OPEN ACCESS

University of Dundee

University of Dundee

Understanding the factors affecting travel avoidance behavior during the COVID-19 pandemic

Agag, Gomaa; Abdelmoety, Ziad Hassan; Eid, Riyad

Published in:
Journal of Travel Research

DOI:
10.1177/00472875231182110

Publication date:
2023

Licence:
CC BY-NC

Document Version
Publisher's PDF, also known as Version of record

Link to publication in Discovery Research Portal

Citation for published version (APA):
Agag, G., Abdelmoety, Z. H., & Eid, R. (2023). Understanding the factors affecting travel avoidance behavior during the COVID-19 pandemic: Findings from a mixed method approach. *Journal of Travel Research*. https://doi.org/10.1177/00472875231182110

General rights
Copyright and moral rights for the publications made accessible in Discovery Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from Discovery Research Portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain.
- You may freely distribute the URL identifying the publication in the public portal.

Take down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Download date: 03. Sep. 2023

Check for updates

Empirical Research Article

Journal of Travel Research
1–25
© The Author(s) 2023

Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/00472875231182110
journals.sagepub.com/home/jtr


Understanding the Factors Affecting Travel Avoidance behavior During the COVID-19 Pandemic: Findings From a Mixed Method Approach

Gomaa Agag[1,2], Ziad Hassan Abdelmoety[3,4], and Riyad Eid[5]

Abstract

Pandemics are affecting tourism in many ways, and have had a major effect on international travel, the hospitality industry and tourism demand. Grounded in the protective action decision model and complexity theory, this study seeks to develop a model to explain the conditions that have led to travel avoidance in the UK in the context of the COVID-19 pandemic. To test our proposed model, we used a fuzzy-set qualitative comparative analysis of data gathered from 1,290 travelers, with semi-structured interviews conducted to confirm the configurations identified by the model. The findings indicate that effective pandemic information, effective risk communication, supplies, trust in government and trust in the media are necessary to combat travel avoidance, but the refutation of rumor and trust among traveler is not necessary to foster travel avoidance. Furthermore, qualitative follow-up interviews were conducted to obtain deeper insights into the discovered configurations and develop effective pathways to travel avoidance.

Keywords

COVID-19, public trust, international travel avoidance, public information, protective action decision model, complexity theory, fsQCA

Introduction

In early April 2020, the world was clamoring for more details about the outbreak of the pandemic SARS-COV-2, commonly referred to as COVID-19. Individuals clung to their mobile devices and tuned in to news programs in hope of better understanding of the pandemic as it advanced. Governments all over the world hoped to take advantage of the public's keen interest by offering reliable and practical information about taking adequate precautions (i.e., self-isolation, quarantines, travel bans, and social distancing). Travelers were exposed to intense threats of infection as COVID-19 spread, due to a series of unanticipated incidents. For example, due to the abrupt closing of borders, travelers were refused access to destinations with little warning (Nguyen & Coca-Stefaniak, 2020; Zhan et al., 2022). Their plans were badly disrupted by the erratic cancellations of flight and hotel bookings. Moreover, the close proximity of travelers and crew on cruise ships resulted in hundreds of reported cases of COVID-19 among travelers (Koch & Schermuly, 2021). Beyond question, travel is nowadays regarded as a high-risk, high-uncertainty operation, which has aroused a wide range of fears.

The Protective Action Decision Model (PADM) was developed to explore individuals' actions in response to

[1]Nottingham Business School, Nottingham Trent University, Nottingham, UK
[2]University of Sadat City, Sadat City, Menofia, Egypt
[3]Department of Marketing and Management, School of Business, University of Dundee, Dundee, UK
[4]Business Administration Department, Faculty of Commerce, Assiut University, Assiut, Egypt
[5]United Arab Emirates University, Al-Ain, UAE

Corresponding authors:
Gomaa Agag, Nottingham Business School, Nottingham Trent University, 4 Oxford Street, Nottingham NG1 4BU, UK.
Email: gomaa.agag@ntu.ac.uk

Riyad Eid, College of Business and Economics, United Arab Emirates University, Al-Ain 15551, UAE.
Email: riyad.aly@uaeu.ac.ae

natural hazards and disaster events. According to the PADM, various sources of information cause an individual's attention, exploration, and comprehension to generate threat perceptions, protective action perceptions, and stakeholder perceptions, prompting them to decide how to take self-protective actions (Dai et al., 2020). Using this framework, the current study proposes a sequence of information-perception/consideration-action to elucidate protective behaviors during a pandemic (i.e., travel avoidance). In this model, government emergency public information is considered to be the source of information, and the individual's emotional perception and cognitive consideration are considered to represent an extension of perceptions in the PADM model. Protective behaviors (i.e., travel avoidance) are also considered to be the actions. One important issue that should be explored is how government emergency public information and individuals' variables can persuade travelers to adopt recommended protective behaviors (i.e., travel avoidance) to control the spread of COVID-19.

Prior research reveals that public information from the government in emergencies is a critical factor that can persuade the public to follow prescribed protective behavior (in this case, travel avoidance during the COVID-19 pandemic) in order to stop the virus from spreading (Dai et al., 2020). This information is referred to as effective because it has a significant impact on the UK's current policy initiatives to combat the COVID-19 pandemic. Some governments (e.g., those of the UK) introduced successful strategies effective emergency public information initiatives via rumor refutation, effective pandemic information and effective risk communication (Dai et al., 2020; Y. Wang et al., 2021). Effective pandemic information publicizes reported cases, recovered cases, dynamic suspected cases, and deaths as cumulative totals and by regular updates, and also by monitored data, such as the numbers of flights taken and the travel history of particular confirmed or suspected patients. The present policy actions in the UK's fight against the COVID-19 pandemic are founded on this depth of knowledge and experience (P. Sharma et al., 2020).

Prior research indicates that effective information plays a critical role in promoting individuals' protective behavior (e.g., Assaf et al., 2022; Dai et al., 2020). Effective risk communication, which includes effective educational knowledge and information, may lead to further protective behaviors (Dai et al., 2020). The successes in the battle against the virus, as well as reports of frontline medical employees and volunteers published in the mass media, may inspire individuals to engage in initiatives to control the pandemic (Litvin et al., 2022; H. Liu et al., 2020). Meanwhile, rumors amplify the unpredictability of public data, triggering conspiracy theories and pseudoscientific statements (Song et al., 2021). Numerous rumors and misinformation formed a significant obstacle to monitoring the COVID-19 outbreak (Kalgotra et al., 2021).

In a pandemic context, prior research has given attention to the factors affecting protective behavior (i.e., travel avoidance) by investigating the "net effect" of antecedents on behaviors, without interpreting the complexity of individuals' behaviors (e.g., Dai et al., 2020). Concentrating on the symmetrical and net effect can, however, be misleading, since this kind of impact does not matter to all travelers in the dataset. Hence, it is highly improbable that the interaction of two structures is symmetric (Pappas & Woodside, 2021). Examining the net effect does not offer rigorous findings on the complex processes of individuals' behaviors (G. Agag et al., 2020; Farmaki et al., 2021), since besides the main relation amongst the variables, an opposite relationship will exist for some cases in the same sample, thus creating the need to test the data for such contrarian cases (Pappas & Woodside, 2021). It must be confessed that prior research has ignored the fact that individuals' behaviors are unlikely to change until the complex predictors constituting the behavior reach a certain "tipping point" (Pappas & Woodside, 2021). Guidelines which overlook the complex relationships of antecedents result in unanticipated outcomes that can cost more than the problem itself. In testing and constructing the configurational models of the complex conditions preceding individuals' protective behaviors, scholars can test and construct the complex drivers of the demographic and socio-economic conditions that stimulate travel avoidance. This claim is made by our study in testing and constructing a theory of the complex precursor demographic and socio-economic conditions affecting travel avoidance. This raises the research question:

> Research Question: Which configurations of government emergency public information and public trust lead to travel avoidance?

Our research aims to fill this research gap by operationalizing and testing a configurational model using the protective action decision framework and complexity theory to explore the effect of government emergency public information and public trust on travel avoidance during the COVID-19 pandemic, as a state-of-the-art technique that would stimulate travel avoidance. This research has important implications for the tourism and travel industry as well as national and international government authorities in terms of designing and implementing targeted intervention programs to stimulate travel avoidance during the present pandemic.

This study is structured as follows. The second section reviews the literature in the field and the study's conceptual framework. The third section describes the study methods and data collection. The fourth section presents the study analysis and findings. The fifth section elaborates the discussion and implications of the findings.

Literature Review

Public Trust

Trust is important in today's society for the sake of political, social and community ties (Park et al., 2016). Public trust is defined as the public expectation that the political system, or portions of it, will produce desired outcomes even in the absence of constant scrutiny (Schmidthuber et al., 2021) and many sociologists have turned their attention to this concept. Political scholars (e.g., Zhao & Hu, 2017) have demonstrated keen interest in learning more about individuals' trust in government. Such research is motivated by the idea that trust connects people to the institutions that are supposed to serve them (G. Agag et al., 2022). Trust is critical for good governance, institutional consolidation, and the long-term viability of political institutions, since it allows a government to uphold effective credibility and power in decision-making (Grimmelikhuijsen & Knies, 2017). As a result, maintaining people's confidence is a critical political goal for every government in power.

The Pew Research Centre has analyzed polling data since the 1950s and uncovered a period of government distrust (Pew Research Center, 2020). While early studies are rare, they indicate reasonably high levels of confidence in the 1950s and 1960s, which began to decline in the mid-1960s and continued to do so until the 1970s and Watergate, when trust began to increase. This pattern is depicted in Figure 1.

In the tourism and travel setting, prior research has considered trust from two perspectives: that of residents and travelers, for example (interpersonal trust) and that of tourism enterprises and governments (institutional trust) (Zheng et al., 2021). However, it is suggested that trust is a multifaceted term that can vary depending on the context of the action to be taken (J. Liu et al., 2019). In the context of a public health crisis, research splits trust into trust in government (e.g., Zheng et al., 2021), trust in the media (e.g., Pop et al., 2022) and trust in other individuals (e.g., Su et al., 2020). Since governments are in charge of travel regulations and assist the tourism and travel sectors in managing a public health crisis, citizens' trust in governments may have a major impact on their assessment of the risks of travel and protective behaviors (Zheng et al., 2021). Furthermore, since the media form an essential source of information for travelers who want to understand the situation at their destination, the public's confidence in the media may have a major effect on their awareness and understanding of the risks of travel (Su et al., 2020).

It has been suggested that trust in certain stakeholders, especially governments and public health organizations, increases people's willingness to adopt recommended behaviors (Johnson & Mayorga, 2021), which implies that these people believe that the information provided by these organizations is true and unbiased (Bearth et al., 2021). Moreover, travelers behavior brings them into direct contact with other people, increasing their chances of becoming infected (Nguyen & Coca-Stefaniak, 2020).

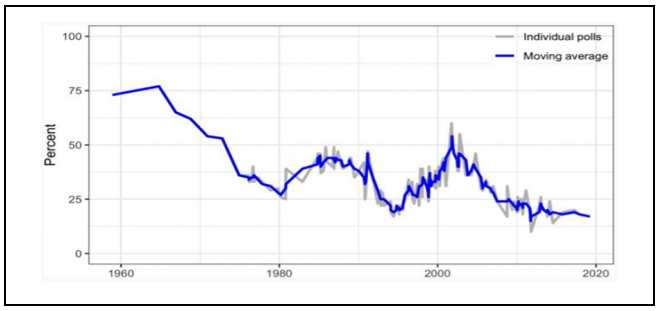

Figure 1. Polling Averages for Trust in Government Since the late 1950s.
Source. Pew Research Center (2020).

Given travelers mobility, people's trust in other individuals' health (i.e., their being "noninfectious") may be related to their perception of the post-pandemic travel risks. However, most tourism research has used a universal measure to assess travelers trust in their destinations (Uddin et al., 2021), which has failed to explore the impact on various stakeholders of travel avoidance during the COVID-19 pandemic. Since travel safety after a pandemic depends on the credibility of key stakeholders who want to prevent and control the infection, it is believed that tourists' trust in government, media, and tourists will significantly impact on their travel decisions

Government Emergency Public Information

Effective governmental communication plays a critical role in raising citizens' awareness of travel risks and promotes protective behaviors during and after a pandemic (Xu et al., 2020). The aim of government emergency public information is to boost people's courage and resolve, increase their risk perception and encourage them to take successful pandemic security measures (Paek et al., 2008). Some governments around the world took successful emergency public information measures to control the pandemic and promote citizens' protective behaviors by refuting rumors and providing effective information about the pandemic and its risks (A. Sharma et al., 2021; Zheng et al., 2021). Effective pandemic information, for example, on dynamic suspected cases, reported cases, recovered cases, and deaths, both in cumulative numbers and regular updates, together with monitored data, such as the travel history of particular confirmed or suspected patients and the trains or flights that they took, have played a critical role in promoting protective behaviors during the COVID-19 pandemic and become the cornerstone of current governments' policy efforts to tackle it

(Dai et al., 2020; Zheng et al., 2021). In the present research, the term "effective" refers to timely and reliable information on the ongoing impact of the pandemic that travelers need for making informed and independent judgments about travel and can receive from the government.

Qazi et al. (2020) show that effective information can play a crucial role in the increase of citizens' risk perception and the promotion of protective behaviors. Fewtrell and Bartram (2001) find that effective risk communication, consisting of constructive, effective and informative material, may help people to act in more prudent ways. Success in the fight against the virus, as well as reporting from frontline medical personnel and volunteers in the news, can motivate people to participate in pandemic-control initiatives (China Daily, 2020). Yet rumors exacerbate the unpredictability of public information, triggering pseudoscientific statements and conspiracy theories (Huang et al., 2020). The many rumors at the time were a significant obstacle in monitoring the "Ebola hemorrhagic outbreak" (Fung et al., 2016). Governments can reduce public uncertainty and perceived danger and fear; they can create public trust and stimulate protective behaviors by refuting rumors promptly (Paek & Hove, 2019). In addition, medical supplies are critical in a pandemic (Xu et al., 2020). For example, evidence indicates that early supplies lowered the mortality rate in the 2014 West African Ebola epidemic (Blair et al., 2017). Efforts to build public interest and inspire people to access health services include the prompt provision of equipment such as trained physicians and life-saving medications (Y. Wang et al., 2020).

Protective Action Decision Model

Lindell et al. (2005) developed the protective action decision model (PADM), a critical multistage model for understanding public reactions to potentially dangerous events such as environmental risks and catastrophes. The PADM was first created to explain defensive behaviors in the face of immediate danger and was later expanded to account for people's reactions to the long-term threat of catastrophes (Terpstra & Lindell, 2012). The PADM highlighted that people in risk regions got information through social and environmental signals and those perceived dangers are generated from the combination of this information and pre-existing attitudes based on prior knowledge (Lindell et al., 2005). An individual's response to environmental hazards and disasters, according to the PADM (Lindell et al., 2005), is a process that begins with the reception of social and environmental cues and information about a hazard or disaster and progresses through psychological processes, such as predication processes, perception, and the making of decisions to take protective action. This process eventually produces behavioral responses to mitigate risk.

The PADM has been primarily used with impending or long-term environmental risks and catastrophes, and it establishes a fundamental causal chain of psychological perceptions from receiving risk information to behavioral reaction (Lindell et al., 2005). To our knowledge, no research has used the PADM to examine residents' behavioral intentions to avoid travel during the COVID-19 pandemic. This being the case, the present study will apply this model to the COVID-19 pandemic and concentrate on residents' reactions to travel avoidance during COVID-19. For a variety of reasons, the PADM is appropriate in the context of the COVID-19 pandemic. To begin with, people are concerned about the long-term health risks associated with the virus, which may harm the lungs, heart, and brain, increasing the likelihood of long-term health issues. Thus, the COVID-19 operation may be regarded as a long-term danger to inhabitants.

Complexity Theory

Chaos theory was introduced in the 1960s to provide an adequate explanation of composite situations (Mahmoudabadi, 2015). It assigns "a broad set of loosely related theoretical and meta-theoretical orientations to the behavior of complex nonlinear systems" (Seeger, 2002, p. 329). Chaos theory suggests that even minimal variance in actions can create substantial deviations in consequences for a dynamic ecosystem, which may make it hard to forecast future patterns (Kellert, 1994). This disruption can be ascribed to the chaotic nature of systems, which follow a nonlinear pattern and are sensitive to situational triggers (Göksu et al., 2015). While chaos theory addresses the complex, random and dynamic characteristics of systems and questions their predictability, it does not suggest they are random or disordered (Speakman & Sharpley, 2012).

Chaos theory led to the development of complexity theory, which "deals with systems that have many interacting agents … although hard to predict, these systems have structure and permit improvement" (Zahra & Ryan, 2007, p. 855). Complex systems are characterized by nonlinear interactions, meaning that unexpected changes can result in either minor or significant impacts on the overall system (Byrne & Callaghan, 2014). As a consequence of the nature of nonlinearity, consistent minor alterations can significantly impair the development of the system as a whole (Room, 2011). Interference or an event—such as the COVID-19 pandemic—may prompt disparities in a complex system. Therefore, it is essential to detect shifts and address changes despite the complexity of forecasting (Room, 2011).

Complexity theory has been employed in a number of research fields. In particular, it has been employed to study human behavior (H. G. T. Olya & Al-ansi, 2018) because it helps explain the connections between human motives and behaviors, and suggests that a pattern of circumstances can lead to future predictions (Woodside, 2017). It is often employed in social media and branding studies because it helps researchers to understand complex relationships; for example, social media channels helping to form user participation and engagement (Alaimo & Kallinikos, 2017). The theory is also important in these fields because human behaviors derive from complicated decision-making practices and network-based interactions (Martín-Rojas et al., 2021). It can describe particular circumstances that accelerate consumer behavior (Farmaki et al., 2021).

Unlike the traditional hypotheses, research propositions under complexity theory can capture such causal recipes via a holistic approach that presupposes complex, interconnected systems and processes which should be studied together. This study formulates such research propositions and performs a configuration analysis using the data analysis tool fsQCA to examine the asymmetric relationships between the factors. This methodology has recently received increased attention in the travel and tourism context (Gannon et al., 2019; H. Olya & Nia, 2021), and, when applied together with complexity theory, can contribute to the creation of new hypotheses and theories (Fiss, 2007; Woodside, 2014). To this end, we build on complexity theory to propose a conceptual model for predicting travel avoidance behavior. H. Olya and Nia (2021) employed the theory when exploring the activities and behaviors of tourists, while Stevenson et al. (2009) used it to investigate tourism governance concerns. Following their example, our research uses complexity theory to clarify the effect of the particular antecedents of public trust and government emergency public information on travel avoidance in this case, and to identify the primary variables that affected travel avoidance during COVID-19 pandemic.

A Configuration Model of Travel Avoidance Behavior

Our paper seeks to explore how the combination of demographic and socio-economic variables, government emergency public information and public trust explain the conditions that led to travel avoidance in the COVID-19 pandemic setting. As the preceding discussion has shown, travel avoidance behavior is a complex behavioral manifestation formed by the interplay of socio-economic variables, government emergency public information and public trust. Nevertheless, little is known about the influence of these variables on people's protective behavior (in this case, travel avoidance during the COVID-19 pandemic). As a result, our study used complexity theory and the protective action decision model to form our conceptual framework (Figure 2). Below, we try to justify the use of complexity theory and the protective action decision model in this research.

H. G. T. Olya et al. (2019) state that complexity theory has been used in different contexts to understand specific phenomena in dynamic processes, such as individuals' behaviors. Through explaining the heterogeneous, nonlinear and dynamic relationships among an individual's motivational and behavioral responses, complexity theory describes how a mixture of predictors can be used as a causal recipe for complex phenomena (Farmaki et al., 2021). For instance, several causal configurations can exist, each of which is sufficient to drive an outcome (G. Agag et al., 2020; Olya et al., 2020). Widespread use of complexity theory in explaining protective behaviors has been made, because it explains how a range of configurations can lead to protective behavior, including pro-environmental behaviors (G. Agag et al., 2020). The theory has also proven especially useful in tourism and travel settings, where decision-making is based on a number of factors (H. G. T. Olya & Han, 2020). In the context of tourism and travel, complexity theory has been used to explore green travel products (G. Agag et al., 2020), aspects of individuals' behavioral problems (Dai et al., 2020) and tourism governance problems (Farmaki et al., 2021). Furthermore, our study argues that complexity theory can describe combinations of antecedents (i.e., causal recipes) that can persuade individuals to behave in some desired way.

PADM has been used to investigate behavior in a wide range of risk-specific scenarios such as floods, earthquakes and pro-environmental movements (Y. Liu et al., 2019). With the PADM, individuals' focus on, discovery and understanding of different sources of knowledge lead to risk perceptions, protective behaviors and the perceptions of stakeholders, leading the individuals to make decisions on protective behaviors (Dai et al., 2020). Working from this paradigm, the present study suggests a conceptual framework of information-perceptions/considerations-actions to explain travelers protective behaviors during the pandemic. The source of information in this conceptual framework is government emergency public information, while potential travelers travel avoidance is perceived to be the action. One important concern to investigate is how government-issued disaster public awareness persuades the public to engage in recommended preventive behaviors such as travel avoidance during a pandemic to halt the transmission of the infection.

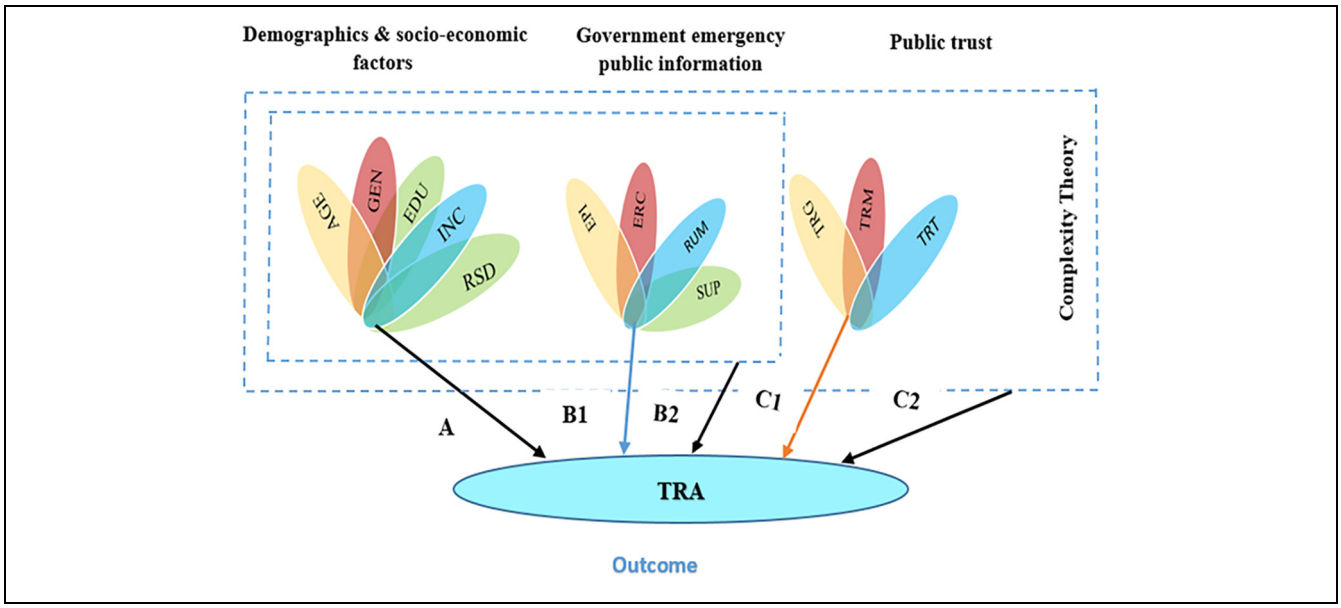

Figure 2. The conceptual framework.

Note. AGE = Age; GEN = Gender; EDU = Education; INC = Income; RSD = Area of residence; EPI = Effective pandemic information; ERC = Effective risk communication; RUM = Rumor refutation; SUP = Supplies; TRG = Trust in government; TRM = Trust in media; TRT = Trust in other travelers; TRA = Travel avoidance.

Model indicating by arrows

A: TRA = *f*(age,gen,edu,inc,rsd); B1: TRA = *f*(epi,erc,rum,sup); B2: TRA = *f*(age,gen,edu,inc,rsd,epi,erc,rum,sup); C1: TRA = *f*(trg,trm,trt); C2: TRA = *f*(age,gen,edu,inc,rsd,epi,erc,rum,sup,trg,trm,trt).

Prior research revealed that demographics variables (i.e., Age, gender, education, income) influencing consumers protective behavior. For instance, Leung et al. (2005) examined the influence of age on behaviors to protect against SARS (i.e., "hand washing, respiratory hygiene, mask wearing, and using utensils"). Their study results revealed that older individuals are more willing to adopt precautionary behaviors. Another study by Jones and Salathé (2009) revealed that older age was associated with more frequent hand washing during the H1N1 swine flu outbreak. In the context of COVID-19, a study by Taylor et al. (2020), indicated that male, older, and higher educated individuals are more likely to vaccinate against COVID-19. In contrast, a study by Rubin et al. (2009) revealed that young individuals are more likely to follow recommended behaviors (i.e., "hand washing and cleaning surfaces") more than old people. Another research indicated that demographics variables (i.e., age, gender, education level) have no influence on protective behaviors (Eastwood et al., 2009). While numerous studies explored the influence of demographics on protective behaviors, these studies produced evidence that is sometimes contradictory. Hence, our study explores the influence of demographics variables on travel avoidance behavior. Furthermore, the demographic variables might be an indirect way to approximate the groups of similar complex behavioral processes.

Using both theories as a theoretical basis for investigating the interplay that affects travel avoidance behavior by means of a configuration of the demographic factors, government emergency public information and public trust helps us to explore and better comprehend the role of individual variables or combinations of variables in stimulating travel avoidance during the COVID-19 pandemic. The advantage of using both theories is that they complement one another. First, complexity theory can be used to understand how demographic factors, government emergency public records and public trust have lately played a counterintuitive role in fostering travel avoidance. As a result, researchers can explain why the causal recipes for travel avoidance are nowadays more than mirror images of the causal recipes that generally cause travel avoidance. Second, according to the PADM, travelers focus on, discovery of and understanding of various sources of information play a critical role in risk perceptions, protective behaviors and the stakeholders' perceptions, prompting them to decide how to act in a self-protective way (Dai et al., 2020). In this regard, the PADM can contribute to our comprehension of behavioral consequences, for instance, how government emergency public information can persuade travelers to follow suggestions and recommendations for self-protective actions and can thereby explain the combined impacts of the drivers, justified by complexity theory.

The aim of complexity theory is to identify patterns and combinations of conditions and reveal how their synergistic effects lead to specific outcomes (J. Wang et al., 2020). Configurations occur as different combinations of causal variables that affect an outcome of interest (Mikalef et al., 2019). The main difference of complexity theory is that it views elements through a holistic lens that must be examined simultaneously and is therefore particularly attractive for context-related studies looking into complex causality (Pappas & Woodside, 2021). Travel avoidance behavior fits well into the lens of complexity theory, since multiple interacting actors, objects, processes and contextual elements shape individuals' decisions (Pappas & Woodside, 2021). In addition, the interactions between these components of such complex systems give rise to emergent properties that cannot be fully understood by examining the individual components (Pappas & Woodside, 2021). Seeing that travel avoidance behavior is applied in different ways depending on a number of factors, applying a complexity theory perspective to examine emergent properties such as government emergency public information, is deemed as appropriate (Woodside et al., 2015). A substantial body of literature builds on the theoretical tenants of complexity theory by utilizing the novel methodological approach fsQCA to examine phenomena in organization science (Pappas & Woodside, 2021), marketing (Pappas et al., 2020), service science (Woodside et al., 2015), and information systems research (Olan et al., 2016). Researchers have traditionally conducted data analysis and hypothesis testing to examine the symmetric relationship between X and Y. Nevertheless, the presence of asymmetrical relationships in most real-life contexts has signaled a theoretical and methodological shift (Pappas et al., 2020). Therefore, this study builds on this call as well as on past empirical studies that are grounded in complexity theory and appropriate methodological approaches to explore the complexity of travel avoidance.

Theoretically, the examples of causal components are visible as configurations that share a typical theme. It follows from this that solitary causal element such as travel avoidance behavior during COVID-19are probably insufficient to achieve a result. What is more significant for understanding avoidance behavior is the recipe, that is, the configurational causes during COVID-19. Prior research indicates that protective behavior is a complex phenomenon that is influenced by various factors (Dai et al., 2020). This viewpoint leads to proposition 1.

> **Proposition 1:** "Single antecedent conditions (demographic and socio-economic, government emergency public information, and public trust) are insufficient to explain travel avoidance behavior during COVID-19 consistently, but configurational causes can consistently explain travel avoidance behavior during COVID-19."

Equifinality is a further tenet of complexity theory; it maintains that various configurations of causal variables can all lead to similar outcomes. The configurations vary in their specific arrangements but inevitably lead to a similar result. Accordingly, instead of looking for one widely inclusive model that clarifies most of the variety in a result, equifinality and the complexity theory idea point to the occurrence of various configurational reasons for travel avoidance behavior during COVID-19. This logic leads to proposition 2.

> **Proposition 2:** "No single best, but multiple configurations of demographic and socio-economic, government emergency public information, and public trust explain travel avoidance behavior during COVID-19."

Asymmetry occurrence can be proposed by the complexity theory. Urry (2005, p. 4) notes that "relationships between causal variables can be non-linear with abrupt switches occurring and the same cause can produce different effects." The fundamental assumption underlying this dictum is the presence of supposed tipping points (Gladwell, 2002), that is, moments when a framework passes a specific end point because of minor changes in its basic components, tips, and significant changes in scope and composition (Ragin, 2009). The total impact of configurational reasons for a result can arise out of configurations in which single conditions can take an inverse direction or turn out to be insignificant. Therefore, the third proposition reads as follows:

> **Proposition 3**: "Across configurational causes for travel avoidance, both the presence and the negation of single antecedent conditions (i.e., demographic and socio-economic, government emergency public information, and public trust) contribute to the outcome, depending on how the single antecedent conditions form a configurational cause with other antecedent conditions."

Research Methodology

Creswell and Plano Clark's (2006) recommendations for adopting a mixed methods approach are intended to assist scholars in avoiding the inconsistencies that result from concentrating on quantitative or qualitative methods alone. By using an explanatory sequential design, the present research seeks to better understand the factors affecting travel avoidance behavior during the COVID-19 pandemic by a quantitative enquiry followed by a qualitative investigation with the same participants. Adopting the recommendation that fsQCAs should use a mixed-methods technique (Woodside, 2013), our study was divided into two main steps. In the first, we collected quantitative data through an online survey sent to travelers in the UK. In the second, we conducted a qualitative

follow-up phase with the same participants in order to expand and interpret the explanatory power of the findings of fsQCA.

The Quantitative Phase

Sample and Data Collection

We recruited the participants from a well-known U.K. online survey firm (www.SurveyMonkey.com). This marketing company had access to a representative panel of British travelers. Adult British citizens who had been exposed to the COVID-19 epidemic formed the target population. Although online surveys have some sample representativeness problems and poor response rates, they provide accessible data in light of the restrictions enforced by the pandemic's regulations. Furthermore, they have essential benefits such as regional scope, cost-effectiveness and good time performance. The invitation to take part in this survey included details about the main aim of the study, the URL hyperlink and the time needed to fill out the survey.

The questionnaire was available online between February 5th and April 20th, 2021. We used a screening question to confirm that the participants were British people living in the U.K. who had traveled at least once for vacation and leisure purposes during the previous year. Our study is in line with previous studies that used the same criteria to study travel avoidance in the COVID-19 context (e.g., Chua et al., 2021; Zheng et al., 2021). A 1-year recall time frame is usually adopted in the literature to give respondents the best chance of recalling incidents and to provide deeper understanding of their travel experiences and furnish the best data.

on UK population data from the Office for National Statistics (2020), national representativeness quotas were established on the basis of age, gender and geographic area. In total, 2,000 travelers started the survey; of those, around 64.5% successfully completed it. Thus, 1,290 useable responses were valid for further analysis. Of the 1,290 respondents, females supplied 52.0% and males supplied 48.0%. The average age of the participants was 46.5 years. The largest group of participants (29.3%) gave their household income as between £15,000 and £25,000. Most of them were well educated, 26% having received a university degree. The respondents mostly indicated that they lived in an urban area (64.3%), with 35.7% in a rural area or village. The average frequency of international travel per year among the respondents was 2.4 times (see Table 1).

Table 1. Profile of Respondents.

	UK $N = 1,290$	
Characteristics	Frequency	Percentage
Gender		
Female	671	52
Male	619	48
Age		
18–34	459	35.6
35–49	446	34.6
50 or above	385	29.8
Income		
Below £15000	348	27
£15,000–less than 25,000	378	29.3
£25,000– less than 30,000	301	23.3
£30,000 or above	263	20.4
Education		
Bachelor's degree	335	26
Diploma	317	24.6
Master's or doctorate	356	27.6
Other	282	21.8
Place of residence		
Urban	829	64.3
Rural	461	35.7
Frequency of international travel (Vacation/leisure)		
One time	262	20.3
2–4 times	570	44
5–6 times	316	24.5
More than 6 times	142	11.2
Marital status		
Single	386	30
Married	412	32
Divorced	219	17
Widowed	273	21

Questionnaire and Measurements

Due to the paucity of previous research on this topic, qualitative study was undertaken before the main study to develop the study measures and to improve the study's validity (Churchill, 1979; Foroudi et al., 2016). The qualitative phase included 10 expert interviews (Table 2) and six focus groups (Table 3). We carried out the interviews in January 2021. We recruited respondents from the online survey firm. Then we conducted a pilot study using academics (lecturers, doctorate researchers) in the UK. The 100 surveys were evaluated for reliability and validity to see if the "measures [were] free from error and [would] therefore yield consistent results" (Peter, 1979, p. 6). Following the qualitative study and pilot research, the main survey was used to collect data for scale refinement and hypothesis testing.

Appendix 1 includes the study measures that were derived from the previous studies and qualitative phase findings. Ten academic members of marketing departments evaluated the face and content validity. Five bilingual academics from a variety of disciplines (including marketing, management, psychology, and global health) participated as academic expert judges acquainted with the study topic (Bearden et al., 1993; Foroudi et al., 2016; Zaichkowsky, 1985). Academics who had served as expert

Table 2. Informant's Profile of Qualitative Study.

Interview date	Location	Age	Gender	Education	Interview approx. duration
06.01. 2021	UK/Manchester	37	Female	Bachler	45 min.
06. 01. 2021	UK/ Bristol	29	Male	Bachler	60 min.
09. 01. 2021	UK/London	44	Male	Master	40 min.
09. 01. 2021	UK/Plymouth	41	Male	Bachler	35 min.
09. 01. 2021	UK/Reading	53	Male	Bachler	65 min.
12. 01. 2021	UK/Exeter	27	Female	Bachler	40 min.
12. 01. 2021	UK/Portsmouth	30	Male	Bachler	60 min.
12. 01. 2021	UK/London	35	Male	PhD	50 min.
13. 01. 2021	UK/Liverpool	48	Female	Master	35 min.
14. 01. 2021	UK/Manchester	52	Female	Bachler	50 min.

Topics discussed –.

- Their understanding of public trust and emergency public information.
- The factors that influence travel avoidance during the COVID-19 pandemic.
- Their experience of what they understand about trust in government, trust in media, detailed pandemic information, and rumor refutation.
- The influence of emergency public information and public trust on travel avoidance during the COVID-19 pandemic.

Source. The researchers.

judges in prior research were invited to remark on the items' relevance, the clarity of their language, and their representation of the topic of interest (Foroudi et al., 2016). Following confirmation of strong inter-judge reliability, a thorough procedure of questionnaire testing, and piloting was performed (Bearden et al., 1993; Foroudi et al., 2016; Zaichkowsky, 1985).

The scales on which to indicate effective pandemic information, effective risk information, rumor refutation and supplies were adopted from related prior research that had been statistically validated by quantitative studies (e.g., Chon & Park, 2021; Dai et al., 2020; M. Sharma et al., 2017) as well as some items that have been added according to the findings of the qualitative phase. The scales of public trust (i.e., trust in government, trust in the media and trust in travelers) were adapted from the validated item scales (e.g., Baek & Jung, 2015; Komiak & Benbasat, 2006; Zheng et al., 2021) and from the qualitative findings. Finally, travel avoidance during the pandemic was built on the validated item scales from Mahoney et al. (2016) and Zheng et al. (2021) and two items were added based on the results of the qualitative phase. Travelers were asked to demonstrate their perceptions and feelings when they thought about traveling during this pandemic. The items were assessed using a 5-point Likert-type scale, with 5 indicating "strongly agree" with the given statement and 1 indicating "strongly disagree."

Common Method Variance

In order to avoid common method bias, we took preventative and post-detection measures. The respondents completed the survey anonymously and the items for measurement were in random order. The latent factor method was used, which entailed aggregating all of the study's variables into a common latent factor (CLF). After incorporating the CLF into the measurement model, we contrasted the standardized regression weights of the two models with and without the CLF. The analysis found that the values were almost identical (the difference was less than 0.20) (Gaskin, 2017). The models' fit indices were almost identical in both cases (model with CLF: $\chi^2/df = 1.4069$; model without CLF: $\chi^2/df = 1.7153$). In addition, we used the marker variable (MV) technique (Lindell & Whitney, 2001). In this research, the following question was used to assess economic confidence: "How much confidence do you have in your national economy today?" This question was not related to our research constructs and has been used before in marketing research (G. Agag et al., 2020). The findings revealed that the correlations between the MV and the constructs of our research varied in size from 0.23 to 0.07, with an average of 0.03, and were not statistically significant. Therefore, it is safe to say that common method variance is not a major concern in our study. Based on George and Mallery (2010), a normality test was conducted for skewness and kurtosis. The results indicated that the data were distributed normally.

Analytical Approaches

This study used fsQCA in conjunction with complexity theory to get deeper and richer insights into the results (G. Agag et al., 2020; Foroudi et al., 2016; Pappas & Papatheodorou, 2017; Woodside, 2014). fsQCA is a set-theoretic method that identifies the causal configurations of components that result in an outcome, going beyond a collection of empirical instances involving independent and dependent constructs (Pappas & Woodside, 2021; Woodside et al., 2018).

Table 3. Details of the Participants in the Focus Groups.

Interview date	Number of participants	Location	Age range	Gender	Interview approx. duration
07. 01. 2021	8	UK/Liverpool	26–47	3 males and 5 females	85 min.
07. 01. 2021	8	UK/Bristol	31–56	4 males and 4 females	70 min
08. 01. 2021	7	UK/London	21–49	5 males and 2 females	55 min
09. 01. 2021	8	UK/London	23–57	3 males and 5 females	90 min
10. 01. 2021	7	UK/Plymouth	30–45	4 males and 3 females	65 min
10.01.2021	8	UK/Manchester	25–50	3 mals and 5 females	55 min

Topics discussed –.

- Their understanding of public trust and emergency public information.
- The factors that influence travel avoidance during the COVID-19 pandemic.
- Their experience of what they understand about trust in government, trust in media, detailed pandemic information, and rumor refutation.
- The influence of emergency public information and public trust on travel avoidance during the COVID-19 pandemic.

Source. The researchers.

Qualitative comparative analysis (QCA) has gained increasing acceptance in social science research for systematic comparative case analysis (Rihoux, 2006). The QCA approach is built upon the set-theoretic comparative technique, primarily Boolean algebra, and has been introduced as a "synthetic strategy" for integrating the strengths of qualitative and quantitative methods while overcoming the key concerns inherent in both these approaches (Ragin, 1987, p. 84). The QCA approach is fundamentally based on the idea that the patterns and attributes will exhibit different features and lead to different outcomes, depending on how they are arranged (Rihoux & Ragin, 2009). Fuzzy set qualitative comparative analysis (fsQCA) is a much later extension to QCA and is built upon fuzzy set theory (Ragin, 2008). Ragin (1987) contends that the QCA approach resolves some of the methodological issues inherent in qualitative and quantitative approaches and strengthens the connection between the two approaches. The scope of small-N to full-N enables fsQCA to be used in qualitative and quantitative investigations. fsQCA in the latter is mostly used to complement quantitative findings in providing asymmetric relationships of the analysis (Ragin, 2008).

The software package fsQCA3.0 (Ragin & Davey, 2014) was used to analyze the relationship between the set of causal variables and the outcome variable (travel avoidance). The advantages of qualitative comparative analysis in comparison with traditional analysis techniques are twofold: (1) equifinality, which means that different paths can lead to the same outcome (by using Boolean algebra, fsQCA identifies the configurations of conditions that lead to an outcome); (2) asymmetry, meaning that the presence and the absence of the outcome may require different explanations. This method allows us to study how factors combine into configurations of the necessary and sufficient conditions for different outcomes (Rihoux & Ragin, 2009). Furthermore, from a mathematical point of view, the fsQCA sets no limit on sample size. Therefore, fsQCA analyses are equally conclusive for small or large N, making fsQCA an appropriate tool for a wide range of studies (Woodside, 2012).

fsQCA generates alternate templates from vector mixtures (i.e., "causal recipes") in order to predict outcomes, unlike a symmetrical approach, which attempts to generalize results to a whole population by omitting any contrary views (Farmaki et al., 2021). This allows scholars to model the perspectives of people who have a variety of views on the research topic. The necessary conditions were analyzed to explore the antecedents that were the prerequisites of travel avoidance. While fsQCA allows us to identify sufficient causal recipes, an investigation of the necessary conditions explores the need for the antecedents (Pappas & Woodside, 2021). Both the antecedents (i.e., government emergency public information, public trust) and the outcome (travel avoidance) were calibrated using fuzzy set scores before analyzing the fsQCA (Ragin, 2009). Calibration begins with the establishment of three values that correspond to three qualitative anchors reflecting the fuzzy set thresholds for complete membership (1), cross over point (0.5), and full non-membership (0). (Ragin, 2009). To convert the original Likert ratings to fuzzy set scores, the following values were used: 1 (strongly disagree), 3 (neutral), and 5 (strongly agree) to indicate non-membership, the cross over point, and complete membership, respectively.

Construct Validity

The psychometric properties of the study variables are indicated in Table 4. The items loadings on their corresponding variables ranged from 0.879 to 0.950 and all items' loadings were found to be significant at 0.01. According to Hair et al. (2019), these loadings can be considered satisfactory. The values of Cronbach's α and composite reliability were higher than the threshold values 0.70, demonstrating that the variables of this study were reliable. To ensure convergent validity, the t-statistic values of each variable loading were included. The

Table 4. Measurement Statistics of Construct Scales.

Construct/Indicators	SFL	Mean	Standard deviation	Cronbach's α	CR	AVE	*t*-values	Skewness	Kurtosis
Travel avoidance (TRA)									
TRA1	0.871	3.935	1.190	0.914	0.938	0.582	7.940	−1.47	1.57
TRA2	0.905	3.771	1.318				11.537	−0.63	1.03
TRV2	0.928	2.934	1.206				14.309	−0.74	1.39
TRV4	0.911	2.975	1.449				16.356	−1.02	1.06
Effective risk communication (ERC)									
ERC1	0.793	3.093	1.532	0.907	0.920	0.569	6.129	−1.62	1.61
ERC2	0.802	3.673	1.189				8.043	−0.83	1.31
ERC3	0.916	2.847	1.026				12.830	−1.20	1.20
ERC4	0.935	3.028	1.258				10.605	−1.36	1.45
ERC5	0.907	3.160	1.164				9.457	−0.79	1.17
Rumor refutation (RUM)									
RUM1	0.870	3.129	1.378	0.873	0.893	0.505	8.017	−1.51	2.08
RUM2	0.865	2.378	1.293				7.996	−0.79	1.89
RUM3	0.905	3.130	1.027				12.56	−1.27	1.24
Supplies (SUP)									
SUP1	0.890	4.028	1.279	0.881	0.896	0.516	10.278	−1.21	1.76
SUP2	0.901	2.896	1.027				12.380	−1.73	2.08
SUP3	0.942	3.431	1.347				14.743	−1.35	1.42
SUP4	0.951	4.098	1.025				15.489	−0.83	2.17
SUP5	0.798	3.561	1.189				7.047	−1.03	1.83
Effective pandemic information (EPI)									
EPI1	0.785	3.297	1.029	0.915	0.938	0.509	6.438	−1.02	2.01
EPI2	0.810	3.120	1.710				11.289	−1.27	1.67
EPI3	0.893	2.957	1.267				15.007	−0.89	1.23
EPI4	0.901	3.189	1.084				9.450	−1.26	1.84
Trust in government (TRG)									
TRG1	0.908	3.210	1.093	0.827	0.914	0.529	10.392	−1.41	1.05
TRG2	0.844	3.731	1.226				7.993	−1.19	1.67
TRG3	0.916	3.554	1.172				11.289	−1.32	1.08
TRG4	0.802	2.963	1.380				8.452	−1.27	1.25
Trust in media (TRM)									
TRM1	0.877	3.107	1.120	0.908	0.932	0.598	10.384	−1.32	1.53
TRM2	0.793	2.878	1.366				6.489	−1.20	1.61
TRM3	0.908	3.536	1.372				11.346	−0.91	1.83
TRM4	0.846	2.780	1.245				16.095	−1.06	1.21
TRM5	0.901	3.025	1.063				11.356	−1.28	1.70
Trust in travelers (TRT)									
TRT1	0.819	3.761	1.039	0.915	0.940	0.602	9.317	−1.04	1.78
TRT2	0.903	2.970	1.328				11.267	−1.27	1.79
TRT3	0.751	2.938	1.037				5.323	−1.61	1.42

Note. EPI = Effective pandemic information; ERC = Effective risk communication; RUM = Rumor refutation; SUP = Supplies; TRV = Travel avoidance during the pandemic; TRG = Trust in government; TRM = Trust in media; TRT = Trust in travelers; SFL: standardized factor loading; AVE = Average variance extracted; CR = Composite reliability.

Kaiser-Meyer-Olkin estimate of sampling adequacy was 0.861, and Bartlett's test of sphericity gave a statistically meaningful chi-square value of1,269 (p-value = .001), indicating that the overall variables were valid. In assessing the convergent validity, the average variance extracted (AVE) values were higher than the threshold value of 0.50 (Fornell & Larcker, 1981). This finding confirmed the convergent validity of the study constructs. The values of the AVEs were compared to the relevant squared between-construct correlations. Table 5 indicates that the values of AVEs were higher than the relevant squared between-construct correlations. Therefore, these findings support the study's discriminant validity. As recommended by Henseler et al. (2016), the heterotrait-monotrait ratio (HTMT) was used to assess the discriminant validity. The findings in Table 5 indicated that the values of the HTMT among the study variables were less than 0.85, confirming the discriminant validity of the study constructs. Multicollinearity tests were conducted, due to the relatively high correlations among some of the study variables. The variance inflation factor (VIF) values for all study constructs were less than 2.1, which is within the threshold value of 3.0 (Hair et al., 2019).

Table 5. Discriminant Validity of the Correlations Between Constructs.

	Correlations and square roots of AVE							
Construct	TRV	EPI	ERC	RUM	SUP	TRG	TRM	TRT
TRV	**0.763**[a]							
EPI	0.519[b]	**0.714**						
ERC	0.420	0.401	**0.754**					
RUM	0.417	0.532	0.402	**0.710**				
SUP	0.490	0.457	0.289	0.412	**0.719**			
TRG	0.346	0.319	0.327	0.404	0.378	**0.727**		
TRM	0.417	0.547	0.418	0.327	0.309	0.376	**0.773**	
TRT	0.338	0.293	0.327	0.415	0.421	0.371	0.408	**0.776**

[a]Composite reliabilities are along the diagonal.
[b]Correlations.

Table 6. Configural Model TRV and Their Negation (Models A, B1, C1, and Their Negations).

Models for Predicting High Score of Outcome (TRV)	RC	UC	C	Models for Predicting the Negation of Outcome (~TRV)	RC	UC	C
A: TRV = *f* (age, inc, edu, gen, rsd)	0.429	0.401	0.935	~A: ~ TRV = *f* (age, inc, edu, gen, rsd)	0.612	0.307	0.473
M1. *age*inc*edu*gen *rsd	0.367	0.291	0.927	M1. *gen~ed*~inc			
M2. *gen*inc*rsd				Solution coverage: 0.619			
Solution coverage: 0.684				Solution consistency: 0.387			
Solution consistency: 0.961							
B1: TRV= *f* (epi, erc, rum, sup)	0.538	0.417	0.943	~ B1: ~ TRV= *f* (epi, erc, rum, sup)	0.641	0.810	0.427
M1. epi*erc*rum	0.804	0.501	0.982	M1. ~erc*rum			
M2. *epi*rum				Solution coverage: 0.618			
Solution coverage: 0.957				Solution consistency: 0.509			
Solution consistency: 0.981							
C1: TRV = *f* (trg, trm, trt)	0.712	0.439	0.983	~ C1: ~TRV = *f* (trg, trm, trt)	0.519	0.590	0.988
M1. *trg*trm*trt	0.536	0.440	0.962	M1. *trg~trm~trt	0.482	0.517	0.979
M2. *trg*trm~trt	0.428	0.371	0.941	M2. *trg~trm			
M3. *trg*trt				Solution coverage: 0.803			
Solution coverage: 0.984				Solution consistency: 0.981			
Solution consistency: 0.993							

Note. *M* = model; RC = raw coverage; UC = unique coverage; C = consistency.

Findings of the fsQCA

The results of the fsQCA are demonstrated in Tables 6 and 7, indicated by Arrows A-C2. The results in Table 6 support proposition 1: no single best configuration of variables results in travel avoidance during the COVID-19 pandemic, but there are multiple, equally effective configurations of the causal variables. According to the Quine-McCluskey approach, the fsQCA function relies on calculating causal recipes that allow us to predict the conditions which, in turn, lead to high and low TRV. For the UK sample, Table 6 indicates that using demographics and socio-economic variables as predictors [A: TRV = *f* (age, inc, edu, gen, rsd))], generates two causal recipes, M1 & M2, which lead to high TRV scores (coverage = 0.684, consistency = 0.961). Additionally, Table 6 demonstrates that the criteria for TRV negation [(~A: M1. *gen~ed*~inc)] are not the inverse of the algorithms that result in high TRV ratings. With regard to the government emergency public information configurations, the results of the fsQCA show that two recipes result in high levels of TRV (coverage = 0.957, consistency = 0.981). M1 shows that a high level of effective pandemic information, effective risk information and rumor refutation results in high levels of TRV [(M1. epi*erc*rum)], while travelers with a higher level of effective pandemic information and rumor refutation have high levels of TRV (M2). These results are consistent with those of Dai et al. (2020), who revealed that effective pandemic information and rumor refutation are key drivers of protective behaviors. With regard to the public trust configurations, the results of the fsQCA revealed that travelers with a high level of trust in government, trust in the media and trust in other travelers tend to have high TRV (Table 6, C1: TRV = *f* (trg, trm, trt)). According to M2. *trg*trm~trt, travelers with high levels of trust in

Table 7. Casual Recipes for Predicting TRV With All Antecedents.

Models for Predicting High Score of Outcome (TRV) (B2 & C2) and Its Negation of (~B2 & ~C2)	RC	UC	C
B2: TRV = *f* (age, inc, edu, gen, rsd, epi, erc, rum, sup).	0.563	0.073	0.987
M1. *age*inc*edu*gen*rsd*epi*erc~rum*sup	0.319	0.052	0.986
M2. *age*inc*edu*gen*rsd*epi~rum*sup	0.230	0.039	0.993
M3. *age*inc*edu*rsd~rum*sup	0.484	0.051	0.981
M4. *age*gen*rsd~rum			
Solution coverage: 0.629			
Solution consistency: 0.998			
~B2: ~ TRV = *f* (age, inc, edu, gen, rsd, epi, erc, rum, sup).	0.401	0.059	0.738
M1. *age*inc*edu*gen*rsd*epi~erc~rum	0.504	0.031	0.630
M2. *age*inc*edu*gen*rsd~rum~sup			
Solution coverage: 0.503			
Solution consistency: 0.637			
C2: TRV = *f* (age, inc, edu, gen, rsd, epi, erc, rum, sup, trg, trm, trt).	0.470	0.043	0.988
M1. *age*inc*edu*gen*rsd*epi *erc*sup*trg~trm*trt	0.568	0.031	0.986
M2. *age*inc*edu*gen*rsd*epi~ rum*trg*trm*trt	0.630	0.037	0.994
M3. *age*inc*edu*gen*rsd*epi*erc*sup*trg	0.708	0.006	0.998
M4. *age*inc*edu*gen*rsd*epi*rum*trg~trm			
Solution coverage: 0.806			
Solution consistency: 0.995			
~C2: ~TRV= *f* (age, inc, edu, gen, rsd, epi, erc, rum, sup, trg, trm, trt).	0.536	0.037	0.898
M1. *age~inc*edu*gen*epi*rum*trg~trm	0.619	0.052	0.889
M2. *age~inc*edu*gen*epi*erc*trg	0.531	0.038	0.899
M3. *age~inc*edu*gen~rum*trg			
Solution coverage: 0.628			
Solution consistency: 0.890			

Note. M: stands for Model; RC: Raw Coverage; UC: Unique Coverage; and C: Consistency; EPI = Effective pandemic information; ERC = Effective risk communication; RUM = Rumor refutation; SUP = Supplies; TRV = Travel avoidance; TRG = Trust in government; TRM = Trust in media; TRT = Trust in travelers; Gender and place of residence are dummy variables: 0 used for "men" and "Urban," while 1 used for "women," and "Rural, respectively.

government and trust in media demonstrate high levels of TRV even when they do not trust other travelers.

Our results are consistent with those of Zheng et al. (2021) and Fong et al. (2021), who revealed that trust in government, in the media and in other individuals has had a significant influence on travel avoidance during the COVID-19 pandemic. Arrow B2 demonstrates a combination of demographics and government emergency public information configurations, indicating 4 causal recipes for stimulating TRV. For example, M1 shows high levels of TRV when travelers are highly educated, older, male, have a high income, live in an urban area, and enjoy high levels of effective pandemic effective risk communication, rumor refutation and supplies [(Table 7, B2, M1. *age*inc*edu*gen*rsd*epi*pcr~rum*sup)]. Table 7 also shows that three other causal recipes (M2 to M4) produce high levels of TRV. Their negation is also demonstrated by B2 and $\sim B2$.

In the fsQCA, conducting additional analyses of the inverse of the outcome to explore which configurations may consistently lead to the negation of the outcome is a good practice (Schneider & Wagemann, 2010). This study further examined which conditions consistently lead to ~TRV by applying the frequency threshold (3), similar consistency (0.92), and PRI score threshold (0.70) for TRV in the fsQCA. Notably, this application generates a complex solution (consistency = 0.890; coverage = 0.628) and comprises three configurations [(*age~inc*edu*gen*~rsd*epi*rum*trg~trm)], which shows that when the travel avoidance behavior is more complex, rumor refutation is higher, trust in government is low, and the trust in media is low, which would lead to lower intentions to travel. Furthermore, this shows the causal asymmetry of fsQCA in explaining the results.

Table 7 shows that a combination of demographics, government emergency public information and public trust result in four causal recipes, leading to high levels of TRV as indicated by C2 (coverage = 0.806, consistency = 0.995). The results in Table 7 support proposition 2: no single best, but multiple configurations of demographic and socio-economic, government emergency public information, and public trust explain travel avoidance behavior during COVID-19. For instance, M1 indicates that being male, with a high income, older, highly educated, living in an urban area, and receiving high levels of effective pandemic effective risk communication, rumor refutation, and supplies, with trust in government and trust in the media, leads to high levels of TRV [(Table A, C2: M1.*age*inc*edu*gen*rsd*epi*ecr*rum*sup*trg~trm*trt)]. The results indicate that there are three other causal recipes

(M2 to M4) for high levels of TRV. The results also indicated three causal recipes for TRV negation (M1:M3) (coverage = 0.628, consistency = 0.890).

Necessary Conditions Analysis

Table 8 shows the findings of the necessary conditions analysis, which indicates the necessary predictors for travel avoidance. In other words, without these prerequisites, this outcome will not be achieved. Our analysis indicated that effective pandemic information, effective risk communication, supplies, trust in government and trust in the media are necessary antecedents for travel avoidance in the UK context.

In summary, the fsQCA results revealed that no single driver condition is sufficient to predict travel avoidance behavior, but configurations of causal recipes can sufficiently predict these behaviors with high levels of consistency. These results support proposition 1. Furthermore, the findings revealed alternative causal recipes that can lead to high levels of travel avoidance behavior. Therefore, various pathways to travel avoidance behavior exist. These findings support proposition 2, which proposed the occurrence of different antecedent conditions for travel avoidance behavior. Finally, the results indicate that asymmetrical effects occur when one specific driver condition integrates with another driver condition to generate a configurational cause. For instance, strong effective pandemic information and trust in government is an ingredient in configurations 1 to 4, whereas their negation is an ingredient in configurations 1 and 2. These results support proposition 3, which suggested the occurrence of these asymmetrical effects.

Robustness Checks

We used three additional analyses to check the robustness of our study findings. We validated our findings by examining the relationship between travelers intentions to avoid travel during the pandemic and their actual behavior using 3-month ($n = 864$ travelers) and 6-month ($n = 619$ travelers) time lags between the second investigation survey and the present one. We conducted a correlation analysis to check the suggested link between travelers intentions to avoid travel during the pandemic and their actual behavior. The significant main link between travelers intentions and their actual behaviors ($p < .001$) was found. In addition, we performed a variance (ANOVA) test to confirm the results of testing the relationship between travelers intentions and their actual behaviors over time. The results of these additional investigations were identical to those of the main model, suggesting that the findings were robust.

Table 8. Necessary Conditions Analysis Results.

	Outcome condition	
Antecedent condition	Consistency	Coverage
Age	0.804	0.841
Gender	0.817	0.710
Education	0.715	0.526
Income	0.794	0.884
Area of residence	0.883	0.807
Effective pandemic information	**0.996**	**0.891**
Effective risk communication	**0.961**	**0.883**
Rumor refutation	0.870	0.580
Supplies	**0.961**	**0.898**
Trust in government	**0.947**	**0.874**
Trust in media	**0.931**	**0.781**
Trust in travelers	0.829	0.490

Note. Consistency > 0.9 designates necessary conditions-(bolded).

We performed the analysis once more, changing the threshold values for inclusion/exclusion in the set by using the extreme points of the scales as thresholds (i.e., 2 instead of 1 to be fully out of the set and 4 instead of 5 to be fully in it). The findings of the re-analysis were the same as in Table 7. Next, the cut-off point was altered, from 3 to 2.5 and 3.5 in separate analyses. Finally, we ran the analysis again, this time using a stronger consistency criterion of 0.8 instead of 0.75. Our study revealed four adequate configurations with a consistency goal of 0.8, which are identical to the solutions in Table 7. The collective findings from our different reanalyses confirm that the results are by and large stable and robust.

Qualitative Follow-Up

Sample and Measures. Phase 2 invited respondents who completed the e-survey in phase 1 to engage in follow-up interviews based on their fsQCA configurations. The interviews given by the travelers lasted approximately 46 min each on average. The interviews were conducted in the UK. The researcher started each interview with general questions that established the profile of the participants; then he asked questions from a predetermined list aimed at examining participants' perceptions of their public trust and government emergency public information (see Table 9).

Results of the Qualitative Follow-Up. The results from the 20 interviewees revealed that effective pandemic information, effective risk communication, trust in government, trust in media, and trust in other travelers are key drivers of travel avoidance. Table 10 indicates an overview main quote for the four variable configurations identified by fsQCA.

Table 9. Overview of Qualitative Follow-up Sample.

Respondents	Interview date	Age	Gender	Education	Interview approx. duration
RESP1	15. 05. 2021	39	Male	Master	43 min
RESP2	15. 05. 2021	32	Male	Bachler	58 min
RESP3	18. 05. 2021	43	Male	Diploma	43 min
RESP4	18. 05. 2021	47	Male	Bachler	39 min
RESP5	18. 05. 2021	51	Male	Diploma	61 min
RESP6	19. 05. 2021	46	Female	Bachler	47 min
RESP7	19. 05. 2021	37	Male	Bachler	63 min
RESP8	19. 05. 2021	39	Female	PhD	55 min
RESP9	19. 05. 2021	40	Female	Master	38 min
RESP10	19. 05. 2021	36	Female	Bachler	46 min
RESP11	21. 05. 2021	29	Female	Other	35 min
RESP12	21. 05. 2021	43	Male	Bachelor	31 min
RESP13	22. 05. 2021	41	Male	Diploma	56 min
RESP14	23. 05. 2021	48	Female	Bachelor	41 min
RESP15	23. 05. 2021	30	Female	Master	56 min
RESP16	29. 05. 2021	33	Male	Master	33 min
RESP17	01. 06. 2021	54	Male	PhD	42 min
RESP18	03. 06. 2021	38	Female	Diploma	50 min
RESP19	08. 06. 2021	24	Male	Bachelor	49 min
RESP20	10. 06. 2021	36	Male	Bachelor	43 min

The respondents were asked about the role of the governments in releasing statistical information about COVID-19, such as infected active cases, suspected cases, deaths, and recovered cases daily:

> *"I think the government carried out several measures of emergency public information… our government released statistical information, such as number of cases affected by COVID-19… yes, I think this is an effective way to trust the government." (**RESP1**). "To be honest I could notice to what extent the government reported the confirmed cases, the recoveries, and the number of deaths every day in my city." (**RESP4**)*

This result is in line with the result of quantitative analysis, indicating that effective pandemic information has a significant influence on travel avoidance. This finding is in agreement with the conclusions of Dai et al. (2020), suggesting that effective pandemic information is a key driver of travel avoidance behavior during COVID-19. As a result, travelers may choose to follow the authorities' recommendations during the pandemic (e.g., avoid traveling) because government provides updated information about reported cases, recovered cases, dynamic suspected cases, and deaths.

We also examined the critical role of effective risk communication in influencing people's travel avoidance behaviors. Our respondents indicated that the government in their city provided them with honest and effective communication about COVID-19:

> *"I think that a great deal of information regarding medical personnel and supplies coming in from distant locations to the front lines has been made public." (**RESP12**). "The government provides honest and open communications about COVID-19… it allows us to communicate with them through 119 to report any symptoms of COVID-19." (**RESP19**)*

This finding is consistent with prior research (e.g., Chua et al., 2021), revealing that updated and transparent communication with citizens about COVID-19 is a key driver of travel decisions during the pandemic.

In addition, travelers were also more inclined to avoid implementing travel plans when they felt that medical staff and essential supplies in their city were insufficient. This result confirms the quantitative analysis results, suggesting that sufficient medical staff and essential supplies play a critical role in controlling the spread of COVID-19:

> *"I guess that there are sufficient medical supplies and staff in my city… you cannot imagine without these members of the medical staff what the spread of this COVID-19 would look like." (**RESP5**). "I think treating patients in time plays a critical role in controlling this pandemic and can limit the spread of this virus." (**RESP14**)*

The result revealed that travelers trust in government can determine their fear and risk perception of a pandemic outbreak, which further encourages public support and participation in government-recommended actions (e.g., travel avoidance during the COVID-19). This finding is in line with the quantitative results and prior research (e.g., Zheng et al., 2022), suggesting that trust in government, trust in the media, and trust in other travelers during the travel play a critical role in influencing travel avoidance during the pandemic:

Table 10. Configurations With Key Interview Quotes.

Configuration	Factor	Quote
M1	EPI	"I think the government carried out several measures of emergency public information… our government release statistical information, such as number of cases affected by COVID-19… well, I think this is an effective way to trust the government." (**RESP1**) "To be honest I can notice to what extent the government report the confirmed cases, recovered, and number of deaths every day in my city." (**RESP4**).
	ERC	"I think that there is a great deal of information regarding medical personnel and supplies coming in from distant locations to the front lines has been made public." (**RESP12**). "The government provides honest and opened communications about COVID-19…i It allows us to communicate with them through 119 to report any symptoms of COVID-19." (**RESP19**)
	SUP	"I guess that there are sufficient medical supplies and staff in my city… you cannot imagine without these medical stuffs how the spread of this COVID-19 would be look like." (**RESP5**). "I think treating patients on time plays a critical role in controlling this pandemic and can limit the spread of this virus." (**RESP14**)
	TRG	"I do believe in the government in my country, and I do believe that they do their best to control this pandemic, I appreciate their efforts towards this pandemic." (**RESP7**). "I trust all what the government announce about the measures of this pandemic on how to control it." (**RESP3**)
	TRM	"I would say that most of the information that can be provided by the media is reliably, so I trust it." (**RESP8**). "To be honest with you, at the beginning of the pandemic we all were in panic due to the news and misinformation that we receive by the media, however, by the time I start to believe and trust the information that I receive via the media." (**RESP6**)
	TRT	"I always trust other travellers while traveling abroad… I think if someone is infectious, he will tell us." (**RESP13**). "I can say that most of travellers have high level of integrity so that if there are some symptoms of the vinous, they will tell the crew straight away." (**RESP15**)
M2	EPI	"Our governemnt has developed some apps that I can use to track the infectd cases." (**RESP2**). "The authorities regularly notified citizens when a new infected case was discovered and where the patient had gone." (**RESP9**)
	RUM	"The governemnt plays a crticial role in debunking COVID-19 fake news in a timely manner." (**RESP11**). "COVID-19 articles in the news and on the internet are often incorrect or misleading, and they are not always the most scientifically important ones." (**RESP16**)
	TRG	"The government can be relied upon to make sound choices for future prevention." (**RESP20**). "This government does a good job of controlling and preventing problems." (**RESP13**)
	TRM	"I trust all of the facts about COVID-19 that are being posted on social media." (**RESP19**). "I believe what I've read about COVID-19 in the press and newspapers." (**RESP4**)
	TRT	"If they are travelling, I believe they are trustworthy and have high level of integrity." (**RESP5**). "I believe that other travellers are trustworthy, and they can tell the authorities if they have any symptoms of COVID-19." (**RESP8**)
M3	EPI	"Every day, the local governemnt releases the name of the town or village where the confirmed or suspected case resides." (**RESD9**). "I think that the local government publishes the specific address of a confirmed or suspected case." (**RESD16**)
	ERC	"I'm not sure if the pandemic scenario will worse in the next months." (**RESD1**). "I believe the preventive efforts taken by the local administration are successful." (**RESD14**)
	SUP	"In my area, mental health assistance and the lvining supplies are adequate." (**RESD18**). "I think the medial supplies are sufficent in my city." (**RESD15**)
	TRG	"The government in my city is always responsible and does a good job of carrying out its responsibilities." (**RESD13**). "The local government is always fair, treating individuals from all walks of life with equal zeal." (**RESD20**)
M4	EPI	"Every day, the local government publishes the confirmed or suspected case's recent activity trajectory." (**RESD2**). "The local governemnt in my city releases generic information about the epidemic every day." (**RESD13**)
	RUM	"It was rumour-related, I believe If you were a doctor and discovered a new virus, you should disclose it to the appropriate authorities rather than to the general population, who has the knowledge to assess the material… they'd have no idea what you were referring about." (**RESD10**). "Our government denies the fake news about COVID-19." (**RESD3**)
	TRG	"I trust the official government news and reports, I also share this information with my relatives." (**RESD20**). "The local government always follows through on its promises and adheres to its policies." (**RESD11**)
	TRM	"I believe what I've read about COVID-19 in the press and social media." (**RESD16**). "I am confident in my use of social media information." (**RESD5**)

*"I do believe in the government in my country, and I do believe that they do their best to control this pandemic, I appreciate their efforts in this pandemic." (**RESP7**). "I trust all the government's announcements about the measures of this pandemic and how to control it." (**RESP3**)*
*"I would say that most of the information that can be provided by the media is reliable, so I trust it." (**RESP8**). "To be honest with you, at the beginning of the pandemic we all were in a panic due to the news and misinformation that we received via the media. However, in time I started to believe and trust the information that I received via the media." (**RESP6**)*
*"I always trust other travellers while traveling abroad. I think if someone is infectious, he will tell us." (**RESP13**). "I can say that most travellers have a high level of integrity so that if there are some symptoms of the virus, they will tell the crew straight away." (**RESP15**)*

Discussion and Conclusion

Key Findings

COVID-19 has halted international travel, resulting in an unparalleled degree of economic recession and public mental stress. To the best of the authors' knowledge, this research is the first to explore the factors affecting travel avoidance during the COVID-19 pandemic in the UK context. Our study used complexity theory and FsQCA to explore the main determinants of travel avoidance. Therefore, this paper provides a promising exploration with a view to a fuller understanding of the extent to which combinations of demographics and socio-economic variables, government emergency public information and public trust may explain the conditions leading to travel avoidance during the COVID-19 pandemic. We supported these configurations by the findings of the qualitative phase (see Table 10).

The results indicated that the first sufficient configuration focuses on demographics and socio-economic factors. It was clear that factors such as gender, level of education, age, income and area of residence play a critical role in predicting travel avoidance. Our study indicated that travel avoidance behavior is found most often when travelers are male, older, highly educated, have a high income, and live in an urban area. The second sufficient configuration focuses on government public information in an emergency. Factors such as effective pandemic information, effective risk communication, rumor refutation, and supplies are deemed to be critical variables in the formation of travel avoidance in the UK during the COVID-19 pandemic. These results are consistent with prior research, such as that by Dai et al. (2020). Furthermore, our results indicated that configurations of both demographic and government emergency public information play an important role in predicting travel avoidance. This solution generates a high level of consistency and wide coverage.

Our study suggested that to combat the COVID-19 pandemic effectively, governments should take effective measures in combination with governmental and public trust. For instance, governments are encouraged to prioritize improving the implementation of detailed pandemic information and the dissemination of positive risk communication to the public and to put forth effort to refute rumors and increase supplies. These results are in line with prior research that indicated that detailed pandemic information and positive risk communication are key drivers of protective behavior (Dai et al., 2020).

The fourth sufficient configuration deals with public trust. As the previous studies reveal, public trust including trust in government, in the media and in other travelers is closely related to individuals' travel avoidance behavior (see also quote M1; Table 10), which is consistent with prior research which suggested that trust in the media and government are key drivers of protective behavior (e.g., Bhati et al., 2021; Itani & Hollebeek, 2021). The fifth sufficient configuration focuses on demographics, government emergency public information and public trust. These results are consistent with previous studies (e.g., Dai et al., 2020; Daly & Robinson, 2021; Itani & Hollebeek, 2021).

Theoretical Implications

Our study offers the following theoretical contributions. Previous studies have evaluated complexity theory and the protective action decision model in a variety of settings, providing empirical evidence for both theories (e.g., G. Agag et al., 2020; Dai et al., 2020; H. Olya & Nia, 2021; Zheng et al., 2021). However, to our knowledge, this is the first investigation to use these theories to support our proposed model. In particular, this study adds to our understanding of complexity and the protective action decision model (Dai et al., 2020; Woodside, 2017) by examining the interaction between government emergency public information, demographic variables, public trust and travel avoidance in complex travel settings. The findings reveal that government emergency public information, demographic variables and public trust can lead to travel avoidance.

Similarly, the protective action decision model supports the significant role of effective pandemic information, effective risk communication, rumor refutation and supplies because it provides insights into the effect of these variables in encouraging travel avoidance. Our findings indicate that effective pandemic information, effective risk communication, and supplies are key drivers of travel avoidance in the UK context. This result is in line with previous studies which show that the magnitude of the hazard affects protective behaviors against infectious diseases (Zheng et al., 2021). This illustrates the need to

boost public risk awareness, since high risk perception contributes to preventive measures in many outbreaks of infectious disease and has been shown to help contain epidemics. On a more optimistic note, our findings show that trust in government and the media has played a significant role in encouraging travel avoidance during the COVID-19 pandemic. Thus, our study adds to the existing stock of knowledge on the protective action decision model.

Given that the role of government emergency public information in promoting protective conduct in the travel context has received little attention, this paper also adds to our understanding of the vital role of effective pandemic information, effective risk information, rumor refutation and adequate supplies in promoting travel avoidance (Dai et al., 2020). This study suggests that government emergency public information should improve people's courage and resolve, increase their awareness of risk, and enable them to take more effective precautions to fight the pandemic.

More importantly, this research is the first to explore the concept of public trust in the international travel context during the COVID-19 pandemic and to explore its importance. Although several studies have been conducted on tourists' trust in the context of tourism (Zheng et al., 2021), little research has illuminated the context of a health crisis. The present study emphasizes that trust in government and trust in the media are crucial factors for motivating travel avoidance during the pandemic. Rather than measuring the single dimension of an individual's confidence in an epidemic crisis (Ramon et al., 2021), this paper indicates that the public's trust during the pandemic has been contingent on different stakeholders. Travel during a pandemic is dependent on interpersonal and institutional effectiveness in disease control and prevention, as well as personal protective behaviors. As a result, the tourism and travel context provide a fresh perspective on public trust in the face of a pandemic. Our results indicate that British people demonstrated a high level of trust in government, the media and other travelers. Individuals' interpersonal trust, however, continues to be shaky, providing new insights into their trust over health problems in an individualistic culture.

In line with other travel and tourism studies, our examination also demonstrates that travelers trust can be a key driver of travel behavior (Zheng et al., 2022). Although trust in travelers can reduce travel avoidance behavior, the study reveals that travelers who trust in government tend to avoid travel during the pandemic. This finding is consistent with public compliance with policies in public health research (Han et al., 2020). Since governments advised the public to travel less during the pandemic, travelers may have been more cautious in making travel decisions. Additionally, the results indicated that the influence of trust in travelers on travel avoidance is stronger among highly educated, older males with a high income, who live in an urban area, further highlighting the necessity of segmentation.

The priorities of our study are aimed at both synthesizing the results of our main research and of addressing "white spots" in the existing literature that need to be investigated further. These white spots are consistent with the idea of the protective action decision model concept that we have used in our research. As a result, by highlighting previously overlooked aspects, our research objectives contribute to theory building in the field of travel avoidance behavior in the travel and tourism industry. The greater part of the existing research on individual protective behavior takes a net driver approach, examining the effect of individual factors on protective behavior. Although this has greatly improved our knowledge, looking at protective behavior drivers in isolation gives us only a limited picture. The existing research suggests that the protective action decision model would consist of emergency public information (Dai et al., 2020; Zheng et al., 2021) and public trust (Zheng et al., 2021) as part of the consumers' decision-making process. If taken as a configuration, this might be argued to be an optimal explanation for individuals' protective behavior.

Different combinations that drive protective behavior are identified (i.e., travel avoidance). For instance, some combinations of emergency public information and public trust have resulted in a high degree of travel avoidance. As a result, we find that numerous and equifinal configurations of emergency public information and public trust lead to high levels of travel avoidance. Our findings highlight the significance of developing protective behavior theories that are not dependent on a single individual characteristic. There are many "recipes for understanding protective behavior" (G. Agag et al., 2020). Furthermore, "more is not always better," and certain factors need to be absent in certain configurations, to induce high levels of travel avoidance behavior. This is related to the interaction of many factors, which means that the existence of certain variables may result in unnecessary costs. Therefore, our study motivates the following priority for future research in protective behavior in the travel and tourism industry.

Our fsQCA application also contributes to the wider methodology of travel and tourism research. fsQCA is regarded as an "inherently mixed" approach (Teddlie & Tashakkori, 2009, p. 273), since it mixes qualitative inductive reasoning with quantitative empirical testing in one study (Ragin, 2000). The employment of such mixed methods is helpful for analyzing phenomena defined by complex and interconnected issues, since the diversity of views contained in them leads to more robust and interesting findings (Venkatesh et al., 2013). In most business fields, the adoption of mixed methods like fsQCA is still in its infancy. This, along with the intrinsic complexities of many service phenomena, presents a unique

opportunity for service researchers to encourage more widespread use of this potentially effective approach.

Managerial Implications

Our study provides a wealth of implications for travel and tourism companies, national and international government authorities in terms of designing and implementing targeted intervention programs for dealing with a pandemic crisis. The results of using mixed methods will in a variety of ways benefit the policy makers and practitioners who are coping with the pandemic crisis. First, our results revealed that effective pandemic information, effective risk communication and rumor refutation were key predictors of travel avoidance and have been identified as sufficient and necessary ingredients for encouraging travel avoidance. These results indicate that travelers are more likely to obey the government's advice because they are more educated about the pandemic's effects and what the government is doing about them. Effective pandemic information plays a critical role in enhancing travelers trust in governments and helping them to comply with governmental recommendations.

Travelers distrust the government if information about COVID-19 is misreported or withheld, leading to negative or hostile responses. Travel avoidance is influenced by effective risk communication. Information on the transportation of medical personnel and supplies can reduce public anxiety and improve community cohesion, encouraging people to take an active role in preventing the spread of the coronavirus. Rumor refutation was found to be positively related to travel avoidance during the COVID-19 pandemic. Rumor refutation is helpful and important for the government; it preserves an aura of honesty, undermines conspiracy theories and excessive public fear and encourages trust and protective behaviors in response to the pandemic.

Second, confidence in the government, the media and travelers were found to be significant in promoting travel avoidance once the disease spread. Given that travelers may choose to obey authorities' advice during a pandemic (e.g., avoid travel), policymakers must revise travel recommendations and demarcate what is safe for travelers as the pandemic continues. It is critical for tourism destinations to increase travelers trust in the local government's ability to monitor and avoid potential pandemic outbreaks. For example, tourism and travel authorities may create a set of regulations to govern the tourism sector's responsibilities in the event of a public health crisis. In addition, policymakers must commit themselves to improving public communication and safeguarding travelers rights in the event of a pandemic (e.g., policies on cancellation and refunds). Tourism providers may collaborate with official outlets (e.g., government-run social networking platforms and research centers) and provide travel safety recommendations through online platforms, given that the media are the primary sources of information for travelers seeking information about travel destinations. Since travelers may become more wary of outsiders as a result of the pandemic, it has become critical to foster mutual understanding and prevent conflicts that involve travelers.

Furthermore, the findings revealed that in order to boost traveler confidence, tourism operators must enforce effective regulations. Destinations may, for example, popularize basic COVID-19 awareness, illustrate precautionary regulations in various languages and clarify cultural variations in pandemic protective behavior. As a result, this research can be used to establish strategies before engaging in COVID-related behavior change. Furthermore, recognizing recipes that apply to various countries helps policymakers to better understand where and how policy/policy combinations should be based, given that demographics, government emergency public knowledge, and public confidence conditions all play a role in explaining travel avoidance. This will help policymakers improve particular conditions in order to prevent travel during the pandemic.

When the pandemic ends, the government must declare travel to be safe and provide updated travel guidelines, since travelers may still be following the government recommendations for the pandemic (such as avoiding travel). It is critical for tourist hotspots to increase public trust in local authorities' ability to contain and avoid future pandemics. For instance, in the event of a public health emergency, authorities in charge of the tourism industry can institute a set of regulations to govern business's responsibilities. Meanwhile, governments should be dedicated to improving public outreach and preserving travelers rights in the event of a pandemic (e.g., cancellation and refund policies). Travelers rely heavily on the media for information about potential vacation spots; as a result, the tourism industry can work with official channels (such as government-run social media accounts and research centers) to promote safe vacationing. Due to the panic and dread caused by the epidemic outbreak, it is crucial to implement measures to reduce public anxiety and enhance traveler safety in a post-epidemic. If policymakers and service providers in the travel and tourism industry can understand travelers concerns, they may be able to better support the industry's recovery from the recent epidemic. Hence, in the post-pandemic phase, practitioners need to show that the tourism and travel sector can regulate social distancing and reduce the possible dangers of COVID-19 infection among travelers by taking stringent measures. Consequently, it is vital to increase public confidence around more careful kinds of travel on a national or worldwide level to reduce travelers fear in a post-pandemic period.

Finally, males, the highly educated, the elderly, with a high income, and residing in urban areas were found to be more likely to intend to avoid travel during the pandemic. In addition to population-wide interventions, interventions targeted at females, the less educated, the young, and those residing in rural areas may be needed to correct inconsistencies in travel avoidance behaviors in the UK. As a result, in order to avoid health inequalities, policies in the UK should concentrate on motivating younger females with lower educational levels and those who live in rural areas to engage in protective action. To alleviate their fear of traveling, more support services (e.g., emergencies consulting and sanitation equipment) should be offered to young people, males, those less educated and residents in rural areas. Educational messages that are well-designed personalized and illustrated with descriptive diagrams may be one way of reaching out to this segment.

Limitations and Future Research Directions

Some limitations to this study that should be noted may provide fertile ground for future studies. First, this research concentrated on travel avoidance as a protective behavior; future research can explore the protective effect of, for example, preventive behaviors (i.e., wearing a face mask and social distancing). Second, since this research is confined to the travel context, future studies may explore the same model in other settings, adding to current knowledge if it can be validated in a different service setting. Furthermore, it is possible for the government not to be seen as a homogenous unit. In the event of a pandemic, executive leadership and public health administrators and officials with their respective expert panels may have divergent perspectives. Third, in exploring the role of public trust and government emergency public information in promoting protective behaviors, future studies should take the government's views into account. Public trust in the current study has been studied primarily from the perspective of travelers. Fourth, this study focuses on exploring factors affecting travel avoidance behavior in the UK. Future studies could expand our model by testing it in other developed or developing countries for the purpose of generalizing the results. Finally, this research used the PADM and complexity theory to understand the causal recipes leading to travel avoidance, which neglects other factors that may affect travelers avoidance of journeys during the COVID-19 pandemic. To extend the proposed model, future research can incorporate other variables such as perceived fear and threats.

Appendix

Effective pandemic information (EPI) (Strongly Disagree (1) / Strongly Agree (5))		Source
EPI1	Suspected numbers, infected numbers, critically ill numbers, and death toll in different regions are officially announced every day	(Chon & Park, 2021; Dai et al., 2020; M. Sharma et al., 2017)
EPI2	Confirmed patient's recent movements are officially published as soon as possible	
EPI3	Citizens frequently received notifications from the government on where a new infected case was found and where the patient had been	The qualitative study
EPI4	Apps were developed by the government as well as citizens that allowed citizens to track where the infected patients visited.	The qualitative study
Effective risk communication (ERC) (Strongly Disagree (1) / Strongly Agree (5))		Source
ERC1	A lot of information about medical staff and supplies brought from other areas to the front line is officially announced	(Chon & Park, 2021; Dai et al., 2020; M. Sharma et al., 2017; Zhang et al., 2020)
ERC2	Honest communication is accessible and open as well, which means that the public can receive messages by various channels	
ERC3	Where to seek care if suspected	The qualitative study
ERC4	How to protect oneself from infected	The qualitative study
ERC5	What to do if a family member has COVID-19	The qualitative study
Rumor about COVID-19 (RUM) (Strongly Disagree (1) / Strongly Agree (5))		Source
RUM1	Fake news about COVID-19 is officially refuted in time	(Chon & Park, 2021; Dai et al., 2020; M. Sharma et al., 2017)
RUM2	Fake news about COVID-19 is officially denied in time	
RUM3	The news media and the Internet often publish inaccurate or misleading stories about COVID-19 that are not necessarily the most scientifically significant ones	The qualitative study

(continued)

Appendix (continued)

Supplies (SUP) (Strongly Disagree (1) / Strongly Agree (5))		Source
SUP1	Medical staff are sufficient in your current country or region	(Chon & Park, 2021; Dai et al., 2020; M. Sharma et al., 2017) and supported by the qualitative study
SUP2	Medical supplies are sufficient in your current country or region	
SUP3	Living supplies are sufficient in your current country or region	
SUP4	Mental health support is sufficient in your current country or region	
SUP5	Patients are treated on time during the pandemic	
Travel avoidance (TRV) (Strongly Disagree (1) / Strongly Agree (5))		**Source**
TRV1	Avoid traveling during the COVID-19 pandemic period	(Mahoney et al., 2016; Zheng et al., 2021) and supported by the qualitative study
TRV2	Delay making decisions about traveling during the COVID-19 pandemic period	
TRV3	Avoid using public transport due to COVID-19	The qualitative study
TRV4	Reschedule travel plan due to COVID-19	The qualitative study
Trust in government (TRG) (Strongly Disagree (1) / Strongly Agree (5))		
TRG1	Sincere in its attempts to control the outbreak	(Baek & Jung, 2015; Komiak & Benbasat, 2006; Zheng et al., 2021) and supported by the qualitative study
TRG2	Can be trusted to make sensible decisions for further prevention	
TRG3	Does an efficient job in control and prevention	
TRG4	I trust what the government says about measures to control the COVID-19 outbreak	The qualitative study
Trust in media (TRM) (Strongly Disagree (1) / Strongly Agree (5))		**Source**
TRM1	Feel trustworthy about the information	(Baek & Jung, 2015; Komiak & Benbasat, 2006; Zheng et al., 2021).
TRM2	Feel secure using the information	
TRM3	Feel comfortable using the information	
TRM4	I trust what I read in the news about COVID-19	The qualitative study
TRM5	I believe in all the facts that are being shared on social media regarding COVID-19	The qualitative study
Trust in travellers (TRT) (Strongly Disagree (1) / Strongly Agree (5))		**Source**
TRT1	Feel confident that travellers are not infectious	(Baek & Jung, 2015; Komiak & Benbasat, 2006; Zheng et al., 2021) and supported by the qualitative study
TRT2	Feel travellers are trustworthy if they are traveling	
TRT3	Believe travellers have high integrity if they are traveling	

Acknowledgements

(None).

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iDs

Gomaa Agag https://orcid.org/0000-0002-5617-630X
Riyad Eid https://orcid.org/0000-0002-5900-2225

References

Agag, G., Aboul-Dahab, S., Shehawy, Y. M., Alamoudi, H. O., Alharthi, M. D., & Hassan Abdelmoety, Z. (2022). Impacts of COVID-19 on the post-pandemic behaviour: The role of mortality threats and religiosity. *Journal of Retailing and Consumer Services*, *67*(5), 102964.

Agag, G., Brown, A., Hassanein, A., & Shaalan, A. (2020). Decoding travellers' willingness to pay more for green travel products: Closing the intention–behaviour gap. *Journal of Sustainable Tourism*, *28*(10), 1551–1575.

Alaimo, C., & Kallinikos, J. (2017). Computing the everyday: Social media as data platforms. *The Information Society*, *33*(4), 175–191.

Assaf, A. G., Kock, F., & Tsionas, M. (2022). Tourism during and after COVID-19: An expert-informed Agenda for future research. *Journal of Travel Research*, *61*(2), 454–457.

Baek, Y. M., & Jung, C. S. (2015). Focusing the mediating role of institutional trust: How does interpersonal trust promote

organizational commitment? *The Social Science Journal*, *52*(4), 481–489.

Bearden, A., O'Neill, M. P., Osborne, L. C., & Wong, T.L. (1993). Imaging and vibrational analysis with laser-feedback interferometry. *Optics Letters*, *18*(3), 238–240.

Bearth, A., Luchsinger, L., & Siegrist, M. (2021). Reactions of older Swiss adults to the COVID-19 pandemic: A longitudinal survey on the acceptance of and adherence to public health measures. *Social Science & Medicine*, *280*, 114039.

Bhati, A. S., Mohammadi, Z., Agarwal, M., Kamble, Z., & Donough-Tan, G. (2021). Motivating or manipulating: The influence of HealthProtective behaviour and media engagement on PostCOVID-19 travel. *Current Issues in Tourism*, *24*(15), 2088–2092.

Blair, R. A., Morse, B. S., & Tsai, L. L. (2017). Public health and public trust: Survey evidence from the Ebola virus disease epidemic in Liberia. *Social Science & Medicine*, *172*(5), 89–97.

Byrne, D. S., & Callaghan, G. (2014). *Complexity theory and the social sciences: The state of the art*. Routledge.

China Daily. (2020, April 21). Report: China's Fight against COVID-19. Retrieved December 19, 2020, from https://covid-19.chinadaily.com.cn/a/202004/21/WS5e9e2c62a3105d50a3d17880.html

Chon, M.-G., & Park, H. (2021). Predicting public support for government actions in a public health crisis: Testing fear, organization-public relationship, and behavioral intention in the framework of the situational theory of problem solving. *Health Communication*, *36*, 476–486. https://doi.org/10.1080/10410236.2019.1700439

Chua, G. T., Wong, J. S. C., Lam, I., Ho, P. P. K., Chan, W. H., Yau, F. Y. S., Duque, J. S. R., Ho, A. C. C., Siu, K. K., Cheung, T. W., & Lam, D. S. Y. (2021). Clinical characteristics and transmission of COVID-19 in children and youths during 3 waves of outbreaks in Hong Kong. *JAMA Network Open*, *4*(5), 218824.

Churchill, G. A Jr. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, *16*(1), 64–73.

Creswell, J., & Plano-Clark, V. (2006). *Designing and conducting mixed methods research*. Sage.

Dai, B., Fu, D., Meng, G., Liu, B., Li, Q., & Liu, X. (2020). The effects of governmental and individual predictors on COVID-19 protective behaviors in China: A path analysis model. *Public Administration Review*, *80*(5), 797–804.

Daly, M., & Robinson, E. (2021). Longitudinal changes in psychological distress in the UK from 2019 to September 2020 during the COVID-19 pandemic: Evidence from a large nationally representative study. *Psychiatry Research*, *300*, 113920.

Eastwood, K., Else, P., Charlett, A., & Wilcox, M. (2009). Comparison of nine commercially available Clostridium difficile toxin detection assays, a real-time PCR assay for C. difficile tcdB, and a glutamate dehydrogenase detection assay to cytotoxin testing and cytotoxigenic culture methods. *Journal of Clinical Microbiology*, *47*(10), 3211–3217.

Farmaki, A., Olya, H., & Taheri, B. (2021). Unpacking the complex interactions among customers in online fan pages. *Journal of Business Research*, *125*(2), 164–176.

L. Fewtrell, & J. Bartram [Eds.] (2001). *Water Quality: Guidelines, standards and Health: Assessment of risk and risk management for water-related infectious diseases*. World Health Organization. https://apps.who.int/iris/handle/10665/42442

Fiss, P. C. (2007). A set-theoretic approach to organizational configurations. *Academy of Management Review*, *32*(4), 1180–1198.

Fong, L. H. N., Law, R., & Ye, B. H. (2021). Outlook of tourism recovery amid an epidemic: Importance of outbreak control by the government. *Annals of Tourism Research*, *86*(8), 102951.

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error. *Algebra and S*, *39*(4), 61–79.

Foroudi, P., Gupta, S., Kitchen, P., Foroudi, M. M., & Nguyen, B. (2016). A framework of place branding, place image, and place reputation: Antecedents and moderators. *Qualitative Market Research: An International Journal*, *24*(8), 56–71.

Fung, I. C. H., Duke, C. H., Finch, K. C., Snook, K. R., Tseng, P. L., Hernandez, A. C., Gambhir, M., Fu, K. W., & Tse, Z. T. H. (2016). Ebola virus disease and social media: A systematic review. *American Journal of Infection Control*, *44*(12), 1660–1671.

Gannon, M., Taheri, B., & Olya, H. (2019). Festival quality, self-connection, and bragging. *Annals of Tourism Research*, *76*, 239–252.

Gaskin, J. (2017). *Confirmatory factor analysis*. Retrieved October 5, 2020, from http://statwiki.gaskination.com/

George, D., & Mallery, P. (2010). *SPSS for windows a step by step guide, A Simple Guide and Reference*. Pearson.

Gladwell, M. (2002). The talent myth. *The New Yorker*, *22*(2002), 28–33.

Göksu, A., Kocamaz, U. E., & Uyaroğlu, Y. (2015). Synchronization and control of chaos in supply chain management. *Computers & Industrial Engineering*, *86*(5), 107–115.

Grimmelikhuijsen, S., & Knies, E. (2017). Validating a scale for citizen trust in government organizations. *International Review of Administrative Sciences*, *83*(3), 583–601.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *34*(7), 67–91.

Han, Q., Zheng, B., Cristea, M., Agostini, M., Belanger, J., Gutzkow, B., Kreienkamp, J., & Leander, P. (2020). Trust in government and its associations with health behaviour and prosocial behaviour during the COVID-19 pandemic. *PsyCorona*, Advance online publication.

Huang, Y., Zhou, J. L., Yu, Y., Mok, W. C., Lee, C. F., & Yam, Y. S. (2020). Uncertainty in the impact of the COVID-19 pandemic on air quality in Hong Kong, China. *Atmosphere*, *11*(9), 914

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: updated guidelines. *Industrial Management & Data Systems*, *116*(1), 2–20.

Itani, O. S., & Hollebeek, L. D. (2021). Light at the end of the tunnel: Visitors' virtual reality (versus in-person) attraction site tour-related behavioural intentions during and post-COVID-19. *Tourism Management*, *84*(6), 104290.

Johnson, B. B., & Mayorga, M. (2021). Americans' early behavioral responses to COVID-19. *Human and Ecological Risk Assessment: An International Journal*, *27*(7), 1733–1746.

Jones, J. H., & Salathé, M. (2009). Early assessment of anxiety and behavioral response to novel swine-origin influenza A(H1N1). *PLoS One*, *4*(12), 32–47.

Kalgotra, P., Gupta, A., & Sharda, R. (2021). Pandemic information support lifecycle: evidence from the evolution of mobile apps during COVID-19. *Journal of Business Research*, *134*(8), 540–559.

Kellert, S. H. (1994). *In the wake of chaos: Unpredictable order in dynamical systems*. University of Chicago Press.

Koch, J., & Schermuly, C. C. (2021). Managing the crisis: How COVID-19 demands interact with agile project management in predicting employee exhaustion. *British Journal of Management*, *32*(4), 1265–1283.

Komiak, S. Y. X., & Benbasat, I. (2006). The effects of personalization and familiarity on trust and adoption of recommendation agents. *MIS Quarterly*, *30*(4), 941–960.

Leung, K., Bhagat, R. S., Buchan, N. R., Erez, M., & Gibson, C.B. (2005). Culture and international business: Recent advances and their implications for future research. *Journal of International Business Studies*, *36*, 357–378.

Lindell, M. K., Lu, J. C., & Prater, C. S. (2005). Household decision making and evacuation in response to Hurricane Lili. *Natural Hazards Review*, *6*(4), 171–179.

Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*, *86*(1), 114–121.

Litvin, S. W., Guttentag, D., & Smith, W. W. (2022). Who should you market to in a crisis? Examining Plog's model during the COVID-19 pandemic. *Journal of Travel Research*, *61*, 981–989.

Liu, H., Manzoor, A., Wang, C., Zhang, L., & Manzoor, Z. (2020). The COVID-19 outbreak and affected countries stock markets response. *International Journal of Environmental Research and Public Health*, *17*(8), 280–0298.

Liu, J., Wang, C., Fang, S., & Zhang, T. (2019). Scale development for tourist trust toward a tourism destination. *Tourism Management Perspectives*, *31*(5), 383–397.

Liu, Y., Ouyang, Z., & Cheng, P. (2019). Predicting consumers' adoption of electric vehicles during the city smog crisis: An application of the protective action decision model. *Journal of Environmental Psychology*, *64*, 30–38.

Mahmoudabadi, A. (2015). Developing a chaotic pattern of dynamic risk definition for solving hazardous material routing-locating problem. *Journal of Loss Prevention in the Process Industries*, *37*(95), 1–10.

Mahoney, A. E. J., Hobbs, M. J., Newby, J. M., Williams, A. D., Sunderland, M., & Andrews, G. (2016). The Worry Behaviors Inventory: Assessing the behavioral avoidance associated with generalized anxiety disorder. *Journal of Affective Disorders*, *203*(7), 256–264.

Martín-Rojas, R., García-Morales, V. J., Garrido-Moreno, A., & Salmador-Sánchez, M. P. (2021). Social media use and the challenge of complexity: Evidence from the technology sector. *Journal of Business Research*, *129*(7), 621–640.

Mikalef, P., Boura, M., Lekakos, G., & Krogstie, J. (2019). Big data analytics and firm performance: Findings from a mixed-method approach. *Journal of Business Research*, *98*, 261–276.

Nguyen, T. H. H., & Coca-Stefaniak, J. A. (2020). Coronavirus impacts on post-pandemic planned travel behaviours. *Annals of Tourism Research*, *34*(8), 56–72.

Office for National Statistics. (2020). *People, population and community*. Author (p. 18).

Olan, F., Liu, S., Neaga, I., & Alkhuraiji, A. (2016). How knowledge sharing and business process contribute to organizational performance: Using the fsQCA approach. *Journal of Business Research*, *69*(11), 5222–5227.

Olya, H., & Nia, T. H. (2021). The Medical Tourism Index and behavioral responses of medical travelers: A mixed-method study. *Journal of Travel Research*, *60*, 779–798.

Olya, H. G. T., & Al-ansi, A. (2018). Risk assessment of halal products and services: Implication for tourism industry. *Tourism Management*, *65*(4), 279–291.

Olya, H. G. T., & Han, H. (2020). Antecedents of space traveler behavioral intention. *Journal of Travel Research*, *59*(3), 528–544.

Olya, H. G. T., Lee, C. K., Lee, Y. K., & Reisinger, Y. (2019). What are the triggers of Asian visitor satisfaction and loyalty in the Korean heritage site? *Journal of Retailing and Consumer Services*, *47*(2), 195–205.

Olya, H., Jung, T. H., Tom Dieck, M. C., & Ryu, K. (2020). Engaging visitors of science festivals using augmented reality: Asymmetrical modelling. *International Journal of Contemporary Hospitality Management*, *32*(2), 769–796.

Paek, H. J., & Hove, T. (2019). Effective strategies for responding to rumors about risks: The case of radiation-contaminated food in South Korea. *Public Relations Review*, *45*(3), 101762.

Paek, H. J., Hilyard, K., Freimuth, V. S., Barge, J. K., & Mindlin, M. (2008). Public support for government actions during a flu pandemic: Lessons learned from a statewide survey. *Health Promotion Practice*, *9*(4), 60–72.

Pappas, I. O., Papavlasopoulou, S., Mikalef, P., & Giannakos, M. N. (2020). Identifying the combinations of motivations and emotions for creating satisfied users in SNSs: An fsQCA approach. *International Journal of Information Management*, *53*, 102128.

Pappas, N., & Papatheodorou, A. (2017). Tourism and the refugee crisis in Greece: Perceptions and decision-making of accommodation providers. *Tourism Management*, *63*, 31–41.

Park, M. J., Kang, D., Rho, J. J., & Lee, D. H. (2016). Policy role of social media in developing public trust: Twitter communication with government leaders. *Public Management Review*, *18*(9), 1265–1288.

Peter, J. P. (1979). Reliability: A review of psychometric basics and recent marketing practices. *Journal of Marketing Research*, *16*(1), 6–17.

Pew Research Center. (2020). *Public trust in government nears historic lows*. https://www.people-press.org/2020/05/15/publictrust-in-government-1958-2019

Pop, R. A., Săplăcan, Z., Dabija, D. C., & Alt, M. A. (2022). The impact of social media influencers on travel decisions: The role of trust in consumer decision journey. *Current Issues in Tourism*, *25*(5), 823–843.

Qazi, A., Qazi, J., Naseer, K., Zeeshan, M., Hardaker, G., Maitama, J. Z., Maitama, J. Z., & Haruna, K. (2020). Analyzing situational awareness through public opinion to predict adoption of social distancing amid pandemic COVID19. *Journal of Medical Virology*, *92*(7), 849–855.

Ragin, C. C. (1987). *The comparative method: Moving beyond qualitative and quantitative strategies Berkeley, Los Angeles and London*. University of California Press.

Ragin, C. C. (2000). *Fuzzy-set social science*. University of Chicago Press.

Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond*. University of Chicago Press.

Ragin, C. C. (2009). Qualitative comparative analysis using fuzzy sets (fsQCA). In: B. Rihoux, & C. C. Ragin (Eds.), *Configurational comparative methods: Qualitative comparative analysis (QCA) and related techniques* (pp. 87–122). Sage.

Ragin, C. C., & Davey, S. (2014). *Fuzzy-Set/Qualitative comparative analysis 2.5 [Computer software]*. Department of Sociology, University of California.

Ramon, V. D. D., Kantorowicz, J., Kuipers, S., & Liem, M. (2021). Does terrorism dominate citizens' hearts or minds? The relationship between fear of terrorism and trust in Government. *Terrorism and Political Violence*, *33*(6), 1276–1294.

Rihoux, B. (2006). Qualitative comparative analysis (QCA) and related systematic comparative methods: Recent advances and remaining challenges for social science research. *International Sociology*, *21*(5), 679–706.

Rihoux, B., & Ragin, C. C. (2009). *Configurational comparative methods*. Sage.

Room, G. (2011). *Complexity, institutions and public policy: Agile decision-making in a turbulent world*. Edward Elgar Publishing.

Rubin, G. J., Amlôt, R., Page, L., & Wessely, S. (2009). Public perceptions, anxiety, and behaviour change in relation to the swine flu outbreak: Cross sectional telephone survey. *BMJ*, *23*(7), 339–351.

Schmidthuber, L., Ingrams, A., & Hilgers, D. (2021). Government openness and public trust: The mediating role of democratic capacity. *Public Administration Review*, *81*(1), 91–109.

Schneider, C. Q., & Wagemann, C. (2010). Standards of good practice in qualitative comparative analysis (QCA) and fuzzy-sets. *Comparative Sociology*, *9*(3), 397–418.

Seeger, M. W. (2002). Chaos and crisis: Propositions for a general theory of crisis communication. *Public Relations Review*, *28*(4), 329–337.

Sharma, A., Borah, S. B., & Moses, A. C. (2021). Responses to COVID-19: The role of governance, healthcare infrastructure, and learning from past pandemics. *Journal of Business Research*, *122*, 597–607.

Sharma, M., Yadav, K., Yadav, N., & Ferdinand, K. C. (2017). Zika virus pandemic-analysis of Facebook as a social media health information platform. *American Journal of Infection Control*, *45*(3), 301–302.

Sharma, P., Leung, T. Y., Kingshott, R. P. J., Davcik, N. S., & Cardinali, S. (2020). Managing uncertainty during a global pandemic: An international business perspective. *Journal of Business Research*, *116*(3), 188–192.

Song, Y., Kwon, K. H., Lu, Y., Fan, Y., & Li, B. (2021). *The parallel pandemic" in the context of China: The spread of rumours and rumour-corrections during COVID-19 in Chinese social media* (p. 00027642211003153). American Behavioural Scientist.

Speakman, M., & Sharpley, R. (2012). A chaos theory perspective on destination crisis management: Evidence from Mexico. *Journal of Destination Marketing & Management*, *1*(1-2), 67–77.

Stevenson, N., Airey, D., & Miller, G. (2009). Complexity theory and tourism policy research. *International Journal of Tourism Policy*, *2*(3), 206–220.

Su, L., Lian, Q., & Huang, Y. (2020). How do tourists' attribution of destination social responsibility motives impact trust and intention to visit? The moderating role of destination reputation. *Tourism Management*, *77*(2), 103–270.

Taylor, S., Landry, C. A., Paluszek, M. M., Fergus, T. A., McKay, D., & Asmundson, G. J. (2020). COVID stress syndrome: Concept, structure, and correlates. *Depression and Anxiety*, *37*(8), 706–714.

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research*. Sage.

Terpstra, T., & Lindell, M. K. (2012). Citizens' perceptions of flood hazard adjustments: An application of the protective action decision model. *Environment and Behavior*, *45*(8), 993–1018.

Uddin, M., Chowdhury, A., Anderson, K., & Chaudhuri, K. (2021). The effect of COVID - 19 pandemic on global stock market volatility: Can economic strength help to manage the uncertainty?. *Journal of Business Research*, *128*, 31–44.

Urry, J. (2005). The complexity turn. *Theory, Culture & Society*, *22*(5), 1–14.

Venkatesh, V., Brown, S. A., & Bala, H. (2013). Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems. *MIS Quarterly*, *25*(8), 21–54.

Wang, J., Shen, J., Ye, D., Yan, X., Zhang, Y., Yang, W., Li, X., Wang, J., Zhang, L., & Pan, L. (2020). Disinfection technology of hospital wastes and wastewater: Suggestions for disinfection strategy during coronavirus Disease 2019 (COVID-19) pandemic in China. *Environmental Pollution*, *262*, 114665.

Wang, Y., Hong, A., Li, X., & Gao, J. (2020). Marketing innovations during a global crisis: A study of China firms' response to COVID-19. *Journal of Business Research*, *116*(2), 214–220.

Wang, Y., Zhang, M., Li, S., McLeay, F., & Gupta, S. (2021). Corporate responses to the Coronavirus crisis and their impact on electronic-word-of-mouth and trust recovery: Evidence from social media. *British Journal of Management*, *32*(4), 1184–1202.

Woodside, A. G. (2012). Proposing a new logic for data analysis in marketing and consumer behavior: Case study research of large-N survey data for estimating algorithms that accurately profile X (extremely high-use) consumers. *Journal of Global Scholars of Marketing Science*, *22*(4), 277–289.

Woodside, A. G. (2013). Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory. *Journal of Business Research*, *66*(4), 463–472.

Woodside, A. G. (2014). Embraces perform model: complexity theory, contrarian case analysis, and multiple realities. *Journal of Business Research*, *67*(12), 2495–2503.

Woodside, A. G. (2017). *The complexity turns: Cultural, management, and marketing applications*. Springer.

Woodside, A. G., Nagy, G., & Megehee, C. M. (2018). Applying complexity theory: A primer for identifying and modeling firm anomalies. *Journal of Innovation & Knowledge*, *3*(1), 9–25.

Woodside, A. G., Prentice, C., & Larsen, A. (2015). Revisiting problem gamblers' harsh gaze on casino services: Applying complexity theory to identify exceptional customers. *Psychology & Marketing*, *32*(1), 65–77.

Xu, B., Gutierrez, B., Mekaru, S., Sewalk, K., Goodwin, L., Loskill, A., Cohn, E. L., Hswen, Y., Hill, S. C., Cobo, M. M., Zarebski, A. E., Li, S., Wu, C. H., Hulland, E., Morgan, J. D., Wang, L., O'Brien, K., Scarpino, S. V., Brownstein, J. S., & Kraemer, M. U. G. (2020). Epidemiological data from the covid-19 outbreak, real-time case information. *Scientific Data*, *7*(1), 106–134.

Zahra, A., & Ryan, C. (2007). From chaos to cohesion—Complexity in tourism structures: An analysis of New Zealand's regional tourism organizations. *Tourism Management*, *28*(3), 854–862.

Zaichkowsky, J. L. (1985). Measuring the involvement construct. *Journal of Consumer Research*, *12*(3), 341–352.

Zhan, L., Zeng, X., Morrison, A. M., Liang, H., & Coca-Stefaniak, J. A. (2022). A risk perception scale for travel to a crisis epicentre: Visiting Wuhan after COVID-19. *Current Issues in Tourism*, *25*(1), 150–167.

Zhang, L., Zhai, H., Ma, S., Chen, J., & Gao, Y. (2020). Efficacy of therapeutic plasma exchange in severe COVID-19 patients. *British Journal of Haematology*, *190*(4), 181–197.

Zhao, D., & Hu, W. (2017). Determinants of public trust in government: Empirical evidence from urban China. *International Review of Administrative Sciences*, *83*(2), 358–377.

Zheng, D., Luo, Q., & Ritchie, B. W. (2021). Afraid to travel after COVID-19? Self-protection, coping and resilience against pandemic 'travel fear. *Tourism Management*, *83*(5), 104–261.

Zheng, D., Luo, Q., & Ritchie, B. W. (2022). The role of trust in mitigating perceived threat, fear, and travel avoidance after a pandemic outbreak: A multigroup analysis. *Journal of Travel Research*, *61*, 581–596.

Author Biographies

Gomaa Agag is an Associate Professor of Marketing at Nottingham Business School. Gomaa Publications largely relate to digital marketing, consumer behaviour, information systems in developing countries, social networking, and international business. Dr Agag have more than 40 journal and conferences papers published in leading scientific journals such as British Journal of Management, Tourism Management, Journal of Travel Research, Journal of Business Ethics, and International Journal of Contemporary Hospitality Management. Gomaa serves as an Associate Editor of International Journal of Disruptive Innovation in Government and International Journal of Customer Relationship Marketing and Management.

Ziad Hassan Abdelmoety is a lecturer in Marketing at University of Dundee School of Business, Marketing & Management. His research is focused in areas such as consumer behaviour and digital marketing. His research has appeared in leading scientific journals such as Information Technology & People and Journal of Retailing and Consumer Services. He serves as a reviewer in serval Journals.

Riyad Eid is a Professor of Marketing at the United Arab Emirates University. Prof Riyad Eid earned his PhD in internet marketing from Bradford University (UK) in 2003. Prof Eid is the founding and current editor-in-chief for the International Journal Customer Relationship Marketing, Management, and Editor in Chief: International Journal of Disruptive Innovation in Government (Emerald Journal funded by the UAE Government Prime Minister's Office). He held various academic positions in UK and UAE. He is specialized in the area Tourism & Hospitality Marketing. Riyad authored or co-authored 118 scientific papers in high impact factor journals. Prof Riyad Eid's research has been funded by grants from South Staffordshire Local Education Authority Fund for research project "Community Engagement," UAEU and University of Science and Technology Beijing, P.R. China. Professor Riyad Eid has been featured in the list of "World Ranking of Top 2% Researchers" in the 2021and 2022 databases created by experts at Stanford University, USA.