

## A Review of the Psychological Impacts of COVID-19 towards Travellers

Michelina David, Tania Maria Tangit, Spencer Hedley Mogindol

Faculty of Hotel and Tourism Management, Universiti Teknologi MARA 88997, Kota

Kinabalu, Sabah, Malaysia

Corresponding Author Email: [taniamaria@uitm.edu.my](mailto:taniamaria@uitm.edu.my)

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i5/17066>

DOI:10.6007/IJARBSS/v13-i5/17066

**Published Date:** 06 May 2023

### Abstract

The COVID-19 pandemic has severely impacted businesses and industries worldwide, including the tourism and hospitality industry. Border closures and safety policies affected tourism activities which resulted in a decrease or no tourist arrivals. This paper reviews the impacts of COVID-19, specifically the psychological impacts on future travel intention post-pandemic travel restrictions. By using a bibliometric analysis, a total of 30 papers about the scope of the study were identified from 2021 – 2022. This review identified fear, anxiety and stress impacts that were discussed sparsely throughout the period. This presents a wider implication for destination stakeholders in understanding the shift in travel behaviour post-pandemic. Additionally, this review provides a deeper understanding of the psychological impacts of COVID-19 towards destination promotion and management.

**Keywords:** COVID-19, Psychological Impacts, Travel Fear, Travel Anxiety, Travel Intention

### Introduction

The pandemic of COVID-19 had shocked the world and affected many industries, especially the tourism industry. Governments had to step up by implementing safety policies such as closing the international travel border and forcing the country to go into a lockdown to minimize the spread of the virus. Because of this, it has directly affected the tourism industry and has resulted in a major downfall towards global economic development (Bakar & Rosbi, 2020). For instance, the air transport industry in the United States has decreased by nearly 214.7 million dollars in the year 2020 (Administration International Trade, 2022). Around 766 million dollars of loss were experienced by the tourism industry of the United States (WTTC, 2021). Meanwhile in Malaysia, the country's tourist arrivals have decreased from 26.1 million to 4.3 million (Tourism Malaysia, 2021). In Sabah, it has decreased from 4.1 million to 567,108 in 2020 (Goh, 2021).

Apart from that, the pandemic has also brought many other negative impacts towards businesses and individuals. Numerous businesses had to close down during the pandemic as some of the businesses faced bankruptcy caused by the lockdowns. For instance, 30 thousand businesses in Malaysia have closed down since the beginning of the lockdown and most of

those businesses faced bankruptcy (Tan et al., 2020). Nevertheless, the COVID-19 pandemic has also brought several positives. For instance, during the pandemic, there has been a reduction in environmental pollution, and improved ideological constructions such as new medicine, economics and many more (Karunathilake, 2021). It was also said that, due to the pandemic, rural, domestic tourism and agro-tourism have improved and become more well-known as people prefer it rather than travel to crowded places which have a high risk of infection (Briciu et al., 2020).

Studies have also found that the pandemic caused psychological issues towards individuals (Chen et al., 2022; Morar et al., 2021; Niemtu et al., 2022; Tepavčević et al., 2021; Vichiensan et al., 2021) which may influence travellers' future perception about travelling and their travel decisions post COVID-19 travel restrictions. For instance, Tepavčević et al (2021) have revealed that the pandemic affects individuals' psychology by evoking feelings of fear of COVID-19 and travel anxiety. The researcher concludes that, if the level of fear of COVID-19 increases, individuals' travel anxiety will increase as well, nonetheless, it will not affect individuals' travel intention to travel in the future. In contrast, based on a study by Morar et al (2021), travellers chose to avoid travel or chose to exercise cautious travel due to the feeling of fear of the pandemic. Several studies have also proven that the feeling of fear and anxiety caused by the pandemic, has changed their perception of using air and public transportation (Chen et al., 2022; Niemtu et al., 2022; Vichiensan et al., 2021). Thus, from the statements above, it can be seen that the COVID-19 pandemic has damaged the psychological issues of travellers and this has been acknowledged by researchers on how important it is to conduct a study on travellers' attitudes in response to the pandemic (Bratić et al., 2021; Garaus & Hudáková, 2022; Tepavčević et al., 2021).

There are different arguments relating with whether the pandemic has affected travellers' psychology and intention to travel post-COVID-19 travel restrictions. Thus, this study is aiming to review the articles that were published on the topic of COVID-19 and its' psychological impacts towards travellers and their intention to travel post-COVID-19 travel restrictions. By reviewing the published articles on this topic, it would be able to contribute to the academic literature by providing knowledge and information on whether the pandemic has affected travellers' psychology and their intention to travel in the future. Moreover, this paper will contribute to tourism stakeholders on the possible changes in travel behaviour since the beginning of the pandemic.

### **Methodology**

A literature search in Google Scholar and Scopus database was conducted to retrieve all possible research articles on the topic by using the keyword of "travel intention" AND "covid" AND "psychological impacts". Few requirements needed to be followed to gain suitable articles. For instance, the articles must be written in the English language. The articles must also be related to the topic of COVID-19 and its psychological impacts. Thus, from the search, 80 studies were found. After screening the articles, 26 articles were found not related to the topic, 14 articles were inaccessible, 9 duplicates and 1 article were not written in English. After removing the articles that were suitable for the study, there were 30 studies remained. The remaining 30 articles were used in this study to analyse whether COVID-19 has caused psychological impacts among travellers.

Table 1, presents 30 articles that were sorted according to the author, title, methodology, theory, variables and findings. Based on the articles screening, most of the studies were conducted in China, Malaysia and Indonesia, where most researchers adopted qualitative

(n=18). In addition to that, a few studies have also been incorporating theories in their studies such as the Theory of Planned Behaviour, Protection Motivation Theory, Random Theory Utility and many more.

Table 1

*Analysed articles related to COVID-19 and psychological impacts*

Autor/Year	Title	Theory	Variables	Findings
<b>Qualitative Studies (n=18), Quantitative (n=12)</b>				
<b>Kim et al (2022)</b>	Predicting preventative travel behaviours under the COVID-19 pandemic through an integration of Health Belief Model and Value-Belief-Norm	Salient Theory	Altruistic value, adverse consequences, responsibility/benefits, threats, barriers, personal norms, preventive travel behaviour	Quarantine has made individuals to feel scare, anxiety, depressed and confused
<b>Tan et al (2022)</b>	The borders are re-opening! Has virtual reality been a friend or a foe to the tourism industry so far?	Technology Acceptance Model & Stimulus Organism Response Theory	Perceived ease of use, perceived usefulness, perceived entertainment, perceived interactivity, emotional engagement, trust in seller, trust in product, behavioural intention	Virtual reality has helped individuals to ease the feeling stress and anxious
<b>Ding et al (2021)</b>	Dynamic associations between temporal behavior changes caused by the COVID-19 pandemic and subjective assessments of policymaking: A case study in Japan	N/A	Risk perception, recent changes, attitudes towards pass and lasting, attitudes towards COVID-19 policy making, reliability of COVID-19, accumulation changes	Policymakers should take into consideration individuals' possible changes in travel behaviour in making new safety policies
<b>Vichiensan et al (2021)</b>	Covid-19 countermeasure	N/A	Socioeconomic characteristics, travel	The possible risk or anxiety

	s and passengers' confidence of urban rail travel in Bangkok		behaviour, perception on rail's COVID-19 countermeasures	due to the pandemic has affected travellers to lose confidence in public transportation
<b>Ghasempour Ganji et al (2022)</b>	Negative health impact of tourists through pandemic: hospitality sector perspective	N/A	Negative health impact	Travel anxiety has affected the respondents and the researcher has categorized travel anxiety as a way of individuals' negative coping strategy that might harm the respondents.
<b>Moerman (2021)</b>	The effect of the COVID-19 pandemic on rural tourism in the Netherlands	N/A	Travel risk perception, domestic rural tourism, existential authenticity	Travellers are afraid of getting infected or infecting their loved ones if they travel to foreign countries
<b>Orden-Mejia et al (2022)</b>	Post-COVID-19 tourists' preferences, attitudes and travel expectations: A study in Guayaquil, Ecuador	N/A	Smart care, pricing strategy, safety, comfort, social distancing	Travellers still have travel intention but prefer travelling to less crowded places
<b>Lenggogeni et al (2022)</b>	Humour: coping with travel bans during the COVID-19 pandemic	Coping Theory	COVID-19 stages, emotion, coping, travel ban phenomenon	Individuals are influenced by the pandemic to feel

				anxious, stress and worry and they cope these feeling by have humour using social media, entertainment .
<b>Niemtu et al (2022)</b>	A study on sustainable air travel behavior under the possible remedy of risk knowledge: A mediating perspective of risk perception during COVID-19	Pull and push theory, Knowledge Attitude Behaviour Theory	Psychological Risk Perception, Physical Risk Perception, Service Quality, Risk Knowledge, Behavioural Intention	Perceived psychological risk influence the changes of behavioural intention of using air travel
<b>Humagain et al (2021)</b>	Exploring tourists' motivations, constraints and negotiations regarding outdoor recreation tips during COVID-19 through a focus group study	Social cognitive theory, theory of substitutability	Tourists' motivation, perceived constraints, negotiation strategies	Fear and anxiety of getting infected during the pandemic and lack socialization has negatively impacted individuals
<b>Yang Fang et al (2022)</b>	Mediating role of risk perception and environmental quality on the relationship between risk knowledge and traveller's intention in COVID-19	Avoidance behaviour theory	Risk perception, travel intention, recommended intention, attitude towards risk, knowledge of COVID-19, tourism knowledge	Travellers that have high knowledge in tourism and COVID-19 have low travel intention.
<b>Yang et al (2021)</b>	The impact of a 360° virtual tour the reduction of psychological	N/A	Enjoyment, involvement, 360° virtual tour experience, stress reduction	Virtual tour helps travellers to reduce stress and their need

	stress caused by COVID-19			to travel during the pandemic.
<b>Mary et al (2022)</b>	A model of travel behaviour after COVID-19 pandemic: TripAdvisor reviews	N/A	Travel Behaviour	The COVID-19 has influence travellers threaten them to travel but the existence of vaccination able to ease their anxiety.
<b>Roy &amp; Sharman (2021)</b>	Analyzing one-day tour trends during COVID-19 disruption – applying push and pull theory and text mining approach	Push and pull theory	Push motives, pull motives, inhibiting factors	There have been mixed feelings of fear and positive towards travellers' perception of same-day travel. Travellers have anxiety of getting infected while service providers have anxiety of the future travel.
<b>Dileep et al (2022)</b>	COVID-19 and tourism stakeholders: experience, behavior and transformation	N/A	Experience, behaviour, transformation	COVID-19 has influence employers to feel afraid as they are told to stay at home.
<b>Nanath et al (2020)</b>	Developing a mental health index using a machine learning approach: assessing the impact of mobility and lockdown during	N/A	Mental health, social media usage, workplace and residential mobility, retail and recreational mobility, lockdown strictness	Due to not able to go out from residency, it has affected individual's mental health, the existence of strict regulations, encourage

	the COVID-19 pandemic			individuals to feel safe.
<b>Chen et al (2022)</b>	Role of latent factors and public policies in travel decisions under COVID-19 pandemic: findings of a hybrid choice model	Random Theory Utility	Social responsibility, perceived risk, fear of infection, travel anxiety	Travellers are not willing to travel as they prefer to stay at home. Travel anxiety and fear of infection influence travellers to use private cars
<b>Salman et al (2022)</b>	Empirical analysis of COVID-19 induced socio cognitive factors and its impact on residents of Penang Island	Cognitive appraisal theory	Attitude, anxiety, awareness	Pandemic has made travellers feel stress and it has negatively influence their intention to travel, especially to crowded places
<b>Rahmawati et al (2022)</b>	What makes Gen Y and Z feel stressed, anxious and interested in doing social tourism when pandemic?	N/A	Economic, social, worries, rumination, catastrophizing, negative affect, positive affect, personal belief in a just world, uncertainty tolerance, positive reappraisal, intention to travel	Pandemic has influence travellers to feel worried of travelling as they might get infected. Those who are worried the most have other diseases.
<b>Tepavčević et al (2021)</b>	Personality traits that affect travel intentions during pandemic COVID-19: the case study of Serbia	N/A	Fear of COVID-19, extroversion, agreeableness, conscientiousness, neuroticism, openness, travel anxiety, travel intention	Fear of COVID-19 affects travellers' travel anxiety but does not affect their intention to travel.

<b>Morar et al (2021)</b>	Predictors of changes in travel behavior during the COVID-19 pandemic: the role of tourists' personalities	Reinforcement sensitivity theory	COVID-19 travel related risk and severity, personality, fear of travel, coping, self-efficacy appraisals	Fears of COVID-19 has influence travel avoidance but some travellers have high intention to travel due to high fun-seeking.
<b>Rokni (2021)</b>	The psychological consequences of COVID-19 pandemic in tourism sector: A systematic review	N/A	Tourists' psychological well-being	The intention to travel has been affected by the pandemic since travellers feel scared and anxious to travel.
<b>Liu et al (2021)</b>	Students' intention of visiting urban green spaces after the COVID-19 lockdown in China	Theory of planned behaviour	Perceived knowledge, risk perception, attitude, perceived behaviour control, subjective norm, behavioural intention	The pandemic has influence and motivate students to visit the urban green spaces after pandemic.
<b>Bratic et al (2021)</b>	Should I stay or should I go? Tourists' COVID-19 risk perception and vacation behavior shift	Theory of planned behaviour	COVID-19 risk perception, anxiety	Perceived risk of COVID-19 has influence travellers to have travel anxiety which influenced to avoid travel.
<b>Nguyen et al (2021)</b>	Public's travel intention following COVID-19 pandemic constrained: a case study in Vietnam	TPB	Perceived risk, self-efficacy, subjective well-being, perceived behavioural control, travel intention	Respondents acknowledged there are risks but still choose to travel in the future.
<b>González-Reverté et al (2022)</b>	Reset or temporary break?	N/A	Environmental attitude, COVID-19 personal experience,	Travellers who have stronger environmental



	Attitudinal change, risk perception and future travel intention in tourists experiencing the COVID-19 pandemic		risk perception, intention to change travel patterns	attitude will avoid travelling but pragmatic travellers will choose to travel.
<b>Chern et al (2022)</b>	Local visitors perceived risk and the intention to travel post-Covid 19 pandemics in Kuala Lumpur	N/A	Physical risk, psychological risk, social risk, financial risk, mental health concern risk, stress level, intention to travel post COVID-19	The pandemic has influences travellers to feel stress and to avoid travel
<b>Zaman et al (2022)</b>	The bridge at the end of the world: linking expat's pandemic fatigue, travel FOMO, destination crisis marketing and vaxication for "Greatest of all trips"	Theory of planned behavior, protection motivation theory, self-determination theory	Travellers fear of missing out, expat's pandemic fatigue, destination crisis marketing, vaxication intention for greatest of all trips	Pandemic fatigue influence travellers to get vaccinated and to travel.
<b>Aryal et al (2022)</b>	Domestic tourism in COVID-19 era: travel choice in Himalayas correlates to geographic origin and age	N/A	Post restriction travel intention	Pandemic has affected travellers psychology but they still have high intention of travelling
<b>Sherief &amp; Rehman (2022)</b>	Factors affecting educators' psychological wellbeing amid COVID 19 pandemic: A quantitative approach	JD-R Theory	Job demand, institutional support, job control, social support, lecturers' psychological well-being	

**Discussion****Psychological Impacts**

COVID-19 has negatively impacted individuals' psychology. The pandemic has affected the feeling of fear and anxiety to emerged towards individuals which have affected their behaviour (Bratic et al., 2021; Humagain & Singleton, 2021; Lenggogeni et al., 2022). Based on the analysed articles, most of the studies has stated that feeling of fear, anxiety and stress were the common psychological issues that have impacted individuals (Morar et al., 2021; Olahraga, 2022; Roy & Sharma, 2021; Salman et al., 2022; Tepavčević et al., 2021). These psychological impacts, it has changed their perception of travel. Travellers were scared of leaving their residences as they are afraid of getting infected by the virus or might infect their beloved ones at home (Dileep et al., 2022; Moerman, 2021). Not being able to go out, has affected their mental health (Nanath, et al., 2020). According to Angguni and Lenggogeni (2021), the first stage of COVID-19 has influenced individuals to feel anxious, worried and stressed regarding the ongoing news about the pandemic. They started to feel fear, anger and boredom during the second stage of the pandemic as they are starting to feel uncertain about their travelling plans.

**Travel Intention**

As a consequence of this psychological issue, it has affected travellers by influencing their intention and perception about travelling. For instance, because of the feeling of anxiety and fear towards the pandemic, has influenced them to avoid using public transportation as well as using air transportation (Chen et al., 2022; Niemtu et al., 2022; Vichiensan et al., 2021). Travellers have even decided to shorten their trip or postponed it until there are seen to be a cure for the virus (Bratić et al., 2021; Ghasempour et al., 2022; Morar et al., 2021; Salman et al., 2022). Due to psychological issues as well, travellers are motivated to visit places that are less crowded and more sustainable as it is believed to be safer from possible risk such as getting infected by diseases (Liu et al., 2021; Orden-Mejía et al., 2022; Salman et al., 2022). Nevertheless, based on the analysed studies, there are still travellers that are willing to travel even though they acknowledged the possible risk that they might encounter. The psychological issues that affected travellers have become the push factor for travellers to travel again (Aryal et al., 2022; Kim et al., 2022; Roy & Sharma, 2021). One of the common reasons of having the high intention to travel is due to their need of seeking fun and releasing the stress, worries and anxiety that they have faced during the lockdown (Mai Nguyen et al., 2021; Morar et al., 2021; Olahraga, 2022). Even though they acknowledged the possible risk they might get during travelling, they believe with the existence of vaccines and health insurance, they would be able to travel without feeling anxious and worried (Mary & Pour, 2022). There are also individuals that willing to pay more for safety measures, as long as they have the opportunity to travel in the future (Durgun & Tayfun, 2022).

**Safety Policies Management**

As the cases of COVID-19 were increasing during the pandemic period, governments have enforced safety policies to minimise the spread of the virus. However, implementing these policies has affected travellers' psychology. For instance, according to Chen et al., (2022), in the Netherlands, due to existence of safety policies enforced by the government, has affected their choice of mode of transportation as well as their intention to travel. They preferred to use bikes as a mode of travelling as it seems to be safer from getting infected. In addition to that, as safety policies has help to reduce the number of COVID-19 cases, Ding and Zhang

(2021) stated policymakers should put individuals' behaviour and attitude into consideration as it might change depending on the situation of the pandemic.

### **Virtual Reality**

Since travellers were forced to into a lockdown during the COVID-19 pandemic, they were not allowed to leave their residences to go travel thus has led them to be feeling anxious, bored and stressed (Dileep et al., 2022). Due to this, it has influence them to turned to virtual reality which was acknowledged as the new norm (Zaman et al., 2022). Since travellers were not able to travel during the lockdown, virtual reality has helped to overcome their need of travelling by joining virtual to reduce their stress, anxiety and unhappiness (K. L. Tan et al., 2022; Yang et al., 2021; Zaman et al., 2022). According to K. L. Tan et al., (2022), even though the virtual tours can make them feel immersed in virtual travelling but it does help in changing their travel intention to travel during the endemic period as travellers are still anxious and scared of getting possibly infected.

### **Conclusion**

#### **Theoretical Implications**

By analysing the selected studies, it has been shown that the pandemic has affected travellers' psychology. On the bases of the findings, this study makes several theoretical implications. Firstly, the findings of the study have stated that since individuals are not able to leave their residence, it has resulted in the feeling of bored and stressed which directly impacted their mental health such as inducing depression. Secondly, the pandemic has also affected individuals to have feelings of fear and anxiety which resulted in them avoiding travel during the endemic period. Some studies have also proven that the pandemic has influenced them to have motivations to travel to sustainable and rural destinations where there are less crowded which will less risk of infection. Thirdly, several studies have also proven that the pandemic does not affect travellers' intention to travel in the future. Despite acknowledging the possible risk of the pandemic, some travellers were influenced during the lockdown to have high motivations to travel since it is a way for them to release stress and anxiety resulted from the pandemic. This study leads to the conclusion that the pandemic has made travellers to have different perception on future travelling as some has chosen to avoid travel but other travellers are still motivated to travel after the pandemic is over. Thus, further study regarding on the psychological impacts of the pandemic towards travellers' intention to travel need to be conducted as there might be possibility of changes in travellers' perception and intention to travel.

#### **Managerial Implications**

Managerial perspectives such as the stakeholders and tourism industry businesses can benefit from the findings of the study to further understand how the COVID-19 pandemic has affected travellers' travel intention and perception on travelling. For instance, studies have shown that travellers have moved towards virtual reality during the pandemic, thus, implementing more virtual tours in the future might attract more potential customers as travel tours is believed to be new norm. In addition to that, findings have shown that travellers have preferred sustainable tourism and rural tourism as it is less risky which will be a new potential market for stakeholders or tourism businesses in the future.

**Future Research**

From analysing the chosen researches, it shows that it should be a continuous study on how travellers' psychology was affected by the COVID-19 pandemic (Tepavčević et al., 2021). Since most of the research from this study was done focusing on the Asian countries, further studies should be conducted focusing on other countries such as Western and European countries (Bratić et al., 2021). In addition to that, travelling post COVID-19 travel restrictions might not be the same as travelling pre-pandemic due to psychological issues, thus, further studies must analyse whether these variables influence travellers' intention to travel in the future (Garaus & Hudáková, 2022).

**Limitation**

This was limited by the selection of database since it only uses 2 databases which are Google Scholar and Scopus. Moreover, this study only focuses on how the psychological issues affected travellers' intention to travel and did not share any information regarding the fatality rates. Nevertheless, this study is only review research and not primary research which could be done in other future studies.

**Acknowledgement**

This research is funded under the Geran Graduate on Time (GoT) 2021, Universiti Teknologi MARA (UiTM): 600-RMC/GOT 5/3 (002/2021).

**References**

- AdministrationInternationalTrade. (2022). *2020 Travel and Tourism Industry Impact on the U.S. Economy*. <https://www.trade.gov/press-release/2020-travel-and-tourism-industry-impact-us-economy>
- Angguni, F., & Lenggogeni, S. (2021). The impact of travel risk perception in COVID 19 and travel anxiety toward travel intention on domestic tourist in Indonesia. *Jurnal Ilmiah Mea (Manajemen, Ekonomi, & Akuntansi)*.
- Aryal, C., Aryal, P. C., Niraula, N., Ghimire, B., Pokhrel, S., & Nepal, R. C. (2022). Domestic Tourism in COVID-19 Era: Travel Choice in Himalayas Correlates to Geographic Origin and Age. *The Gaze: Journal of Tourism and Hospitality*, 13(1), 50–69. <https://doi.org/10.3126/gaze.v13i1.42067>
- Bakar, N. A., & Rosbi, S. (2020). Effect of Coronavirus disease (COVID-19) to tourism industry. *International Journal of Advanced Engineering Research and Science*, 7(4), 189–193. <https://doi.org/10.22161/ijaers.74.23>
- Bratić, M., Radivojević, A., Stojiljković, N., Simović, O., Juvan, E., Lesjak, M., & Podovšovnik, E. (2021). Should i stay or should i go? Tourists' covid-19 risk perception and vacation behavior shift. *Sustainability (Switzerland)*, 13(6). <https://doi.org/10.3390/su13063573>
- Briciu, A., Briciu, V.-A., & Andrea, C. (2020). Initial Thoughts of Covid-19 Unexpected Consequences for Tourism. *Selected Papers (Part of ITEMA Conference Collection), February 2022*, 23–30. <https://doi.org/10.31410/itema.s.p.2020.23>
- Chen, C., Feng, T., & Gu, X. (2022). Role of latent factors and public policies in travel decisions under COVID-19 pandemic: Findings of a hybrid choice model. *Sustainable Cities and Society*, 78(October 2021), 103601. <https://doi.org/10.1016/j.scs.2021.103601>
- Cvijanovic, D., & Gajic, T. (2021). *the Influence of Fears on the Travel Decision - Covid Fear Against Money Fear*. 19(Tisc), 232–246. <https://doi.org/10.52370/tisc21232dc>

- Dileep, M. R., Ajoon, J., & Nair, B. B. (2022). COVID-19 and tourism stakeholders: experience, behaviour and transformation. *Journal of Organizational Ethnography*. <https://doi.org/10.1108/JOE-07-2021-0043>
- Ding, H., & Zhang, J. (2021). Dynamic associations between temporal behavior changes caused by the COVID-19 pandemic and subjective assessments of policymaking : A case study in Japan. *Transport Policy*, 110(September 2020), 58–70. <https://doi.org/10.1016/j.tranpol.2021.05.014>
- Durgun, S., & Tayfun, A. (2022). The impact of healthcare workers' job stress caused by COVID-19 on travel intention and willingness to pay. *Leisure/Loisir*.
- Garaus, M., & Hudáková, M. (2022). The impact of the COVID-19 pandemic on tourists' air travel intentions: The role of perceived health risk and trust in the airline. *Journal of Air Transport Management*, 103(June). <https://doi.org/10.1016/j.jairtraman.2022.102249>
- Ghasempour Ganji, S. F., Johnson, L. W., & Kazemi, A. (2022). Negative health impact of tourists through pandemic: hospitality sector perspective. *Tourism and Hospitality Research*, 0(0), 1–17. <https://doi.org/10.1177/14673584221103369>
- Goh, H. C. (2021). Strategies for post-Covid-19 prospects of Sabah's tourist market – Reactions to shocks caused by pandemic or reflection for sustainable tourism? *Research in Globalization*, 3, 100056. <https://doi.org/10.1016/j.resglo.2021.100056>
- Humagain, P., & Singleton, P. A. (2021). Exploring tourists' motivations, constraints, and negotiations regarding outdoor recreation trips during COVID-19 through a focus group study. *Journal of Outdoor Recreation and Tourism*, 36(September), 100447. <https://doi.org/10.1016/j.jort.2021.100447>
- Kabasakal, E., Ozpulat, F., Akca, A., & Ozcebe, L. H. (2021). COVID-19 fear and compliance in preventive measures precautions in workers during the COVID-19 pandemic. *International Archives of Occupational and Environmental Health*, 94(6), 1239–1247. <https://doi.org/10.1007/s00420-021-01682-2>
- Karunathilake, K. (2021). Positive and negative impacts of COVID-19, an analysis with special reference to challenges on the supply chain in South Asian countries. *Journal of Social and Economic Development*, 23(S3), 568–581. <https://doi.org/10.1007/s40847-020-00107-z>
- Kim, N., Lee, S. J., Lee, C. K., & Suess, C. (2022). Predicting preventive travel behaviors under the COVID-19 pandemic through an integration of Health Belief Model and Value-Belief-Norm. *Tourism Management Perspectives*, 43(May), 100981. <https://doi.org/10.1016/j.tmp.2022.100981>
- Lenggogeni, S., Ashton, A. S., & Scott, N. (2022). Humour: coping with travel bans during the COVID-19 pandemic. *International Journal of Culture, Tourism, and Hospitality Research*, 16(1), 222–237. <https://doi.org/10.1108/IJCTHR-09-2020-0223>
- Liu, J., Peng, Z., Cai, X., Peng, Y., Li, J., & Feng, T. (2021). Students' intention of visiting urban green spaces after the COVID-19 lockdown in China. *International Journal of Environmental Research and Public Health*, 18(16). <https://doi.org/10.3390/ijerph18168601>
- Luo, J. M., & Lam, C. F. (2020). Travel anxiety, risk attitude and travel intentions towards “travel bubble” destinations in Hong Kong: Effect of the fear of COVID-19. *International Journal of Environmental Research and Public Health*, 17(21), 1–11. <https://doi.org/10.3390/ijerph17217859>

- Mai Nguyen, N., Quyen Pham, M., & Pham, M. (2021). Public's Travel Intention Following COVID-19 Pandemic Constrained: A Case Study in Vietnam. *Journal of Asian Finance*, 8(8), 181–0189. <https://doi.org/10.13106/jafeb.2021.vol8.no8.0181>
- Mary, S. R., & Pour, M. H. (2022). A model of travel behaviour after COVID-19 pandemic: TripAdvisor reviews. *Current Issues in Tourism*, 25(7), 1033–1045. <https://doi.org/10.1080/13683500.2022.2039596>
- Moerman, N. (2021). *The effect of the COVID-19 pandemic on rural tourism in the Netherlands*.
- Moni, A. S. B., Abdullah, S., Abdullah, M. F. I. L. Bin, Kabir, M. S., Alif, S. M., Sultana, F., Salehin, M., Islam, S. M. S., Cross, W., & Rahman, M. A. (2021). Psychological distress, fear and coping among Malaysians during the COVID-19 pandemic. *PLoS ONE*, 16(9 September), 1–21. <https://doi.org/10.1371/journal.pone.0257304>
- Morar, C., Tiba, A., Basarin, B., Vujčić, M., Valjarević, A., Niemets, L., Gessert, A., Jovanovic, T., Drugas, M., Grama, V., Stupariu, M., Stoica, A., & Lukić, T. (2021). Predictors of changes in travel behavior during the covid-19 pandemic: The role of tourists' personalities. *International Journal of Environmental Research and Public Health*, 18(21). <https://doi.org/10.3390/ijerph182111169>
- Nanath, K., Balasubramanian, S., Shukla, V., & Islam, N. (2020). Developing a mental health index using a machine learning approach: Assessing the impact of mobility and lockdown during the COVID-19 pandemic. *Technological Forecasting & Social Change*, January.
- Niemtu, W., Qin, K., & Toseef, M. (2022). A study on sustainable air travel behavior under the possible remedy of risk knowledge: A mediating perspective of risk perception during COVID-19. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.874541>
- Olahraga, O. P. (2022). *Local Visitors Perceived Risk and The Intention to Travel Post- Covid 19 Pandemics in Kuala Lumpur*. 1(43), 5255–5271.
- Orden-Mejía, M., Carvache-Franco, M., Huertas, A., Carvache-Franco, W., Landeta-Bejarano, N., & Carvache-Franco, O. (2022). Post-COVID-19 Tourists' Preferences, Attitudes and Travel Expectations: A Study in Guayaquil, Ecuador. *International Journal of Environmental Research and Public Health*, 19(8). <https://doi.org/10.3390/ijerph19084822>
- Rahmawati, R., Ratnasari, S. L., Hidayati, T., Ramadania, R., & Tjahjono, H. K. (2022). What makes Gen Y and Z feel stressed, anxious and interested in doing social tourism when pandemic? *Cogent Business and Management*, 9(1). <https://doi.org/10.1080/23311975.2022.2084973>
- Rodrigues-Hidalgo, A. J., Pantaleion, Y., Dios, I., & Falla, D. (2020). *Fear of COVID-19, stress and anxiety in University Undergraduate Students: A Predictive Model for Depression*.
- Roy, G., & Sharma, S. (2021). Analyzing one-day tour trends during COVID-19 disruption—applying push and pull theory and text mining approach. *Tourism Recreation Research*, 46(2), 288–303. <https://doi.org/10.1080/02508281.2020.1858614>
- Salman, A., Kamekar, U., Jaafar, M., & Mohamad, D. (2022). Empirical analysis of COVID-19 induced socio cognitive factors and its impact on residents of Penang Island. *International Journal of Tourism Cities*, 8(1), 210–222. <https://doi.org/10.1108/IJTC-05-2020-0091>
- Sujood, Hamid, S., & Bano, N. (2021). Behavioral Intention of Traveling in the period of COVID-19: An application of the Theory of Planned Behavior (TPB) and Perceived Risk.

- International Journal of Tourism Cities*, 8(2), 357–378. <https://doi.org/10.1108/IJTC-09-2020-0183>
- Tan, K. L., Tan, K., & Lin, E. (2022). The borders are re-opening ! Has virtual reality been a friend or a foe to the tourism industry so far ? *Asia Pacific Journal of Marketing and Logistics*, October. <https://doi.org/10.1108/APJML-05-2022-0417>
- Tan, T., Sivanandam, H., & Rahim, R. (2020). *Over 30k SMEs have shuttered since the beginning of MCO, Parliament told*. TheStar. <https://www.thestar.com.my/news/nation/2020/11/09/over-50k-smes-have-shuttered-since-the-beginning-of-mco-parliament-told>
- Tepavčević, J., Blešić, I., Petrović, M. D., Vukosav, S., Bradić, M., Garača, V., & Lukić, D. (2021). Personality traits that affect travel intentions during pandemic COVID-19: The case study of Serbia. *Sustainability*.
- Tourism Malaysia. (2021). *Tourist arrivals to Malaysia from 2011 to 2020*. Tourism Malaysia. <https://www.statista.com/statistics/1004711/tourist-arrivals-malaysia/>
- Vichiensan, V., Hayashi, Y., & Kamnerdsap, S. (2021). Covid-19 countermeasures and passengers' confidence of urban rail travel in bangkok. *Sustainability (Switzerland)*, 13(16). <https://doi.org/10.3390/su13169377>
- WTTC. (2021). WTTC reveals U.S. Travel & Tourism sector suffered loss of \$766 billion in 2020. *World Travel & Tourism Council*. <https://wtcc.org/news-article/wttc-reveals-us-travel-tourism-sector-suffered-loss-of-766-billion-in-2020>
- Yang, T., Ka, I., Lai, W., Bin, Z., & Min, Q. (2021). The impact of a 360° virtual tour on the reduction of psychological stress caused by COVID-19. *Technology in Society*, January.
- Zaman, U., Koo, I., Abbasi, S., Raza, S. H., & Qureshi, M. G. (2022). Meet Your Digital Twin in Space? Profiling International Expat's Readiness for Metaverse Space Travel, Tech-Savviness, COVID-19 Travel Anxiety, and Travel Fear of Missing Out. *Sustainability (Switzerland)*, 14(11). <https://doi.org/10.3390/su14116441>