from local government about personal safety and security, which appears to be more important than the rest of the variables; the Nagekerke  $R^2$  value for this model was 0.74. This means, for instance, that persons who have great confidence in communications from local government about personal safety and security are more likely to carry through with their travel plans.

Table 3 describes the output of the logistic regression for the intention to cancel the trip: confidence in communications from local

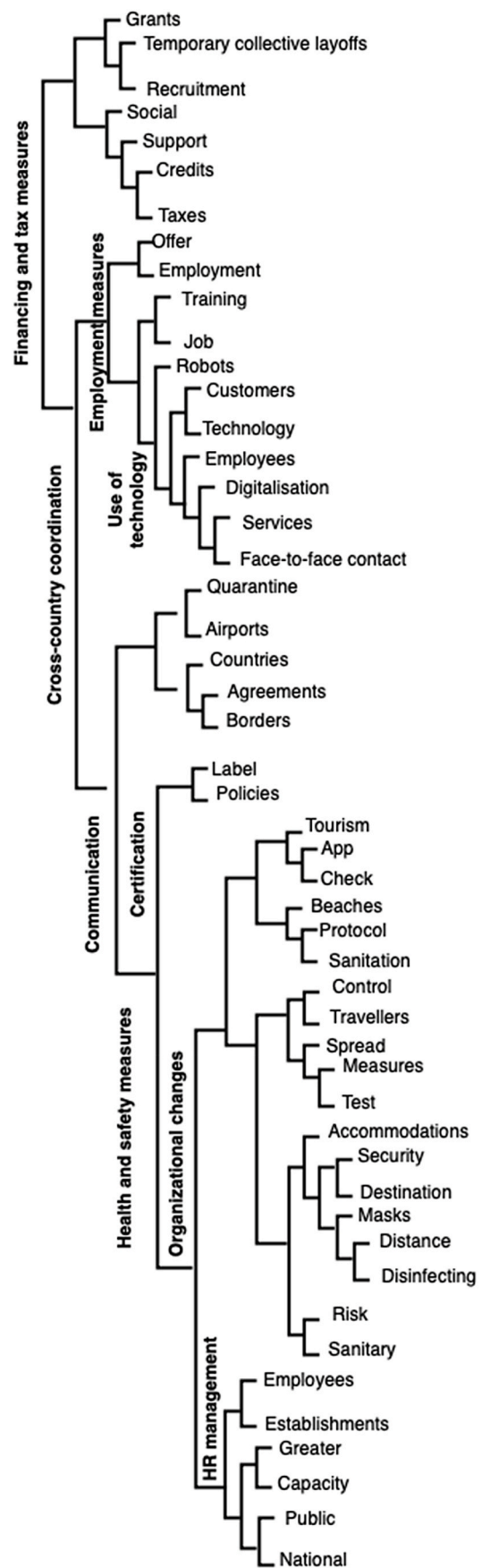


Fig. 1. Dendrogram of the proposed measures for restarting tourism.

**Table 1**  
Relationships between intention to cancel the trip and traveller type, experience, probability of infection and threat level.

Variables		CANCEL (%)	NO CANCEL (%)	X <sup>2</sup> test	p value
Traveller type	Organised mass tourist	16	14.5	2.08	.554
	Independent mass tourist	55.2	50.8		
	Explorer	25.7	29.8		
Experience	Backpacker	3.1	4.4	2.29	.682
	Inexperienced	9.1	10.5		
	Not very experienced	19.4	16.1		
	About average	33.4	33.9		
	Experienced	27.4	25.0		
Probability of infection	Very low	34.9	52.4	16.86	.002*
	Low	15.5	14.5		
	Medium	22.3	18.5		
	High	11.1	8.1		
	Very High	16.3	6.5		
Threat level	Very low	35.2	54.0	17.42	.002*
	Low	16.8	15.3		
	Medium	21.5	15.3		
	High	13.8	9.7		
	Very High	12.7	5.6		
Travel again	In 1 month	5.6	2.9	19.38	.002*
	In 2 months	12.1	9.3		
	In 3 months	24.2	16.9		
	In 4 months	16.1	10.7		
	In 5 months	12.9	9.9		
	In 6 months	29.0	50.2		
Nationality	European	75.5	59.6	14.36	.001*
	Asian	13.6	27.0		
	Other	10.9	13.4		
Gender	Male	29.3	34.7	4.94	.084
	Female	70.7	65.3		

**Table 2**  
Logit regression for the intention to maintain the trip (n = 147).

	B	Wald	Sig.
NO_PERCEIVED_RISK	.482	6.689	.010
COMMUNI_SPECIALPROG	-.750	7.245	.007
COMMUNI_SOCIAL_NETWORKS	-.823	9.981	.002
PERSONAL_RECOMM_HEALTH_PROFESSIONAL	.528	5.526	.019
CONF_GOVERN	1.162	10.893	.001
CONF_PROTECT	-1.216	8.454	.004
Constant α	2.380	6.053	.014
Nagelkerke R Square 0.744			

p < .05.

**Table 3**  
Logit regression for the intention to cancel the trip (n = 710).

	B	Wald	Sig.
CONF_GOVERN	-.902	5.490	.019
CANCEL_RECOMMEND	.634	3.082	.079
Constant α	3.291	5.217	.022
Nagelkerke R Square 0.341			

p < .05.

government about personal safety and security increases (W = 5.490, p < .05) while confidence in the government’s recommendation to cancel declines (W = 3.082, p < .10). This means that confidence in communications from local government about personal safety and security has a negative impact on a traveller’s likelihood of cancelling travel plans, and government recommendations to cancel, have a positive impact on the likelihood of cancelling travel plans. Here again, the greatest impact

belongs to confidence in the government. The Nagelkerke R<sup>2</sup> value for this model was 0.341. This means lower confidence in government increases the probability of a traveller’s cancelling a planned trip.

4.1.1. Qualitative results

The analysis shows that the foremost measures professionals propose for reactivating the tourist industry are financial and tax measures, cross-country coordination and coordinated communication of health and safety measures. Among the general measures, the relationship between the ‘cross-country coordination’ category and the ‘health and safety measures’ category is highly significant.<sup>1</sup> Industry professionals are asking for WHO-coordinated uniform measures at the international level, related to the opening of borders and airport health check protocols. These measures must not be taken only pro tem, but must remain in place for the duration, to avert outbreaks and fresh epidemics, the experts say.

‘There is an urgent need for coordinated agreements on international travel and standardised, common pre-trip health check protocols that are the same at all airports of origin.’

‘Standard protocols need to be put out there, so travellers can internalise measures and get used to them, the same as they did with metal detectors.’

‘Cross-country coordination measures’ are also related to ‘communication’.<sup>2</sup> Experts consider it important to communicate health and safety measures, both domestic and international (airports, borders, quarantine, etc.), and industry-specific points (industry protocols, certification, etc.).

‘Communication by public authorities is fundamental. The information is changing, and the level of uncertainty about the future is very high, so public authorities have got to convey current, real, reliable information. To bring down tourists’ perceived risk level.’

‘It’s necessary to strengthen health and hygiene protocols and create more abundant, better, more positive communication. We aren’t trying to turn the hospitality industry into a healthcare business, because a, we can’t, and b, it wouldn’t make sense for us to try. We must facilitate the conditions to reduce our industry’s risks as much as possible, but guests have got to understand that travelling entails certain risks we can’t entirely neutralise for them. That’s why I emphasise both institutional communications and sales-oriented communications.’

The need for coordination includes the coordination of countrywide quarantines. Industry experts feel quarantines for arrivals in the country need to be eliminated because they put a damper on international tourism. Asymmetrical quarantines are particularly controversial since they cause political problems between countries and make citizens unhappy. Such is the case of Spain and the United Kingdom: British citizens may enter Spain without having to quarantine, but they must quarantine when they return home.

‘As an incentive for tourism, no tourist finds a potential quarantine a doable thing.’

In the ‘financing and tax measures’ category, tourism professionals are worried about the industry’s urgent need for liquidity. They ask for subsidies, tax breaks, tax deferrals, flexible loans, and low-interest or in some cases zero-interest credit facilities until the industry stabilises. For example, Germany has reduced its VAT rate to support the tourism and hospitality industry. Elsewhere new businesses (including start-ups in the tourism industry) are benefiting from financing plans that cater to

<sup>1</sup> r = 0.969, p < .05.

<sup>2</sup> r = 0.881, p < .05.

their special needs. Portugal has 'Mezzanine Funding for Startups COVID19', which gives COVID-19 start-ups that have already received investment a shot of extra liquidity through convertible debt instruments. China has passed a fund designed specifically to provide travel agencies with refunds, and local Chinese authorities have been asked to refund travel agencies' service quality deposits as a means of easing some of the pressure on their cash flow.

'I think, instead of just providing aid (and let's be realistic: It takes a long time to get it, and it's no good as a life preserver. Lots of companies in hospitality go under before their aid arrives), measures ought to have an immediate effect, reducing taxes, blocking rent payments, outstanding loan payments ... until the real aid comes through.'

'Reducing floor space and capacity is not economically feasible. Lots of companies won't be opening this summer if they don't get some aid. Opening halfway means operating at a loss.'

'Financial and tax measures' have a positive correlation with 'employment measures'.<sup>3</sup> The interviewees also think it is fundamental to create aid for staff training and to encourage people to work from home. To help domestic tourism get back on its feet, the experts propose measures such as reducing the working week to four days, following the example of countries like New Zealand.

'Good, trust-based telecommuting requires working from home, KPI consultancies and tracking. And for that processes have to be digitalised. And for that you need aid.'

'Fostering working from home or shorter weeks can help families find the time for short getaways inside the country. The problem is that as long as a significant slice of the population is jobless, they don't have money to travel, and they can't plan a holiday they don't know if they'll ever be able to take, because they may well have to go back to their jobs.'

Employment measures are also related to the use of technologies.<sup>4</sup> The experts see the use of technologies in reactivating tourism as a positive thing. They think technology is especially useful for performing repetitive tasks handling a large volume of data (such as cleaning, access control and time limits). They feel technology can also help customise the offer and run proximity marketing, which favours local tourism. However, the interviewees think using robots as a health measure to reduce contact and therefore the spread of the virus would entail a loss of jobs or run counter to the industry's service philosophy.

'Technology can help us, but not just with the pandemic. It enables us to automate low value-added processes, get through red tape more painlessly, win back quality time we can spend serving and interacting with our clients, but I don't see it as able to replace a human being yet in creating the kinds of emotions that make a difference.'

Among the industry-specific measures for reactivating tourism, experts stress the need for tourism companies to make organisational changes to adapt to the new situation and enable health measures that will bring down the amount of risk tourists perceive (re-organization of spaces, safety protocols, flexibility over cancellations, etc.). For instance, Bulgaria has prepared guidelines for accommodation providers. The Spanish Secretary of State of Tourism and the Spanish Tourism Quality Institute (ICTE) have together created the Safe Tourism Certification system, an official guarantee that certified participants comply with the Ministry of Health's COVID-19 Health Risk Prevention System. National, regional and local public sector representatives participated in the development process, along with representatives

from private business and trade unions. The ministry has also issued a series of guides to help hotels, golf courses, campgrounds, travel agencies and other industry members reduce the spread of the coronavirus. Nevertheless, industry professionals are concerned that they cannot offer complete safety, despite the measures they have taken. Furthermore, they regard the measures as unfeasible and unprofitable.

'Most of the measures they propose in hotels are unfeasible. If a group with three busloads of Chinese guests rolls in (not one, because there are space restrictions now), do we make them stand in line for check-in and disinfection? How long a line is that? How many people do we need on staff to make it run smoothly?'

'We're not hospitals. We can't guarantee total safety. Guests will travel if they perceive a low risk, and if we post a doctor in the hall checking people, that won't make our safety image any better. It may even work the other way. The only thing that encourages guests to book is if they can cancel free of charge.'

'Organisational changes' influence 'human resource management' directly.<sup>5</sup> To make the necessary changes, tourism industry professionals demand flexible nationwide measures to encourage hiring, so they can afford to take on more staff: tax breaks for rehiring former employees, support for flexitime and flexible hiring arrangements, measures that foster entrepreneurship and innovation in the tourism industry. The Spanish government has relaxed the conditions employers have to meet for temporary collective layoffs and has introduced measures to help extend the working season for permanent seasonal employees in tourism and tourism-related business and hospitality sectors.

'The first thing is for companies to have a management that's committed to making the necessary change this situation is thrusting on us.'

'Rigidity in the labour area will make it hard to create jobs at a time when lots of companies aren't going to be opening their doors in 2020 and lots of others will pull down their shutters permanently.'

In the area of 'human resource management', there is also concern over 'health and safety measures' aimed at protecting not just tourists, but employees.

'All kinds of meaningless seals are popping up, which are only endangering employees' and customers' health and creating a false expectation of safety.'

We observe, then, that 'organisational changes' are also related to the 'certification'<sup>6</sup> of virus-free establishments. Opinions are divided on the subject; while some interviewees think an outside evaluation of health protection systems are a guarantee for tourists and therefore reduce tourists' risk perception, others feel certificates are only good for giving the establishment a positive image and in the worst of cases increase business owners' expenses.

'I'm not a fan of safety certification seals, because you can't guarantee the virus isn't still out there somewhere.'

'The first measure is for the authorities to acknowledge and attach some positive difference to those establishments that can prove they've taken measures to protect their employees and tourists. The SAFE CERTIFIED seal is an example, but the reason it's an example is that it's based on a third-party evaluation system.'

Analysis of the measures the experts propose shows strong interrelationship among all the categories, as shown in Fig. 1 and confirmed by

<sup>3</sup>  $r = 0.943$ ,  $p < .05$ .

<sup>4</sup>  $r = 0.916$ ,  $p < .05$ .

<sup>5</sup>  $r = 0.971$ ,  $p < .05$ .

<sup>6</sup>  $r = 0.941$ ,  $p < .05$ .

the Pearson coefficients yielded by Nvivo. This proves there is a need for coordination of both general measures and specific measures aimed at the tourism industry.

## 5. Conclusion and discussion

The COVID-19 outbreak has created a new, hitherto unthinkable risk scenario. It has forced the world to reconsider how we live, work, think and travel. Traditional assumptions about and methods for managing risks may need to be modified and adapted to the constraints and challenges created by the global COVID-19 pandemic. This new scenario is likely to have a lasting impact on tourism for months, if not years, to come.

As the pandemic has evolved, world destinations have relaxed the travel restrictions they introduced at the beginning of the pandemic, when the study was carried out. The destinations with the highest scores in the health and hygiene indicators and in the environmental performance index were those that eased restrictions the fastest. However, new international restrictions are being rolled out in response to the appearance of new strains of the virus and different security measures are being implemented accordingly.

Restarting tourism is highly important for countries that are highly economically dependent on this industry. There are economic reasons pushing countries to reopen, but at the same time, the risk of fresh outbreaks is high, and science has yet to find an effective solution for combatting the virus. It is therefore very important to learn how travellers reach their decisions so that when a global pandemic is underway, travellers will have transparent, reliable communications on which to base optimal travel decisions, striking a balance between the need for travel and the risk involved. Moreover, learning what measures would be most effective at restarting tourism after a worldwide pandemic situation is crucial for the tourist destinations of the world.

Risk perceptions are situation-specific and therefore, should be evaluated using context-specific measures (Roehl & Fesenmaier, 1992). Most countries have adopted economy-wide stimulus packages (tax and monetary measures) along with job support measures (UNWTO, 2020e).

Our results confirmed that travel risk perception has changed after the COVID-19 crisis (RQ1).

Changes in travel behaviour are expected, and these changes will demand innovation-based responses from destinations and tourism companies. These new circumstances have defined a new 'perceived risk' scenario and better comprehension of how travellers perceive risk is crucial in order to provide solutions that reduce the perceived risk. Among other factors, vaccines may play a decisive role in reducing travel risk perception. This will depend on their efficacy and above all their equitable international distribution.

Our results highlight the importance of the communication and the risk assessment given to the tourists at the pre-travel stage (Page, 2009). Results show that media coverage plays a crucial role in the relationship between risk perception and travel intention (Neuburger & Egger, 2020). In a pandemic scenario, travel decision making is influenced mainly by confidence in communications from local government about personal safety and security (RQ2). Unofficial communications delivered by special programmes on COVID-19 or social networks, and confidence in protection measures, however, have a negative impact on the decision to go ahead with travel plans. In this line, results from Neuburger and Egger (2020) also conclude that the intention to avoid or cancel travel during a pandemic, such as COVID-19, is highly related to risk perception to travel in general, and especially to destinations with reported cases, increased perceived susceptibility to get infected by COVID-19 while travelling, and self-efficacy leading to actions to mitigate any risk and avoid travel. Authors suggest that DMOs should provide information and education about their risk reduction measures to restore people's confidence to travel again. Concerning communication strategies, "tourism organisations mostly follow the objectives of governments and health organisations to primarily reduce the community

spread of the virus. However, it is also important to focus on reducing tourists' travel risk perception in order to allow the industry to bounce back quicker once the threat of COVID-19 decreases" (Neuburger and Egger, p.10, 2020).

In other words, what really increases the likelihood of a person's maintaining their travel plans is trust in official communications from government officials and health professionals, plus the person's personal risk perception (RQ4). These results highlight the need for robust risk communication (Husnayain et al., 2020). According to the WHO (2020), one of the major lessons learned during major public health events of the 21st century is that risk communication, engagement readiness and response to coronavirus disease are integral to the success of responses to health emergencies. Pandemics will very likely influence traditional decision-making processes (Chell, 2013), communication and conflict management (Aldairany et al., 2018). The impact of deploying a communication strategy with toolkits would enhance efforts to empower the public, enable consumers to become better informed and give them a more knowledgeable, personally confident position from which to take decisions and act—in line with public health measures (Depoux et al., 2020; Lawton and Page, 1999). Proper information urgently needs to be provided during outbreaks, through risk communication. Appropriate risk communication can help prevent 'infodemics' (World Health Organization, 2020) or an excessive amount of information circulating in affected populations which might induce public restlessness or panic (Husnayain et al., 2020).

Risk communication is rooted in risk perception (Lofstedt, 2010). The literature states that the public perceives some risks differently from others for reasons including degree of control, catastrophic potential and familiarity (Fischhoff et al., 1978; Slovic, 1987). Our research also confirms differences in travel cancellation decisions depending on the traveller's perception of the risk posed by the probability of infection, the threat level, the traveller's own nationality (Kozak et al., 2007; Law, 2006) and the intention to travel in following months. However, unlike other papers (Cohen, 1972; Kozak et al., 2007), our study reveals that traveller type, travel experience and gender are not related with the decision to maintain or cancel planned trips during the COVID-19 pandemic (RQ3). In the case we studied, the magnitude and international scope of the epidemic confirm the need for individual analysis of each crisis situation and context-specific measures. Such measures could provide a more detailed picture of perceived risks and lead to risk-reducing strategies (Mitchel and Vassos, 1998).

When asked about the main recommendations countries should follow to restart tourism, the experts we interviewed stressed the urgent need for financial and tax measures and the necessity of inter-country coordination, to offer coordinated communications about health and safety measures (RQ5). Interviewees felt that measures should be taken uniformly across the globe under WHO coordination, and they called for coordination in the opening of borders and uniform health control protocols for airports. To avoid fresh outbreaks and epidemics, the interviewees advised that the hoped-for uniform international measures should not be temporary, but should remain in place.

Industry professionals also confirm how important communication is for tourists who are taking travel decisions. They feel communications from public authorities are the key to reducing the number of risk tourists perceive as existing. To accomplish this, public authorities and private business must all be transparent in communicating the real pandemic situation and the health and hygiene protocols to follow.

The tourism industry urgently needs financing and tax measures to survive. Otherwise, many small businesses will go under, because aid is simply not reaching the sector. The industry demands tax reductions, tax deferrals, more-flexible loans and credit facilities at low-interest rates. The tourism industry calls for flexibility in hiring, more teleworking and financial aid for staff training. While technology is considered an interesting option for slowing down the virus's expansion, the experts say technology can only be applied to mass data wrangling or tasks that do not have a high added value. The use of robots is advised against



because robots cannot inspire the kinds of distinctive emotions the tourism industry is all about.

Furthermore, the industry is concerned about the health protocols they have to introduce. These protocols require organisational changes and are often regarded as unfeasible to put into practice because they require increased staff (reducing the business's profitability even more) and lengthen customer service times (leading to dissatisfaction and recommendations against travelling until the crisis has passed). Certification, too, is a source of debate. While many countries and companies have embraced certification in the belief that third-party audits guarantee that good health control techniques are being used, some industry professionals feel the only thing certification accomplishes, apart from increasing the industry's expenses, is to improve the image of the country or the establishment, because the certification cannot guarantee complete safety.

## 6. Limitations and further research

This empirical investigation had certain limitations. Because the study dealt with an unknown international population and required information to be obtained urgently in a short, highly mutable period, a probabilistic sampling method could not be applied. However, despite this limitation and the fact that the qualitative research is not extrapolative, both studies have some value as bases for further research.

The research labours under certain limitations due to its inclusion of a quantitative study and a qualitative study, as the two data collections are somewhat diverse in terms of both context and timing.

The changing nature of the Covid-19 situation makes it difficult to stay abreast of the latest results. There are countries in different waves, with different types of control measures and different economic capabilities for tackling vaccination, and as a result, the international recovery will be slow and uneven. Due to this scenario, further analyses of travel risk perception at different stages of the pandemic are needed.

## Credit author statement

Teresa Villacé-Molinero: Conceptualization, Methodology, Investigation, Resources, Data curation, Writing – review & editing. Laura Fuentes-Moraleda: Conceptualization, Methodology, Investigation, Resources, Data curation, Writing – original draft. Juan Jose Fernandez-Muñoz: Formal analysis. Alicia Orea-Giner: Formal analysis.

## Impact statement

The COVID-19 crisis have defined a new 'perceived risk' scenario. Understanding how travellers perceive risk is crucial to provide solutions that reduce the perceived risk. Changes in travel behaviour are expected, and these changes will demand governments responses in order to improve travellers' trust and to support their decision making process.

Both quantitative and qualitative results show that, in a pandemic scenario, travel decision making is influenced mainly by confidence in communications from local government about personal safety and security. Unofficial communications delivered by special programs on COVID-19 or social-networks and confidence in protection measures, however, have a negative impact on those tourists who decide to go ahead with travel plans.

Findings can help the managers of hospitality companies and destination management organisations better understand tourist behaviour in the face of COVID-19, with a view to possible future outbreaks.

## Declaration of competing interest

None.

## Acknowledgements

The authors would like to thank all the private companies, national and international tourism organisations and institutes that participated in the study for their collaboration, despite being carried out in very difficult times for them.

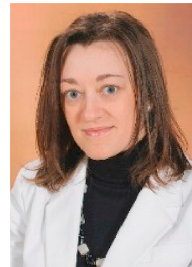
## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.tourman.2021.104324>.

## References

- Aldairany, S., Omar, R., & Quoquab, F. (2018). *Systematic review: Entrepreneurship in conflict and post conflict. Journal of entrepreneurship in emerging economies*. <https://doi.org/10.1108/JEEE-06-2017-0042>
- Bish, A., & Michie, S. (2010). Demographic and attitudinal determinants of protective behaviours during a pandemic: A review. *British Journal of Health Psychology*, 15(4), 797–824.
- Burns, W. J., & Slovic, P. (2012). *Risk perception and behaviors: Anticipating and responding to crises. Risk analysis*.
- Cachia, M., & Millward, L. (2011). The telephone medium and semi-structured interviews: A complementary fit. *Qualitative Research in Organizations and Management: An International Journal*. <https://doi.org/10.1108/17465641111188420>
- Chell, E. (2013). Review of skill and the entrepreneurial process. *International Journal of Entrepreneurial Behavior & Research*. <https://doi.org/10.1108/13552551311299233>
- Cheng, S. O., & Khan, S. (2020). Europe's response to COVID-19 in March and April 2020—A letter to the editor on "world health organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19)" (Int J surg 2020; 76: 71–6). *International Journal of Surgery*, 78(3). <https://doi.org/10.1016/fj.ijisu.2020.04.011>
- Chen, F. W., Guevara Plaza, A., & Alarcon Urbistondo, P. (2017). Automatically extracting tourism-related opinion from Chinese social media. *Current Issues in Tourism*, 20(10), 1070–1087. <https://doi.org/10.1080/13683500.2015.1132196>
- Chien, P. M., Sharifpour, M., Ritchie, B. W., & Watson, B. (2017). Travelers' health risk perceptions and protective behavior: A psychological approach. *Journal of Travel Research*, 56(6), 744–759.
- Chinazzi, M., Davis, J. T., Ajelli, M., Gioannini, C., Litvinova, M., Merler, S., & Viboud, C. (2020). The effect of travel restrictions on the spread of the 2019 novel coronavirus (COVID-19) outbreak. *Science*, 368(6489), 395–400.
- Cohen, E. (1972). Toward a sociology of international tourism. *Social Research*, 164–182. <https://www.jstor.org/stable/40970087>.
- Corbetta, P. (2007). *Metodología y técnicas de investigación social*. McGraw-hill.
- Cossens, J., & Gin, S. (1995). Tourism and AIDS: The perceived risk of HIV infection on destination choice. *Journal of Travel & Tourism Marketing*, 3(4), 1–20. [https://doi.org/10.1300/J073v03n04\\_01](https://doi.org/10.1300/J073v03n04_01)
- Cruise Lines International Association. (2020). Retrieved on October 2020 <https://cruising.org/es-es/cruise-industry-covid-19-facts-and-resources#infographic>
- Depoux, A., Martin, S., Karafillakis, E., Preet, R., Wilder-Smith, A., & Larson, H. (2020). *The pandemic of social media panic travels faster than the COVID-19 outbreak*. <https://doi.org/10.1126/science.aba9757>
- Downs, A. (1972). *Up and down with ecology: The issue attention cycle* 'The public interest (summer)
- Fan, V. Y., Jamison, D. T., & Summers, L. H. (2018). Pandemic risk: How large are the expected losses? *Bulletin of the World Health Organization*, 96(2), 129. <https://doi.org/10.2471/FBLT.17.199588>
- Fischhoff, B., Slovic, P., Lichtenstein, S., Read, S., & Combs, B. (1978). How safe is safe enough? A psychometric study of attitudes towards technological risks and benefits. *Policy Sciences*, 9(2), 127–152. <https://doi.org/10.1007/BF00143739>
- Floyd, M. F., & Pennington-Gray, L. (2004). Profiling risk perceptions of tourists. *Annals of Tourism Research*, 31(4), 1051–1054.
- Fodness, D., & Murray, B. (1999). A model of tourist information search behavior. *Journal of Travel Research*, 37(3), 220–230. <https://doi.org/10.1177/F004728759903700302>
- Geddes, A., Parker, C., & Scott, S. (2018). When the snowball fails to roll and the use of 'horizontal' networking in qualitative social research. *International Journal of Social Research Methodology*, 21(3), 347–358. <https://doi.org/10.1080/13645579.2017.1406219>
- Gössling, S., Scott, D., & Hall, C. M. (2020). Pandemics, tourism and global change: A rapid assessment of COVID-19. *Journal of Sustainable Tourism*, 1–20. <https://doi.org/10.1080/09669582.2020.1758708>
- Gursoy, D. (2019). A critical review of determinants of information search behavior and utilisation of online reviews in decision making process (invited paper for 'luminaries' special issue of International Journal of Hospitality Management). *International Journal of Hospitality Management*, 76, 53–60. <https://doi.org/10.1016/j.ijhm.2018.06.003>
- Gursoy, D., & Chen, J. S. (2000). Competitive analysis of cross cultural information search behavior. *Tourism Management*, 21(6), 583–590. [https://doi.org/10.1016/S0261-5177\(00\)00005-4](https://doi.org/10.1016/S0261-5177(00)00005-4)

- Gursoy, D., Del Chiappa, G., & Zhang, Y. (2018). Impact of destination familiarity on external information source selection process. *Journal of Destination Marketing & Management*, 8, 137–146. <https://doi.org/10.1016/j.jdmm.2017.02.004>
- Gursoy, D., & Umbreit, W. T. (2004). Tourist information search behavior: Cross-cultural comparison of European Union member states. *International Journal of Hospitality Management*, 23(1), 55–70. <https://doi.org/10.1016/j.ijhm.2003.07.004>
- Hajibaba, H., Gretzel, U., Leisch, F., & Dolnicar, S. (2015). Crisis-resistant tourists. *Annals of Tourism Research*, 53, 46–60. <https://doi.org/10.1016/j.annals.2015.04.001>
- Hall, C. M. (2002). Travel safety, terrorism and the media: The significance of the issue-attention cycle. *Current Issues in Tourism*, 5(5), 458–466. <https://doi.org/10.1080/13683500208667935>
- Hall, C. M. (2011). *Health and medical tourism: A kill or cure for global public health?* *Tourism review*. <https://doi.org/10.1108/16605371111127198>
- Handcock, M. S., & Gile, K. J. (2010). Modeling social networks from sampled data. *Annals of Applied Statistics*, 4(1), 5.
- Holt, A. (2010). Using the telephone for narrative interviewing: A research note. *Qualitative Research*, 10(1), 113–121. <https://doi.org/10.1177/F1468794109348686>
- Husnayain, A., Fuad, A., & Su, E. C. Y. (2020). Applications of google search trends for risk communication in infectious disease management: A case study of COVID-19 outbreak in taiwan. *International Journal of Infectious Diseases*. <https://doi.org/10.1016/j.ijid.2020.03.021>
- Interational Civil Aviation Organization (ICAO). (2020). *Material de orientación de servicios de tránsito aéreo en UN CONTEXTO de COVID-19*. Retrieved October 2020: [https://www.icao.int/NAACC/Documents/COVID19/20200601\\_2%20Air%20Traffico%20Services%20Guidance%20Material%20for%20Operation%20in%20a%20COVID-SP.pdf](https://www.icao.int/NAACC/Documents/COVID19/20200601_2%20Air%20Traffico%20Services%20Guidance%20Material%20for%20Operation%20in%20a%20COVID-SP.pdf).
- Johnston, L. G., & Sabin, K. (2010). Sampling hard-to-reach populations with respondent driven sampling. *Methodological innovations online*, 5(2), 38–48. <https://doi.org/10.4256/Fmio.2010.0017>
- Kantar. (2020). *Coronavirus outbreak's impact on China's consumption*. Retrieved 15th May, 2020 from <https://mp.weixin.qq.com/s/OptUHteL3zGVHahnDolRDg>.
- Kozak, M., Crotts, J. C., & Law, R. (2007). The impact of the perception of risk on international travellers. *International Journal of Tourism Research*, 9(4), 233–242. <https://doi.org/10.1002/jtr.607>
- Kraemer, M. U., Yang, C. H., Gutierrez, B., Wu, C. H., Klein, B., Pigott, D. M., & Brownstein, J. S. (2020). The effect of human mobility and control measures on the COVID-19 epidemic in China. *Science*, 368(6490), 493–497. <https://doi.org/10.1126/science.abb4218>
- Kristiansen, I. S., Halvorsen, P. A., & Gyrd-Hansen, D. (2007). Influenza pandemic: Perception of risk and individual precautions in a general population. Cross sectional study. *BMC Public Health*, 7(1), 48. <https://doi.org/10.1186/1471-2458-7-48>
- Law, R. (2006). The perceived impact of risks on travel decisions. *International Journal of Tourism Research*, 8(4), 289–300. <https://doi.org/10.1002/jtr.576>
- Lawton, G., & Page, S. (1997). Evaluating travel agents' provision of health advice to travellers. *Tourism Management*, 18(2), 89–104.
- Lepp, A., & Gibson, H. (2003). Tourist roles, perceived risk and international tourism. *Annals of Tourism Research*, 30(3), 606–624. [https://doi.org/10.1016/S0160-7383\(03\)00024-0](https://doi.org/10.1016/S0160-7383(03)00024-0)
- Lofstedt, R. E. (2010). Risk communication guidelines for Europe: A modest proposition. *Journal of Risk Research*, 13(1), 87–109. <https://doi.org/10.1080/13669870903126176>
- Mansfeld, Y. (1992). From motivation to actual travel. *Annals of Tourism Research*, 19(3), 399–419. [https://doi.org/10.1016/0160-7383\(92\)90127-B](https://doi.org/10.1016/0160-7383(92)90127-B)
- Matiza, T. (2020). Post-COVID-19 crisis travel behaviour: Towards mitigating the effects of perceived risk. *Journal of Tourism Futures*.
- McKinsey and Company. (2020). *Global surveys of consumer sentiment during the coronavirus crisis, Special Collection*. Retrieved 5th June, 2020 from: <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/global-surveys-of-consumer-sentiment-during-the-coronavirus-crisis>.
- Navarro, P., & Díaz, C. (1999). *Análisis de contenido, Cap. 7. Métodos y técnicas cualitativas de investigación en ciencias sociales*. Madrid: Síntesis.
- Neuburger, L., & Egger, R. (2020). Travel risk perception and travel behaviour during the COVID-19 pandemic 2020: A case study of the DACH region. *Current Issues in Tourism*, 1–14.
- Page, S. J. (2009). Current issue in tourism: The evolution of travel medicine research: A new research agenda for tourism? *Tourism Management*, 30(2), 149–157.
- Parady, G., Taniguchi, A., & Takami, K. (2020). Travel behavior changes during the COVID-19 pandemic in Japan: Analysing the effects of risk perception and social influence on going-out self-restriction. *Transportation Research Interdisciplinary Perspectives*, 7, 100181.
- Pattison, P. E., Robins, G. L., Snijders, T. A., & Wang, P. (2013). Conditional estimation of exponential random graph models from snowball sampling designs. *Journal of Mathematical Psychology*, 57(6), 284–296.
- Pearce, P. L. (1996). Recent research in tourist behaviour. *Asia Pacific Journal of Tourism Research*, 1(1), 7–17. <https://doi.org/10.1080/10941669708721959>
- Reisinger, Y., & Mavondo, F. (2005). Travel anxiety and intentions to travel internationally: Implications of travel risk perception. *Journal of Travel Research*, 43(3), 212–225. <https://doi.org/10.1177/F0047287504272017>
- Remuzzi, A., & Remuzzi, G. (2020). COVID-19 and Italy: What next? *The Lancet*. [https://doi.org/10.1016/S0140-6736\(20\)30627-9](https://doi.org/10.1016/S0140-6736(20)30627-9)
- Roehl, W. S., & Fesenmaier, D. R. (1992). Risk perceptions and pleasure travel: An exploratory analysis. *Journal of Travel Research*, 30(4), 17–26. <https://doi.org/10.1177/004728759203000403>
- Rogers, R. W., & Prentice-Dunn, S. (1997). *Protection motivation theory*.
- Shih, T. J., Wijaya, R., & Brossard, D. (2008). Media coverage of public health epidemics: Linking framing and issue attention cycle toward an integrated theory of print news coverage of epidemics. *Mass Communication & Society*, 11(2), 141–160. <https://doi.org/10.1080/15205430701668121>
- Slovic, P. (1987). Perception of risk. *Science*, 236(4799), 280–285. <https://doi.org/10.1126/science.3563507>
- Sönmez, S. F., & Graefe, A. R. (1998a). Determining future travel behavior from past travel experience and perceptions of risk and safety. *Journal of Travel Research*, 37(2), 171–177. <https://doi.org/10.1177/F004728759803700209>
- Sönmez, S. F., & Graefe, A. R. (1998b). Influence of terrorism risk on foreign tourism decisions. *Annals of Tourism Research*, 25(1), 112–144. [https://doi.org/10.1016/S0160-7383\(97\)00072-8](https://doi.org/10.1016/S0160-7383(97)00072-8)
- UNWTO. (2020a). *Covid - 19 related travel restrictions A global review for tourism*. First report as of 16th April 2020. Retrieved 20th April, 2020 from: [https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-04/TravelRestrictions\\_0.pdf](https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-04/TravelRestrictions_0.pdf).
- UNWTO. (2020b). *Covid - 19 related travel restrictions A global review for tourism*. Second report as of 28th April 2020. Retrieved 30th April, 2020 from: [https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-04/TravelRestrictions\\_0.pdf](https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-04/TravelRestrictions_0.pdf).
- UNWTO. (2020c). *Covid - 19 related travel restrictions A global review for tourism*. Third report as of 8th May 2020. Retrieved 10th May, 2020 from: [https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-04/TravelRestrictions\\_0.pdf](https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-04/TravelRestrictions_0.pdf).
- UNWTO. (2020d). *Covid - 19 related travel restrictions A global review for tourism*. Fourth Report as of 29th May 2020. Retrieved 1st June, 2020 from: <https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-05/TravelRestrictions%20-%2029%20May.pdf>.
- UNWTO. (2020e). *Covid - 19 tourism recovery technical tourism package*. Retrieved 15th May, 2020 from: [https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-05/COVID-19-Tourism-Recovery-TA-Package\\_8%20May-2020.pdf](https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-05/COVID-19-Tourism-Recovery-TA-Package_8%20May-2020.pdf).
- Wang, C. J., Ng, C. Y., & Brook, R. H. (2020). Response to COVID-19 in taiwan: Big data analytics, new technology, and proactive testing. *Jama*, 323(14), 1341–1342. <https://doi.org/10.1001/jama.2020.3151>
- Wise, T., Zbozinek, T. D., Michelini, G., & Hagan, C. C. (2020). *Changes in risk perception and protective behavior during the first week of the COVID-19 pandemic in the United States*.
- World Economic Forum, W. E. F. (2020). <https://www.weforum.org/platforms/covid-action-platform>.
- World Health Organization. (2020). *Coronavirus disease (COVID-19) advice for the public*. Retrieved 20th April, 2020 from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>.
- Yu, M., Li, Z., Yu, Z., He, J., & Zhou, J. (2020). Communication related health crisis on social media: A case of COVID-19 outbreak. *Current Issues in Tourism*, 1–7. <https://doi.org/10.1080/13683500.2020.1752632>



**Teresa Villacé Molinero** PhD in Advanced Marketing and Master in Strategic Marketing from the Universidad Autónoma de Madrid. She is currently Associate Professor of Tourism Marketing and Information Technology applied to tourism management at the Universidad Rey Juan Carlos, for both undergraduate and graduate students. In the field of academic management, she has worked as Coordinator of the Degree in Tourism at the Universidad Rey Juan Carlos for 5 years. She has worked as Marketing Director in a company specialized in strategic consulting and management in hotel chains (Meliá, Barceló). Her main areas of work have been focused on consumer behaviour, the use of technology (robots) and gender.



**Juan José Fernández-Muñoz** Juan Jose Fernández Muñoz holds a Ph.D. in Social Psychology and is professor of Social Psychology at Rey Juan Carlos University from 2007. He has also been a visiting lecturer in Coimbra University in Portugal. His main research interest in the field of Social Psychology is the methodology of behaviour sciences.



**Alicia Orea-Giner** Alicia Orea-Giner is a lecturer at Rey Juan Carlos University and supervisor of master's theses at the Université Paris 1 Panthéon-Sorbonne. She holds a PhD in Tourism from Rey Juan Carlos University and a PhD in Geography from Université Paris 1 Panthéon-Sorbonne. She holds a Master in Sustainable Tourism and ICT from the Universitat Oberta de Catalunya and a master's in management and Leadership of Cultural Projects from Rey Juan Carlos University. She is a member of the Openinnova research group and an associate researcher at the Équipe Interdisciplinaire de Recherches sur le Tourisme at Université Paris 1 Panthéon-Sorbonne.



**Laura Fuentes-Moraleda** Laura Fuentes has a PhD in Social Sciences from UNWTO and Nebrija University and she is Associate Professor of Tourism Market Analysis and Tourism Planning at Rey Juan Carlos University, both for undergraduate and postgraduate levels. In the past fifteen years her professional activity has been linked to the field of tourism destination management, and she has contributed to activities related to development and sustainable projects in tourist destinations in European and Latin American countries, while working with domestic agencies, public and private. Deputy director at Tourism Studies Centre in Rey Juan Carlos University and Co Director of International Tourism Management Master. Her research topics are related focused on tourism and hospitality sector. Specifically, with the consumer behaviour, management, innovation and technologies (AI and Robots) applied in hospitality.