



# The Psychological Consequences of COVID-19 Pandemic in Tourism Sector: A Systematic Review

*\*Ladan Rokni*

*Asia Contents Institute, Konkuk University, Seoul, South Korea*

**\*Correspondence:** Email: rokni.ladan@gmail.com

(Received Mar 2021; accepted 11 May 2021)

## Abstract

**Background:** The COVID-19 pandemic-induced changes have threatened the psychological wellbeing of travelling. This review aims to appraise a range of perceived psychological variables used to realize how the pandemic has influenced tourist behavior.

**Methods:** A systematic review was conducted to identify the mechanisms behind tourists' behavioral change during the pandemic. The papers were extracted from four databases: PubMed, SCOPUS, Web of Science, and EMBASE, published since 2020 to 2021. The results are summarized narratively due to the heterogeneity of the studies.

**Results:** A total of 369 citations were identified through an electronic search of databases, of which nine publications met the inclusion criteria. The extracted information determines the significant factors contributing to the psychological changes of travelling behavior during the pandemic.

**Conclusion:** The tourists' perception of COVID-19 has influenced the intentions and motivation in the tourism sector and has changed travel behavior. The mental health outcome of travelling has been replaced by globally recognized fear and anxiety. Yet, there are several motivators to travel during the pandemic. At the same time, the socio-demographic characteristics contribute to all the identified changes.

**Keywords:** COVID-19 pandemic; Psychological wellbeing; Mental wellbeing; Tourism; Travel

## Introduction

Psychological wellbeing is not a new research topic in medicine and social science. But the outbreak of Coronavirus (COVID-19) has dramatically shifted the attention of researchers from different perspectives to search on the impacts of the pandemic on mental health and wellbeing. The long term effects of COVID-19 is not yet known, but the short term effects do not seem 'promising or encouraging' (1). Besides the sever-

al health warnings announced by the WHO, there has been a global call to attention on the importance of mental health during the worldwide health crisis. On 18 March 2020, the Department of Mental Health from the WHO has published an issue on 'mental health and psychosocial considerations during the COVID-19 outbreak' (2), and since then, this organization has reported the



Copyright © 2021 Rokni. Published by Tehran University of Medical Sciences.  
This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International license  
(<https://creativecommons.org/licenses/by-nc/4.0/>). Non-commercial uses of the work are permitted, provided the original work is properly cited.

association between 'COVID-19 health risks' and the 'induced mental wellbeing' (3).

This pandemic has suddenly transformed people's lifestyles since 2020 and has led to several mental-wellbeing considerations. Medical researchers designed distinct scales to measure the new concept of Coronaphobia, which is, in particular, the fear of the COVID-19 scale (4), or the Corona Anxiety Scale (CAS) (5). COVID-19 outbreak spreads fear, anxiety, depression (6), and other mental health disorders, such as uncertainty and negative emotions (7). The social distancing measures and city quarantine policy have led to a general decline in residents' physical and mental health due to insufficient social interaction and mobility. It can cause potential global public health risks (8).

From a tourism industry perspective, there has always been a positive and constructive relationship between tourism and mental health outcomes (9, 10). Tourism activity contributes to wellbeing and is specifically valuable for mental health recovery (11). However, the COVID-19 pandemic has disrupted tourism and mobility on a global scale. Tourism and travel in many countries halted for several months due to closed borders or regional lockdown (2). Though safety is the crucial factor for travelling and international tourism, and it can be easily affected by global safety issues that may significantly result in tourist behavioral changes (12, 13). Besides travelling, outdoor activity can also positively lead to several mental health improvements (11). However, in this research, the focus is on travelling, not outdoor activities. Hence, in the current situation, the main question is:

- How are the relationship between COVID-19, reduction of travelling, and psychological, mental health?

### ***Covid-19 pandemic and mental health***

A growing body of research mentioned the importance of understanding how the COVID-19 outbreak affects mental health (4, 14). Attention to the nervous condition associated with this pandemic has led to diagnosing Coronaphobia (15), which focuses on coronavirus fear and anxiety,

and can be diagnosed clinically. It has been practically shown that anxiety determines behavior. For example, when people become more anxious about the Coronavirus, they maintain more social distancing and a high level of personal hygiene (16). However, emotion is hard to define due to the difficulty to observe the development and expressing the emotions (17). Also it is agreed that emotion is not a simple phenomenon and includes various determinants (18).

The risk of mental health problems induced by COVID-19 could considerably increase through the endless newsfeeds related to the infection and death rates; the news involves 'Infodemic' (fake news without logical and academic proof) the source of adverse psychological effects for people. Therefore, the media organizations are called to adopt 'crisis communication practices' to minimize the negative influence of COVID-19 news on mental health (19).

### ***Tourism and mental health***

A growing body of empirical studies has demonstrated travels psychological and positive mental health outcomes (9, 10, 20, 21). Some travel-induced benefits include: higher life satisfaction (22, 23), improved health status (20), reduced exhaustion and stress (24), and enhanced subjective well-being (25). Moreover, a systematic review revealed the global benefits of travelling, such as enhancing quality of life, improving physical health, and easing stress (20). For many people, leisure travel is an essential feature of life (26).

While the perceived benefits of travel include personal wellbeing, the perceived risk plays a critical role in the travel decision-making process and could endanger the benefits. In fact, the fear of the current pandemic would affect people's travel behavior (27). The perceived risk captures the uncertainty and can lead to potential adverse consequences. Travelling in most cases involves confronting unfamiliar local cultures and languages, in which tourists need to handle unanticipated threats to personal safety and health. Facing uncertainty will lead to fear, anxiety, stress, and depression (28). During the COVID-19 pandemic, such a level of uncertainty is far stronger

and can induce strong reactions in individuals (CDC, 2020). The fear and uncertainty of the novel coronavirus can significantly change one's travel plans, for instance, make people avoid crowdedness (28) and unknown situations (29). COVID-19 involves a blend of several disasters and crisis typologies (30) and generates exceptionally high levels of uncertainties (7). Hence, because crises often change travel motivations (31), it can be assumed that the travel motivations may have shifted during the pandemic.

### ***COVID-19 pandemic and tourism***

Global mobility and tourism can be severely influenced by the circulation of infectious diseases (32). It has been empirically demonstrated that pandemics impact the tourist perception of the risk and related travel decisions (2). The number of tourists decreased in the destinations hit by SARS in 2003 and during the 2015 MERS epidemic (33). The experience of the previous epidemics also proves the role of tourism in facilitating the spread of diseases (2).

The sudden outbreak of COVID-19 has been an unprecedented shock to the tourism industry and is totally against sustainable tourism's primary aim: enhancing tourist wellness (34). International tourism has decreased by more than 80 per cent since the outbreak of COVID-19 in 2019 (27). The World Tourism Organization (WTO) quantifies the impact of COVID-19 on the tourism industry as losing USD 1.3 trillion (35). This pandemic decreased people's willingness to travel, 'independent of actual travel restrictions', due to the risk perception (36).

While previous literature has long presented the positive outcomes of tourism, the current pandemic and its associated impacts clarified the negative aspects of tourism from different perspectives. The COVID-19 pandemic challenges the essential value that tourism has been offering:

- Tourists' well-being has long been the travel's positive impact, but such purpose has been brought into question by the sudden outbreak of the COVID-19 pandemic (34).

- Due to the pandemic, the positive outcomes of travel have been replaced by anxiety, insecurity and psychological distress (34).
- Tourist discrimination has increased during COVID-19. Some tourists find themselves unwelcome in a destination. It is mainly due to the fear of contagion and discrimination against tourists from the center of the pandemic. The fear can impose stigma on tourists from affected areas and causing discriminative behaviors against them (34). Even seeing foreign tourists can cause fear due to the pandemic (37).
- Therefore, the main meaning of travelling, joy, meaningful human connection, and enrichment to life, has been replaced by fear and discrimination. It can negatively influence tourists' post-trip well-being through psychological distress (34).

However, the level of risk perception is essential for decisions and judgment. Moreover, the individual experiences and environmental circumstances can form the perception of the significant impact of media reports (38).

Considering the abovementioned facts, it is clear that the social distancing regulations due to the COVID-19 pandemic banned cross-border travels and influenced the freely outdoor activities in many countries; such restrictions raised the warning of mental wellbeing and psychological wellbeing problems. Given that this pandemic will create changes in 'tourist's thinking and feeling' (39), it is required to identify how it will influence travelling behavior.

Accordingly, the main aim of this study was to investigate the interaction effects of COVID-19 and the shortage of travelling on the psychological wellbeing of tourists. In detail, this particular review aims to appraise a range of perceived psychological variables used to realize how the pandemic has influenced tourist behavior. Additionally, it intends to explore how the conceptual models have been designed and validated. More-

over, this review aims to identify how frequently these variables have been utilized to evaluate the efficacy of each factor in the psychological consequences of the pandemic. This review provides a broad perspective of how tourists' behavior has changed due to the pandemic and how it has threatened their mental wellbeing. It might ultimately assist researchers and authorities in designing the appropriate strategies to promote engagement in international travel.

## **Methods**

This review was conducted focusing on the psychological consequences of the COVID-19 pandemic in the tourism sector. The focus was on the involved variables in empirical studies. Moreover, it specifies how frequently these factors have been employed and searching for the relationships. A literature search was accomplished to retrieve all relevant articles. The process of the review is explained in the following sections.

### *Data sources and search strategy*

The following databases were searched: PubMed, SCOPUS, Web of Science, and EMBASE. In addition, the bibliographies of involved articles were also searched manually. To maximize sensitivity, search strategies were designed specifically for each database. All studies referenced here were published since 2020.

### *Study selection*

We excluded articles that were not written in English or were published before 2020. This date was applied to ensure the inclusion of the COVID-19 induced factors in tourism. Additionally, we excluded items that did not have a full text available for review. The inclusion criteria were:

- Present the influence of COVID-19 pandemic in tourists' behavior
- Present empirical data regarding the link between the pandemic crisis and tourists' behavior

- Present the mechanisms behind the tourists' behavioral change during the pandemic

And the primary exclusion criteria were:

- Papers focused on the impact of outdoor activities during the pandemic or urban park visits during the pandemic.
- The studies on the 'post-COVID-19' crisis travel behavior

### *Data extraction*

The title and abstract of all citations identified through the literature search were printed. Two researchers independently reviewed the title and abstract for eligibility to confirm relevance to the research objectives. During the review of abstracts, papers that did not either introduce travelling-oriented factors or examine behavioral changes were excluded. We designed our process such that no abstract would be excluded based on only one reviewer's opinion.

### *Data synthesis*

Data are presented narratively to describe the characteristics of the identified variables. Moreover, the number of practical studies investigating the psychological health impacts of the pandemic in the tourism sector was not sufficient to gain good power; hence, the narrative analysis was preferred to the meta-analysis. Likewise, a quantitative synthesis was not possible due to the heterogeneity of the research design, context, participants, and the employed measures for assessment.

### *Procedure*

We screened 369 citations published up to May 2021. Of this, nine publications were found to meet all the inclusion criteria. A summary of the literature search and review process is shown in Fig. 1. To eliminate bias, we tried to cover the bibliographic of the selected papers as well.

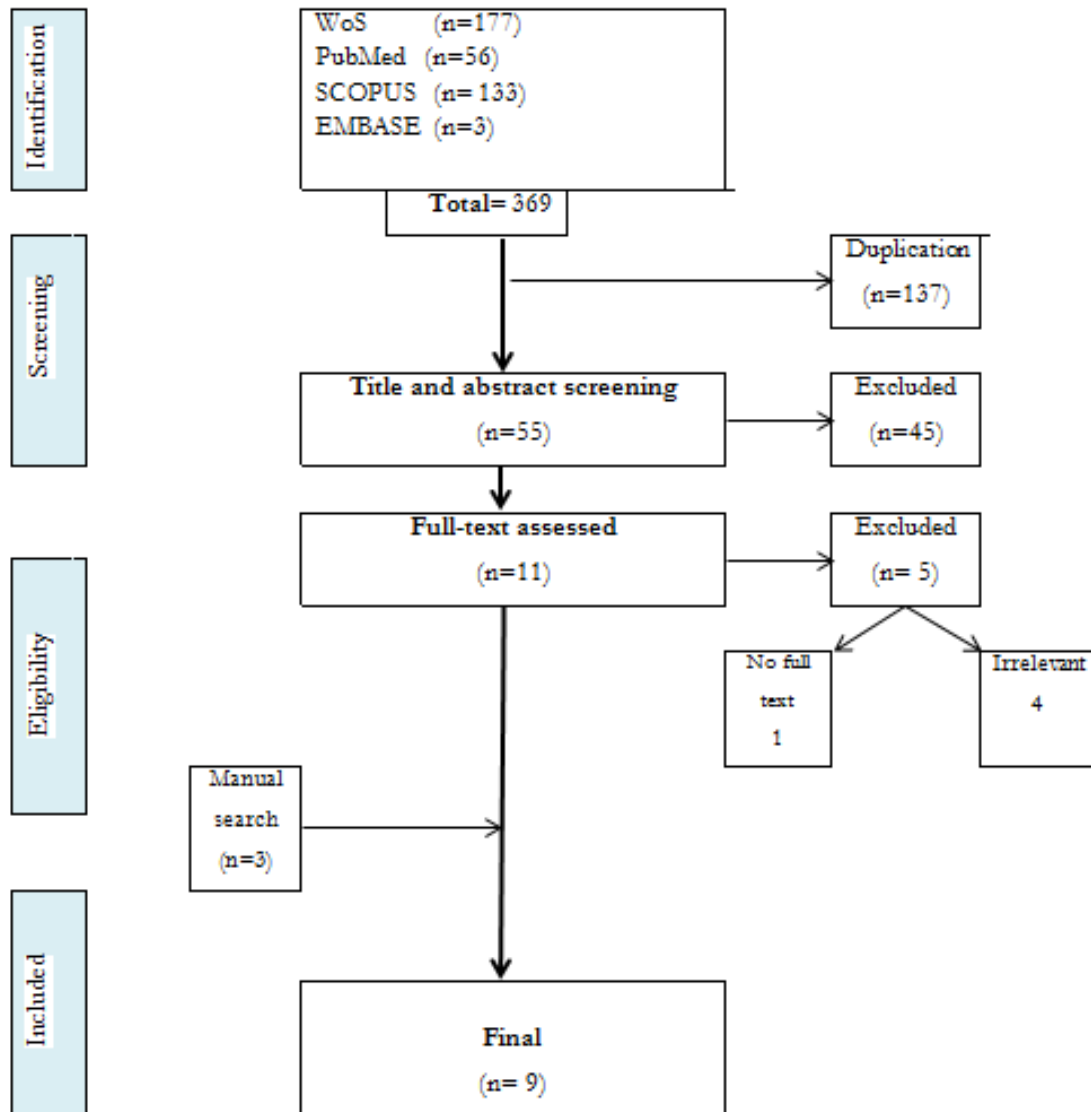


Fig. 1: Summary of the literature search and review process

## Results

In the final stage of the review, nine papers were fully screened. The contents of the papers meeting the criteria are summarized in Table 1. Presenting the information through quantitative methods was not possible due to the nature of this study and the involved variables. Therefore, the information is presented based on the following criteria:

- Contexts
- The involved variables
- Adopted method
- Country, sample, time
- Findings
- A summary of the paper

The methodological quality of the involved papers was not appraised due to the novelty of COVID-19 research.

**Table 1:** Summary of the involved publications in the review

Ref.	Contexts	Elements of the model	Method	Country/ Sample/ Time	Findings	Summary
(2)	Travel medicine and psychopathology, pandemic-related anxiety scales, the fear of COVID-19 Scale, behavioural adjustment or avoidance related to travel-specific phobic	<b>Elements of the scale:</b> worry, uncomfortable to think about COVID-19 while planning a vacation, afraid to risk, nervous or anxious, feel safe to travel  <b>Element of the model:</b> Health risk propensity/ Intention to travel/ Prevention/ Xenophobia/ PATS	Quantitative  Online	US & Denmark  June 2020  n:4242	Developed a construct that measures the pandemic-induced changes in tourist beliefs and travel behaviour, and the intra-personal anxiety of travellers	This construct can deliver explanations for changes in travel behaviour during the pandemic
(35)	Tourists' perceived discrimination during the pandemic and psychological and travel-induced well-being	Perceived discrimination/ Anxiety/ Wellbeing/ COVID-19 worries/ Social media	Quantitative  Online	China  February 2020  n:370  Tourists from the epicentre in China	Perceived discrimination against tourists from the epicentre unfavourably evokes anxious sentiment, which in turn devastates their post-trip well-being. Active social media participation serves as a protective distractive.	Discrimination threatens the well-being of the global public health crisis.  Social media acts as a responsible recovery in the post-COVID
(3)	The mechanism behind tourist avoidance behaviour in times of global health crises	The negative effect of COVID-19/ Health risk perception/ Mental wellbeing, uncertainty/ Attitude towards Travel/ Avoidance behaviour	Quantitative  online	U.S  April 2020  n:367  Tourist perspective	The negative effect of COVID-19 influences perceived health risk and will induce mental wellbeing and perceived uncertainty. Mental wellbeing predicts attitudes towards international travel.	Clarified the perception of fear (tourist avoidance behaviour) during global health crises
(27)	How fear of Covid-19 can lead to discrimination and then travel anxiety	Fear of Covid-19/ Travel anxiety/ Risk attitude/ Travel intention	Quantitative  Online	Hong-Kong  aged 18 to 45 years old  n:303	Fear of COVID-19, travel anxiety and risk attitude negatively impact travel intention.  Travel anxiety and risk attitude moderate the indirect im-	Fear of covid has no direct impact while increasing the risk attitude, and travel anxiety will impact travel intention.



					pacts between fear of COVID-19 and travel intention.	
(40)	Motivators and demotivators to travel during the COVID-19 pandemic	Perceived obstacles for tourism due to the pandemic/  Beliefs and intentions on tourism	Quantitative  online	Italy  N:311  senior people	The obstacles to travel are anxiety, and fear about a sudden return of Corona/ Lack of safety/ and lack of effective instruments by tour operators	The senior people believe that Covid-19 will change the way to go on holiday
(7)	Travel motivations in the contexts of the health crisis	-	Exploratory qualitative approach  Interview	Western Australia May-July 2020  N:18 interview  potential tourists and tourism destination managers  age: 28 to 73	Travel motives during pandemic: -The socio-psychological needs for mental wellbeing. -Social connectedness. Travel demotivators: Health and safety risks. Risk of the travel experience.	The majority of tourists are willing to travel domestically and have concerns to travel internationally.  Travel motives and 'hygiene factors' can shape tourists' travel motivation during COVID-19.
(41)	The travel intention during Covid-19	Attitude/ Subjective norms/ Positive emotions/ Negative emotions/ perceived behavioural control/ Desire/ perceived severity of Covid-19/ frequency of past travel/ Willingness to adopt PNPIs*/ Travel intention	quantitative	India  n:1050  Indians with an intention to travel amid COVID-19 once the travel restrictions are lifted	Attitude, subjective norm, perceived behavioural control, and positive emotion positively anticipates the desire to travel during COVID-19.  Negative emotion negatively influenced travellers' intention.  Female and older travellers perceived COVID-19 as more severe and showed more willingness to adopt PNPIs.	The perceived severity of COVID-19 indirectly influences travel intention through the willingness to adopt PNPIs.  Gender and age are effective factors in perception.
(42)	The effect of COVID-19 risk perception on behavioural intention	Cognitive risk perception/ affective risk perception/ intention/	quantitative  online	South Korea  March-	Affective risk perception is an antecedent of attitude.	Significant influence of risk perceptions on behavioural intention and the mediating

	tion towards 'untact' <sup>**</sup> tourism	attitude/ subjective norms/ perceived behav- ioural control/ behavioural inten- tion		April 2020  N:877  age: 30–49	Cognitive risk per- ception influence subjective norms.  Attitude and objec- tive norms were found as mediators.  Gender and marital status also partially moderated the rela- tionships among the constructs.	impact of demograph- ic factors.
(43)	The influence of perceived risk from Covid-19 on inten- tion to travel and willingness to pay for safety measures on trips	Perceived risk of travelling/ attitude to travel during pandemic/ perceived behav- ioural control of travelling during pandemic/ subjective norm of travelling during pandemic/ intention to travel during pandemic/ willingness to pay for higher safety measures when trav- elling during COVID-19 pan- demic	quantitative  online ques- tionnaire	Spain  N:618  Those af- fected by Covid-19 who may potentially be travel- lers	Confirms the modulating effects of risk on the ante- cedents of inten- tion.  The impact of such intention on the willingness to pay (WTP) more to benefit from addi- tional safety measures at the destination.	The perceived risk of Covid-19 impacts the intention to travel.

\*Personal non-pharmaceutical interventions

\*\* Referring to consumption behaviour that minimises face-to-face contact (44) has been highlighted as a new customer service strategy in the digital era (45)

### Context

The authors mainly developed their conceptual models by reviewing existing definitions and frameworks in the 'tourist's behaviour' context. All the studies were in the context of tourist's 'perception and attitude' and 'behavioural change' during the COVID-19 pandemic.

### Keywords, Variables and study design

The most repeated terms were: 'wellbeing', 'fear', 'anxiety', 'intention', 'discrimination', and 'motivation'. The term 'intention' has been apparently more popular for researchers since it refers to any behavioural change of tourists after the outbreak of COVID-19.

Considering the mentioned context and the most repeated terms in the studies, the adopted elements of the model were mainly about the adverse effect of COVID-19, health risk perception, mental wellbeing, and attitude to travel during the pandemic.

Most of the authors emphasised that the perceived risk of the COVID-19 can lead to changes in travel intentions, consequently impacting wellbeing. Nearly all of the authors reported the significant impact of fear and anxiety due to the current pandemic. Most of the studies considered the mediating effect of demographic factors. They said the considerable impact of age and gender in tourists' perception; besides, the posi-



tive and negative emotions and the immediate mood can lead to changes. One study examined the indirect impact of the fear of COVID-19 by introducing several mediators, travel anxiety, risk attitudes, and travel intentions. They found no direct relationship between fear of COVID-19 and travel intention, while travelling anxiety and risk attitude moderate such indirect impacts (27). However, there are still several motivators to travel even during the pandemic. Two studies investigated the link between perceived discrimination and travel behaviour (27, 35), whereas only one study examined the significant impact of social media in the mentioned link (35). A summary of the reviewed empirical papers can be seen in the last column of Table 1.

#### ***Design methods and assessment tools***

All the research was conducted online using one of the known 'online survey tools'. Only one study among the nine was conducted qualitative through interviews, while all other eight studies were performed quantitatively. Therefore, a 'self-reported questionnaire' was created in all studies, and a 'cross-sectional' online survey was employed, except the adopted procedure for the qualitative research, which was 'semi-structured.

#### ***Study characteristics and samples***

The empirical studies were conducted in all the continents, except Africa (the United States, Denmark, Italy, Spain, China, Hong Kong, South Korea, India, and Australia). The studies had relatively medium sample sizes that ranged from 300 to 1000 clients, while one study included a large sample size of over 2000 and one qualitative research with 18 samples.

## **Discussion**

Adopting a systematic review approach, this study aimed to investigate how the COVID-19 pandemic has caused changes in the tourism sector from the psychological well-being perspective, particularly how it has threatened the tourists' psychological well-being. The reviewed studies revealed a general agreement among the re-

searchers that the outbreak of COVID-19 has influenced the tourists' behaviour. In fact, it is agreed that the tourists' perception of risk significantly affects their behavioural intention; however, the mediating impact of demographic factors is undeniable.

While psychological wellbeing has long been recognized as the mental health outcome of travelling, it has been lately threatened and replaced by the globally-recognized fear and anxiety caused by the current pandemic. Almost all the reviewed papers mentioned that such negative perceptions lead to tourists' avoidance behavior. One of the studies found three vital determinants for avoidance behaviour, including: 'mental wellbeing' and 'perceived uncertainty' along with 'travel attitude' (3). Even though risk and security are the critical concerns of tourists (46), and anxiety and risk attitude have a negative relationship with travel intention ref 5, other determinants might decrease the intention to travel. For example, some studies declared tourists' psychological states and wellness could be negatively affected by discrimination experiences due to the pandemic (3, 34). It was reported that during the COVID-19 outbreak, travellers from epicentre had been usually faced discrimination, and it has exacerbated the anxiety (34). Such a feeling of discrimination-induced anxiety can be exacerbated if tourists are worried about the severity of the disease and activate negative cognitions. Tourists with a higher level of COVID-19 worries are more likely to face negative perceptions and experience 'exaggerated discrimination-induced anxiety' (34). The findings support the view that health risk creates uncertainty in tourists' decision to travel internationally (47), and is in line with WHO reports on the association between COVID-19 health risks and induced mental well-being (3). Nevertheless, it has been reported that active social media participation can possibly act as a responsible recovery for that induced discrimination (34).

Considering the different demographic and socio-economic characteristics of travellers, their perception of the positive and negative consequences of COVID-19 pandemic would be different. Many studies examined the mediating or direct

impact of age, gender, in the desire to travel during pandemic. As practically shown, female and older travelers perceived COVID-19 as more severe (40-42). It was reported that older people and females perceive more fear and believe that COVID-19 will change the way to go on holiday, however the perceived obstacle was same for both gender (40), also they have more willingness to adopt the preventive strategies (41). One study declared that the perceived severity of COVID-19 indirectly influence travel intention. Moreover attitude, subjective norm, and perceived behavioral control, besides the positive and negative emotions can be all effective (41). The results are similar with the reported determinants of risk perception of the outdoor activities during the pandemic, for instance the impacts of the time dedicated to looking for related information in news and social media, or even the type of source information (6). The authors of the developed PATS scale revealed that people with a higher health risk propensity have a lower pandemic anxiety level, and people with xenophobia express a lower intention to travel due to the uncertainty (2).

Yet, several social and mental benefits of traveling motivate people to take the risk and travel internationally even during the COVID-19 global outbreak. One study reported that the primary travel motives in the context of COVID-19 include the socio-psychological needs for 'mental wellbeing' and 'social connectedness', 'personal growth' and 'relaxation' (7). In contrast, the demotivators are primarily in terms of health and safety risks. Some of the reported demotivators to travel during the global health crises includes: adverse effects for mental wellbeing, including anxiety (3), the risk of being judged negatively (48), and mainly perceived health risks (7). In the context of the COVID-19 pandemic, the 'destination image' and 'accessibility of destination information' (49) are among the perceived risk to travel. However, having those travel motivations, tourists prefer to take the risk and travel. Hence, they prefer to employ risk reduction strategies, such as 'hygiene factors' due to their perceived value of travelling (7).

Even though the long-term effects of COVID-19 on people's travel behaviour and attitudes towards tourism are still unknown (39), several short-term changes have been reported. These changes are somehow temporary remedies to fulfil the need to travel. First, most tourists are willing to travel domestically but have concerns about travelling internationally (28). Second, the number of urban park visits has considerably increased since the current pandemic, and local parks have played a critical role so far (8). It is not only due to the risk perception, but because of the travelling restriction around the world (50). The local park visit provides more opportunities for social interaction during the strict lockdowns. Besides, 'travel bubble' is a recent term initiated by travel operators which allow tourists to travel to countries nearby without quarantine requirements; it is also known as 'travel bridges' or 'Corona corridors' (51). The other temporary remedy is virtual reality tourism. The practical research showed that the value of virtual reality tourism perceived by tourists results in their satisfaction and consequently promotes their subjective wellbeing (52). Finally, a study highlighted 'untact' tourism as a health-protective behavior against the perception of COVID-19 risk (42). The term 'untact' tourism refers to 'consumption behavior that minimizes face-to-face contact' (44) and is a new customer service strategy in the digital era (45). An 'untact' lifestyle, however, has been practiced under the current pandemic situation as self-protective behavior. Accordingly, many non-digitalized untact behaviours have been applied in the tourism sector, for instance, outdoor group activities or family exclusive dining rooms in restaurants (42). Therefore, despite the fact that the outbreak of COVID-19 influenced the tourism sector and especially the mental wellbeing of tourists, is it likely that tourists and authorities have found some remedies to address the shortage and barriers to travel during the pandemic.

### *Suggestions*

Despite the perceived risk to travel during the COVID-19 pandemic, still, there are motivations

to travel. Besides, it seems that this outbreak will be continued for a long. It is not likely that the tourism sector relieves soon from this collapse. Hence, there is a need to offer several mechanisms to remedy this situation, at least as the short-term strategies, and prepare for the possible long-term challenges in future and post-pandemic.

Due to the novelty of the topic, it seems that the proposed models in the studies have not been sufficiently validated and tested, and there is a need for more empirical studies. Specifically, it is required to investigate the tourists' desire to travel during the pandemic; besides searching on how the pandemic has influenced psychological states and wellbeing of tourists. From the practical perspective, it seems that many effective strategies can retain the well-being value of travel. Increasing the safety for tourists and providing sufficient and clear information might result in the perception for tourists that the risks are manageable and under control (3, 27, 37). The 'infodemic' and 'misinformation' must be controlled through systematic media management since the large amount of fake or exaggerated information shared via online media will increase panic and form the perception (27).

### Limitation

This review study represents the published research since one year ago, and it shows the novelty of this topic. Therefore, it is clear that there is still a long way to clarify all the involved aspects and determinants of COVID-19 on the tourists' mental well-being. Though, we have tried to cover all the available information so far. However, the selection bias probably happened during the data collection. To address such bias, we tried to search in different databases. Although the authors attempted to select those researchers assumed to be heterogeneous in the topic, some differences were in their contents and study design. For that reason, the authors decided to represent a classified summary of information in qualitative form.

## Conclusion

Even though the risk perception of the COVID-19 pandemic is significantly appraised by the socio-demographic characteristics of tourists, generally, this review study represented facts on the significant influence of the COVID-19 pandemic on the viewpoints of tourists and consequently their behavior. The intention and motivation to travel have changed, and the mental-wellbeing benefits of travelling have been replaced by tourists' avoidance behavior.

## Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

## Acknowledgements

This paper was supported by the KU Research Program of Konkuk University.

## Conflict of interest

The authors declare that there is no conflict of interests.

## References

- 1 Chang CL, McAleer M, Ramos V (2020). The future of tourism in the COVID-19 era. *Advances in Decision Sciences*, 24 (3).
- 2 Zenker S, Braun E, Gyimóthy S (2021). Too afraid to Travel? Development of a pandemic (COVID-19) anxiety travel scale (PATS). *Tour Manag*. 84:1042-86.
- 3 Chua BL, Al-Ansi A, Lee MJ, Han H (2021). Impact of health risk perception on avoidance of international travel in the wake of a pandemic. *Current Issues in Tourism*, 24(7):985-1002.
- 4 Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH (2020). The fear of

- COVID-19 scale: development and initial validation. *Int J Ment Health Addict*, 27:1-9.
- 5 Lee SA (2020). Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety. *Death Stud*, 44(7):393-401.
  - 6 Anser MK, Sharif M, Khan MA, Nassani AA, Zaman K, Abro MM, Kabbani A (2021). Demographic, psychological, and environmental factors affecting student's health during the COVID-19 pandemic: on the rocks. *Environ Sci Pollut Res Int*. 19:1-11.
  - 7 Aebli A, Volgger M, Taplin R (2021). A two-dimensional approach to travel motivation in the context of the COVID-19 pandemic. *Current Issues in Tourism*. 29:1-6.
  - 8 Xie J, Luo S, Furuya K, Sun D (2020). Urban parks as green buffers during the COVID-19 pandemic. *Sustainability*. 12(17):6751.
  - 9 Buckley R (2020). Nature tourism and mental health: Parks, happiness, and causation. *Journal of Sustainable Tourism*. 28 (9):1409-24.
  - 10 Hanna P, Wijesinghe S, Paliatsos I, Walker C, Adams M, Kimbu A (2019). Active engagement with nature: outdoor adventure tourism, sustainability and wellbeing. *Journal of Sustainable Tourism*, 27 (9): 1355-73.
  - 11 Buckley R, Westaway D (2020). Mental health rescue effects of women's outdoor tourism: A role in COVID-19 recovery. *Ann Tour Res*, 85:103041.
  - 12 Han H, Al-Ansi A, Koseoglu MA, Lin PM, Park J, Yu J, Kim W (2019). Halal tourism: travel motivators and customer retention. *Journal of Travel & Tourism Marketing*, 36(9):1012-24.
  - 13 Cooper MA, Buckley R (2021). Tourist mental health drives destination choice, marketing, and matching. *J Travel Res*, 00472875211011548. doi: <https://doi.org/10.1177/00472875211011548>.
  - 14 Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, Ng CH (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *Lancet Psychiatry*, 7 (3):228-9.
  - 15 Asmundson GJG, Taylor S (2020). Coronaphobia: Fear and the 2019-nCoV outbreak. *J Anxiety Disord*, 70: 102196. doi: 10.1016/j.janxdis.2020.102196.
  - 16 Taylor S (2019). *The Psychology of Pandemics: Preparing for the Next Global Outbreak of Infectious Disease*. Cambridge Scholars Publishing: Newcastle. UK.
  - 17 Frijda, N.H (1986). *The Emotions. Studies in Emotion and Social Interaction*. Cambridge University Press: New York, NY, USA.
  - 18 Plutchik R, Kellerman H (2013). (Eds.) *Theories of Emotion (Vol. 1)*; Academic Press: New York, NY, USA.
  - 19 Su Z, McDonnell D, Wen J, Kozak M, Abbas J, Šegalo S, Li X, Ahmad J, Cheshmehzangi A, Cai Y, Yang L (2021). Mental health consequences of COVID-19 media coverage: the need for effective crisis communication practices. *Global Health*, 17(1):1-8.
  - 20 Chen CC, Lin YH, Petrick JF (2013). Social biases of destination perceptions. *J Travel Res*, 52(2), 240–252. <https://doi.org/10.1177/0047287512459106>
  - 21 Rezaei M, Kim D, Alizadeh A, Rokni L (2021). Evaluating the Mental-Health Positive Impacts of Agritourism; A Case Study from South Korea. *Sustainability*, 13(16):8712. <https://doi.org/10.3390/su13168712>.
  - 22 Neal JD, Uysal M, Sirgy MJ. (2007). The effect of tourism services on travelers' quality of life. *J Travel Res*, 46(2), 154–163. <https://doi.org/10.1177/0047287507303977>.
  - 23 Sirgy MJ, Kruger PS, Lee DJ, Yu GB (2011). How does a travel trip affect tourists' life satisfaction? *J Travel Res*, 50(3), 261–275. <https://doi.org/10.1177/0047287510362784>.
  - 24 de Bloom J, Geurts SA, Sonnentag S, Taris T, de Weerth C, Kompier, MA. (2011). How does a vacation from work affect employee health and well-being? *Psychology & Health*, 26(12), 1606–1622. <https://doi.org/10.1080/08870446.2010.546860>
  - 25 de Bloom J, Nawijn J, Geurts S, Kinnunen U, Korpela K. (2017). Holiday travel, staycations, and subjective well-being. *Journal of Sustainable Tourism*, 25(4), 573–588. <https://doi.org/10.1080/09669582.2016.1229323>
  - 26 Richards G. (1999). Vacations and the quality of life: Patterns and structures. *J Bus Res*, 44(3), 189–198. [https://doi.org/10.1016/S0148-2963\(97\)00200-2](https://doi.org/10.1016/S0148-2963(97)00200-2)
  - 27 Luo JM, Lam CF (2020). Travel anxiety, risk attitude and travel intentions towards “travel bubble” destinations in Hong Kong: Effect



- of the fear of COVID-19. *Int J Environ Res Public Health*. 17(21):7859.
- 28 Wang IM., Ackerman JM. (2019). The infectiousness of crowds: Crowding experiences are amplified by pathogen threats. *Pers Soc Psychol Bull*, 45(1), 120–132.
- 29 Faulkner J, Schaller M, Park JH., & Duncan, L. A. (2004). Evolved disease-avoidance mechanisms and contemporary xenophobic attitudes. *Group Processes & Intergroup Relations*, 7(4), 333–353.
- 30 Ritchie BW, Jiang Y. (2019). A review of research on tourism risk, crisis and disaster management: Launching the annals of tourism research curated collection on tourism risk, crisis and disaster management. *Ann Tour Res*. 79: 102812.
- 31 Gnoth J (1997). Tourism motivation and expectation formation. *Ann Tour Res*, 24(2), 283–304. [https://doi.org/10.1016/S0160-7383\(97\)80002-3](https://doi.org/10.1016/S0160-7383(97)80002-3)
- 32 Tatem AJ (2014). Mapping population and pathogen movements. *Int Health*, 6, 5–11.
- 33 Joo H, Henry RE., Lee YK., Berro A, Maskery BA (2019). The effects of past SARS experience and proximity on declines in numbers of travelers to the Republic of Korea during the 2015 MERS outbreak: A retrospective study. *Travel Med Infect Dis*, 30, 54–66.
- 34 Yang F, Wong IA (2021) The social crisis aftermath: tourist well-being during the COVID-19 outbreak. *Journal of Sustainable Tourism*, 29:6, 859-878.
- 35 UNWTO (2021). 2020: Worst year in tourism history with 1 billion fewer international arrivals. UNWTO. Retrieved January, 2021, from <https://www.unwto.org/news/2020-worst-year-in-tourism-history-with-1-billion-fewer-internationalarrivals>
- 36 Gursoy D, Chi CG. (2020). Effects of COVID-19 pandemic on hospitality industry: Review of the current situations and a research agenda. *Journal of Hospitality Marketing & Management*. 29(5), 527–529.
- 37 Hosseini S, Bahrevar V, Rahmanian V (2020). Fear of COVID 19 Pandemic: A case study in Iran. *Pakistan Journal of Medical and Health Sciences*, 14(2).
- 38 Slovic P (2000). (Ed.) Risk, society, and policy series. In: *The Perception of Risk*; Earthscan Publications: New York, NY, USA.
- 39 Zenker S, Kock F (2020). The coronavirus pandemic – a critical discussion of a tourism research agenda. *Tourism Management*, 81, 104164.
- 40 Zambianchi M (2020). The Collective Traumatic Event of COVID-19 Pandemic and its Psychological Impact on Beliefs and Intentions of Senior Italian Tourists. *Almatourism-Journal of Tourism, Culture and Territorial Development*. 11(22):45-60.
- 41 Das SS, Tiwari AK (2021). Understanding international and domestic travel intention of Indian travellers during COVID-19 using a Bayesian approach. *Tourism Recreation Research*, 46(2): 228-244., DOI: 10.1080/02508281.2020.1830341.
- 42 So YB, Chang PJ (2021). The effect of coronavirus disease-19= (COVID-19) risk perception on behavioral intention towards ‘untact’ tourism in South Korea during the first wave of the pandemic (March 2020). *Current Issues in Tourism*, 24:7, 1017-1035, DOI:10.1080/13683500.2020.1798895
- 43 Sandra M. Sánchez-Cañizares L. Javier Cabeza-Ramírez, Guzmán Muñoz-Fernández & Fernando J. Fuentes-García (2021). Impact of the perceived risk from Covid-19 on intention to travel. *Current Issues in Tourism*, 24:7, 970-984, DOI:10.1080/13683500.2020.1829571
- 44 Kim N. (2017). Trend Korea 2018. Miraebok Publishing.
- 45 Lee SM., LeeD. (2020). “Untact”: A new customer service strategy in the digital age. *Service Business*, 14(1), 1–22. <https://doi.org/10.1007/s11628-019-00408-2>
- 46 Reisinger Y, Mavondo, F (2005). Travel anxiety and intentions to travel internationally: Implications of travel risk perception. *J Travel Res*. 43, 2122–2125.
- 47 Williams AM., Baláž V. (2015). Tourism risk and uncertainty: Theoretical reflections. *J Travel Res*. 54(3), 271–287. <https://doi.org/10.1177/0047287514523334>
- 48 Matiza T (2020). Post-COVID-19 crisis travel behaviour: Towards mitigating the effects of perceived risk. *Journal of Tourism Futures*. <https://doi.org/10.1108/JTF-04-2020-0063>
- 49 Ahmad A., Jamaludin A, Zuraimi NSM, Valeri M (2020). Visit intention and destination image in post-covid-19 crisis recovery. *Current Is-*

- sues* *in* *Tourism*, 1–6.  
<https://doi.org/10.1080/13683500.2020.1842342>
- 50 Reuters. Baltics Open Europe's First Pandemic 'Travel Bubble' as Curbs Ease. 2020. Available online: <https://www.reuters.com/article/us-health-coronavirus-baltic/baltics-open-europes-firstpandemic-travel-bubble-as-curbs-ease-idUSKBN22Q3KM> (accessed on March 2021).
- 51 Hoque AA, Shikha FAA, Hasanat MWW, Arif II, Hamid ABA (2020). The effect of Coronavirus (COVID-19) in the tourism industry in China. *Asian J. Multidiscip. Stud.* 3, 525–528.
- 52 Li Y, Song H, Guo R (2021). A Study on the Causal Process of Virtual Reality Tourism and Its Attributes in terms of Their Effects on Subjective Well-Being during COVID-19. *Int J Environ Res Public Health.* 18(3):1019.