

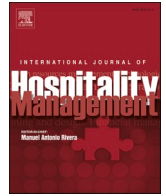


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# Accommodation decision-making during the COVID-19 pandemic: Complexity insights from Greece

Nikolaos Pappas<sup>a,\*</sup>, Kyriaki Glyptou<sup>b</sup>

<sup>a</sup> Dept. of Hospitality, Events, Aviation and Tourism, University of Sunderland, Sir Tom Cowie Campus, St. Peter's Way, SR6 0DD, Sunderland, UK

<sup>b</sup> School of Events, Tourism and Hospitality Management, Leeds Beckett University, Headingley Campus, LS6 3QS, Leeds, UK

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## ABSTRACT

With the remaining ambiguity around COVID-19 effective treatment, the decision-making process for 2020 tourists remains fraught with complexity. Drawing from a sample of 385 permanent Athenian residents, the study explores the decision-making attributes driving their accommodation purchasing preferences in times of increased uncertainty. The complex dynamics are investigated using fuzzy-set Qualitative Comparative Analysis. A complementary analysis evaluates the size effect of the examined conditions using Necessary Condition Analysis. In total, four solutions are generated concerning: (i) health and safety; (ii) the price-quality nexus; (iii) risk aspects; and (iv) quality related health and safety. The study contributes towards the initiation of the theoretical discourse on the foundations of the exploration of tourists' accommodation choice triggers and dilemmas in times of pandemics. The results inform market intelligence with regard to accommodation-related customer priorities, perceptions and intentions during the pandemic which lay several important managerial implications for the accommodation industry.

## 1. Introduction

Since the beginning of 2020 the international community has experienced the unprecedented impacts of COVID-19 which was declared a pandemic by the World Health Organisation (WHO) on 12 March. Bound by containment measures, health and hygiene regulations and the closing of borders, the global travel, tourism and hospitality industry was amongst the sectors most affected by the pandemic. The first quarter of 2020 recorded a global decrease of 22 percent (57 percent for March alone) in international arrivals, a loss of about 67 million international arrivals in absolute numbers and approximately \$80 billion in receipt losses (UNWTO, 2020a). With countries gaining confidence to slowly reopen their businesses and markets since the beginning of June, the duration and intensity of the market impact remains primarily subject to the recovery of clients' trust (Gössling et al., 2020). Yet, propensity to travel even within the same country still remains subject to tourists' disposable income and savings, their work arrangements and their perception and aversion to risk (Chen and Lin, 2013; Lepp and Gibson, 2003; Williams and Balaz, 2013).

The extent of the socio-economic impact of the pandemic and primarily businesses' response raises concerns about the preparedness of

the industry to cope with prolonged periods of crisis and its overall resilience. Severance schemes have been a common practice in the hospitality sector in previous cases of crisis or demand uncertainty (e.g. Chen and Yen, 2012; Lado-Sestayo et al., 2016; Tse et al., 2006). Considering the specifics of the current pandemic though, a number of academics (Gössling et al., 2020; Hall et al., 2020; Rivera, 2020) are already advocating the need for systemic changes in both research and practice in the tourism and hospitality sector with Sigala (2020, p.313) suggesting that effective change could only come from a "deeper examination and understanding of tourism stakeholders' (behavioural, cognitive, emotional, psychological and even ideological) drivers, actions and reactions to their COVID-19 impacts".

In a series of national surveys conducted by McKinsey and Company (2020) on pandemic-induced consumer sentiment and its implications for their purchasing behaviour and motivations, statistics for most countries suggest a sharp decrease in expected spending on tourism and hospitality activities. Amongst the considered categories cruising is perceived to be the safest alternative (for residents of countries like Germany, the UK, USA, France and Italy) while travel by car is preferred to taking domestic flights. In terms of their accommodation preferences, the nationals of multiple countries seem to feel more comfortable with

\* Corresponding author.

E-mail addresses: [nikolaos.pappas@sunderland.ac.uk](mailto:nikolaos.pappas@sunderland.ac.uk) (N. Pappas), [k.glyptou@leedsbeckett.ac.uk](mailto:k.glyptou@leedsbeckett.ac.uk) (K. Glyptou).

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short-term home rentals than hotel/resort stays, yet their underlying rationale is not clear (McKinsey and Company, 2020). It is in fact the comprehension of the conscious and unconscious stimuli at the various levels of the decision-making process that could accelerate the recovery of operations and the sector's resilience.

In response to the need for a better theoretical comprehension of customers' intentions and decision-making triggers ahead of the rocky road to COVID-19 recovery, this paper aims to provide a critical exploration of those triggers and the underlying necessary conditions with regard to accommodation preferences during the unprecedented times of a pandemic. Accommodation is still amongst the most important attributes of the tourism value experience, hence an exploration of customers' accommodation preferences could possibly highlight further implications for their overall travel intentions.

Using Greece as a case study, a well-established tourism destination and a country recognised internationally for its exemplary response planning a measures taken during the COVID-19 pandemic, this research explores the predispositions of 385 Athenians towards their holiday accommodation selection for the summer of 2020. To capture holistically the causal complexity (attributes) and conjectures inherently associated with the pandemic, the paper applies a fuzzy-set Qualitative Comparative Analysis (fsQCA) method to account simultaneously for both the case-oriented and variable-oriented quantitative analysis attributes. To explore the necessary conditions between them, and thus identify those critical factors and conditions that dictate the decision outcome, the paper further applies Necessary Condition Analysis (NCA), a method that to the best of the authors' knowledge has not yet been applied in the field of tourism and hospitality.

The study is amongst the foundations of the exploration of tourists' accommodation choice triggers and dilemmas in times of pandemic, and hence contributes towards the initiation of the theoretical discourse. Moreover, building on the findings from a country that has already built some COVID-19 confidence amongst its nationals due to its response during the pandemic, the managerial implications of this research rely on the enhancement of the accommodation market intelligence around customers' priorities, intentions and decision-making triggers. This will be helpful for hospitality providers responsible for service customisation in COVID-19 affected times.

## 2. COVID-19 in Greece

After confirmation of the first infection in the country on 26 February 2020, Greece initiated a series of increasing restrictions to respond to the COVID-19 outbreak (ECDC, 2020). Beginning with the cancellation of large events, the country progressed to the imposition of strict regulations on international arrivals, and finally confinement of movement and closure of non-essential shops on 23 March. Up to 20 June 2020, Greece had reported 3237 confirmed cases and 189 deaths from COVID-19 which corresponds to 1.76 deaths per 100,000 citizens (ECDC, 2020), much lower than the respective numbers from the country's direct tourism competitors (e.g. Spain, Turkey and Italy). The stabilisation of the numbers of active cases gave the authorities confidence to progressively relax lockdown restrictions from 4 May, resuming mainland transportation later in the month (OECD, 2020). Since then, full season hotels and camping sites were re-opened on 1 June, while seasonal establishments opened and restrictions on international arrivals were relaxed on 15 June (OECD, 2020). Moreover, in line with EC recommendations, Greece has established a series of health protocols for all tourism-related and accommodation providers of over 50 rooms capacity (Reg.1881/29.05.2020), together with penalties for failure to implement them (€ 500-5,000 and up to 90 days suspension of operations).

According to the Organisation for Economic Co-operation and Development's (OECD) Economic Outlook (June 2020), the 2020 GDP of Greece is expected to fall by eight percent in 2020 in the single-outbreak scenario and approximately 9.8 percent in the event of a second wave of

the pandemic later in the year (OECD, 2020). Interestingly, the projections suggest less severe losses in output, revenues and employment than during the economic recession of 2009–2016. In fact, the same study suggests that the fluctuation of individual consumption between 2019–2020 for Greece is estimated only in a loss of 8.4 percent, whereas for Italy is 13.3 percent, Spain 17.3 percent and the UK 18.5 percent, indicating the purchasing capacity of the average Greek household. Greece is a country in the process of recovery from previous crises which have severely affected private consumption and business reserves. Due to the overall vulnerability of its economy and its high dependence on tourism (over 20 percent of GDP), the European Bank for Reconstruction and Development (EBRD) considers Greek tourism to have low resilience to the external shocks associated with COVID-19 such as commodity prices and disruption in global value chains (EBRD, 2020).

Historically, in crises affecting the tourism and accommodation sector, the recovery of the number of arrivals and overnights is faster than that of the volume of revenues. However, the unprecedented circumstances of the COVID-19 pandemic make travel decision-making and behaviour uncharted waters even for domestic tourists (Gössling et al., 2020). In a national study conducted by the Athens-based market research firm Kapa in April (2020), at the peak of the COVID-19 outbreak, 55 percent of participants claimed they felt "ready to get back to their daily routine" (Kapa Research, 2020). When asked about the prioritisation of their preferred activities when back in routine, Greeks appeared more confident to pursue recreational activities such as swimming in the sea (82 percent), going on holiday (77 percent), and consuming hospitality services in restaurants and cafes (80 percent). Activities of which they were most wary included travelling by plane (48 percent) and using public means of transportation (46 percent), which makes domestic tourism and travelling by private car the optimum solution considering the circumstances (Kapa Research, 2020).

To the best of the authors' knowledge, there has so far been no research to capture accommodation preferences and predispositions in the Greek domestic market overall even more so, during the COVID-19 pandemic. The only research addressing the decision-making attributes of Greeks was conducted by Pappas (2017), yet it only focused on peer-to-peer sharing economy accommodation preferences during the latest part of the economic recession. Even if not directly comparable, the study may still provide certain insights on the accommodation purchasing behaviour of Greeks summarized in the: (i) economic-social nexus; (ii) the association of perceived risks to expected benefits; and (iii) price sensitivity, with the latest deemed particularly influential in the context of the economic crisis.

## 3. Decision-making under uncertainty

Amidst the unprecedented circumstances of the COVID-19 pandemic, risk assessment, risk decoding, and the decision-making process are all uncharted territory (Sigala, 2020). Besides the ambiguity of its transmission and the lack of treatment, this pandemic has a strong dynamic element because it is still ongoing. Yet as Smallman and Moore (2010) suggest, research is often driven by critical incidents and concerns at a particular point in time, hence COVID-19 presents a unique opportunity to explore the complexity of the tourist decision-making process and its ontological grounding.

According to behavioural scientists, tourist decision-making builds around the expected perception of risk, whether general or tourism experience specific. Pizam et al. (2004, p.252) define risk-taking as any "consciously, or non-consciously controlled behaviour with a perceived uncertainty about its outcome". The differentiation between the notions of risk and uncertainty lies in the unpredictability of the later (Knight, 1921). Tourism decision-making in fundamentally complex as it primarily entails uncertainties rather than anticipated (known) risks (Williams and Balaz, 2013), further distorted by confirmation and information biases. Whether cognitive or affective, known or unknown, risks and the associated uncertainty influence the intentions and

behaviours of decision makers as well as their overall level of tolerance or aversion (Williams and Balaz, 2013). Within a world of incomplete and dynamic information, tourists' predispositions towards risk as well as the inhibitors and triggers of their decision-making have been well addressed in the international literature (e.g. Lepp and Gibson, 2008; Ritchie, 2008; Silva et al., 2010; Sönmez and Graefe, 1998; Williams and Balaz, 2013).

From an external environment perspective, risk revolves around the perception of safety and security which can be challenged by multiple threats including natural disaster, civil unrest, technology failure, or epidemic (Poon and Adams, 2000). Yet, from a consumer behaviour perspective Schiffman and Kanuk (1991) identified seven intrinsic typologies of risk: functional or performance, financial, social, physical, satisfaction, psychological, and time related. Regardless of its manifestation, risk perception relies on social amplification, culture and especially on customer psychometrics (Gierlach et al., 2010). Social amplification relates to the risk communication process along the various channels of information, while culture denotes the collective resilience of a certain group of people to risk and the mindset developed around it (Aliperti and Cruz, 2019). The psychographic response to risk, though, refers to an individual's anticipation of risk-related fear and the degree of familiarity with the risk (Gierlach et al., 2010). Still, the actual behaviours are driven by socio-demographic parameters (age, gender, education), the duration of exposure to risk, and the perceived liability when one makes a decision for oneself or needs to consider one's dependants (a family with children) (Silva et al., 2010; Sönmez and Graefe, 1998).

The tourist decision-making process is inherently an amalgamation of cognitive contextual facts and affective perceptions, with the last subject to a number of intangible attributes (Williams and Balaz, 2013). Risk perceptions thus contextualise the likelihood and magnitude of the negative consequences of an incident, rather than being its factual assessment (Karl, 2018). Within the decision-making process individuals explore the limits of the risk and uncertainty associated with their decisions, aiming to maximise utility while minimising loss (Karl, 2018). Yet in cases of increased complexity, cognitive uncertainty and time limitations, the Bounded Rationality Theory – BRT (Simon, 1957) suggests that individuals will compromise, making satisfactory rather than optimal decisions, hence they often prompt for product and service alternatives and substitutions rather than cancellations.

Simon's BRT resides on an individual's model of reality built around their heuristics, biases, omissions and distortions that influence their internal interpretation of a situation and the perceived risk within a finite timeframe (Gerasimou, 2010; Mahmoudi and Pingle, 2018). Under bounded rationality, decision-making is often conceptualised as the process of sequential decisions that aim more to the satisfaction with rather than the optimization of the outcome (Koumakhov, 2009; Simon, 1986). When applying BRT in the context of hotel selection among different types of travellers in the pre-COVID era, Wang et al. (2020) concluded that traveller typology affected greatly customer preferences and the importance of their decision criteria.

Traveller typology and psychosynthesis thus only becomes more pivotal in the light of the COVID-19 implications, and further exacerbated by the associated ambiguity of vulnerability. Within the broader field of behavioural economics, risk perception and cognition inform one's internal interpretation of stimuli, hence their response to a certain situation based on frequency-based probabilities and maximisation of expected utility (Todd and Gigerenzer, 2003; Karl, 2018). Other than singling out the best alternative, the "bounded rational" individual tourist incorporates into their heuristic decision model the inherent imperfection of indecisiveness and complexity associated with human reasoning and decision-making under risk and uncertainty (Gerasimou, 2010; Mahmoudi and Pingle, 2018).

Edwards and Potter (1992) proposed that even causality in decision-making is more complex than anticipated, being context-dependent and discursively constructed due to the existence of

multiple realities (Smallman and Moore, 2010). It thus appears that our self-perceived confidence concerning management of risks and maintenance of a certain level of control influences our attitude to risk and decision-making. Pearce (1982) has conceptualised that need in terms of the notions of familiarity versus novelty seeking, which have been more implicit than explicit in tourism research (Williams and Balaz, 2013). The integration of the two notions could be useful in explaining tourists' accommodation preferences which even equivalent from a strictly hygiene perspective might have other appealing features for the potential consumers amidst the COVID-19 pandemic.

Research on the implications of COVID-19 on tourists' decision-making process is still in development. Interestingly, Kock et al. (2020) postulate a shift in tourist's psyche leading to mind-set and behavioural change during and after the COVID-19 era. Their research which is grounded on evolutionary psychology explores tourist behavioural adaptation through the lens of fundamental evolutionary motives, expressed in the case of COVID-19 primarily through self-protection and disease avoidance (Kock et al., 2020). Their work builds on previous research on tourists' perception of infection risks, exposure and vulnerability (Chien et al., 2017; Wang et al., 2019). In the specific context of COVID-19, findings from Kock et al. (2020) suggest travellers' perception of COVID-19 infectability risk to be associated with the psychological concepts of ethnocentrism, xenophobia, and crowdedness. In the same time, their cognitive and conative travel propensity was positively influenced by attributes reinforcing their feeling of safety such as group travel preference, travel insurance, and destination loyalty. From a hospitality perspective, a research conducted by Kaushal and Srivastava (2021) in India on industry experts amid the pandemic identified hygiene and sanitation as the expected drivers of consumer behaviour and preferences. Experts further on anticipated that officially established standards on waste management and sanitation practices in all forms of hospitality operations along transparent monitoring systems to offer additional reassurances to potential travellers and influence their decision-making process.

### 3.1. Study tenets

In the service industry the word 'tenet' is used as a term for the testable precepts concerning the order of identification of complex conditions (Papatheodorou and Pappas, 2017). Usually there is no involvement of statistical hypotheses and consistency metrics, since the outcome scores are used for adequacy determination for the complex configurations (Wu et al., 2014). In terms of factor arrangement, configuration theory suggests that the same set of causal factors can generate different outcomes (Ordanini et al., 2014). This study examines the effect of COVID-19 on Athenian residents in terms of aspects of accommodation hence it evaluates the presence or absence of binary sets.

In order to examine the complexity of COVID-19 effect on Athenians concerning the accommodation decision-making, specific aspects had to be taken under consideration. For starters, when dealing with asymmetric analysis there is usually a significant differentiation of Y scores from the causes of low Y scores (Causal Asymmetry/Recipe principle) (Fiss, 2011). Research wise, this principle operates as a basis of complexity theory (Weick and Sutcliffe, 2007). Moreover, multiple paths (complex configurations) should be able to lead to the same outcome (Equifinality principle) (Woodside, 2014). Following Serman and Wittenberg (1999); Pappas (2019), and Woodside (2014) studies, six tenets have been formulated for this purpose:

T1: A single attribute is likely to influence different decisions in connection with COVID-19 and aspects of accommodation depending on the interaction this attribute has with other attributes.

T2: Recipe principle: When a complex condition is created (inclusion of at least two simple conditions) it leads to an outcome condition that is likely to generate a consistently high score.

T3: Complex interactions can affect the influence of COVID-19 on aspects of accommodation.



T4: The interactions of the simple conditions in different combinations can influence in a positive or negative manner the effect of COVID-19 in terms of aspects of accommodation.

T5: Equifinality principle: A sufficient effect upon the influence of COVID-19 on aspect of accommodation is not necessary to result a high score of outcome.

T6: When we have high Y scores, a given recipe for the influence of COVID-19 in terms of aspects of accommodation is not relevant for all cases.

#### 4. Methods

##### 4.1. Participants

The research was conducted in Athens, Greece in April 2020 and involved adult Athenian residents. At that time, Athens, and indeed the whole country, was under strict lockdown (formal written authorisation required to exit a place of residence; commuting prohibited over distances further than a few kilometres from home and to different city municipalities; complete closure of all except essential stores and services [food stores; pharmacies; gas stations], amongst other things) due to the COVID-19 pandemic. To comply with restrictions on travel and the guidance on social distancing, the perceptions of participants were collected using structured questionnaires administered during interviews over telephone landlines. Random sampling was implemented by selecting 210 local area codes (the local starting code of most Athenian landline telephone numbers). After explaining the purpose of the research and securing anonymity and confidentiality of responses, the participants were asked to answer specific questions. For partially completed interviews, a listwise deletion approach (the entire record is excluded from further analysis) was adopted. According to Allison (2001) this is the least problematic way to handle missing data.

##### 4.2. Sample

The unprecedented conditions generated by the pandemic meant that the perspectives of the population were unknown. Hence, following Akis et al. (1996), the most conservative format for responses (50 percent deemed to be positive and the other 50 percent likely to be negative) was assumed in order to determine the sample size. According to Sekaran and Bougie (2013), for a sample larger than 20 people, the cumulative probability (Z) is 1.96 (taken from a T-table). As a result, the sample size is calculated as follows:

$$N = \frac{Z^2(\text{hypothesis})}{S^2} \Rightarrow N = \frac{1.96^2(0.5)(0.5)}{(0.5)^2} \Rightarrow N = 384.16$$

The sample size calculation is independent of the overall population size, since the former determines the error (Aaker and Day, 1990). The research was concluded when 385 useful questionnaires completed during personal interviews were completed.

##### 4.3. Measures

The questionnaire consisted of 34 Likert scale statements (1: Strongly disagree; 5: Strongly agree), and two categorical (age; booking time) grouping questions.

The rationale of scale selection, validity, and reliability is consistent and supported by previous research such as Gross and Brown (2008), and Kyle et al. (2003). The statements concerning general risks, price and quality issues were adopted from previous studies. More specifically, general risks from Pappas (2017), price issues from Tussyadiah and Personen (2016) and quality issues from Pappas (2019). Also included were two exclusion questions: (i) the respondents had to be adults; (ii) the respondents had to have lived in Athens for the last three years.

Each and every crisis is characterised by high levels of complexity, whilst the decision-making of tourists in accommodation industry also involves considerable levels of uncertainty, multiple factors to consider and, thus, it concerns a complex process (Pappas, 2018). Therefore, the study had to use a method able enough to examine such issues. For the examination of complex statements the study employed fuzzy-set Qualitative Comparative Analysis (fsQCA), and for the evaluation of the effect size of the selected antecedents it used Necessary Condition Analysis (NCA). fsQCA is considered to be a mixed method, since it empirically tests quantitative data and analyses specific cases using qualitative inductive reasoning (Longest and Vaisey, 2008). Following Woodside and Zhang (2013), the study also estimated negated sets (presence or absence of a given condition). The indication of an attribute's absence is highlighted using “~” as a symbol. NCA is used for the identification of necessary conditions in datasets, and can be employed as a complementary method in both linear (i.e. regression) and non-linear (i.e. QCA) analysis (Dul, 2020). The importance of employing NCA lies in the fact that a necessary condition is a critical outcome factor, meaning that if the condition is not present the outcome will not occur (ERiM, 2020).

A study can progress to fsQCA when a general asymmetry towards the examined relationships is present, and under the condition that the absolute correlated values of all coefficients are lower than .60 (Skar-meas et al., 2014). The correlations of the coefficients under evaluation are presented in Table 1, and all of them are less than .6, hence the causal conditions generated by different combinations are able to lead to the same outcome (Woodside, 2013). The study aims to examine the effect of COVID-19 on Athenian permanent residents in terms of their accommodation preference and selection. In order to achieve this aim, the research estimates the causal recipes (complex antecedent conditions) able to lead to high membership scores in the following conditions: (i) general risks; (ii) price issues; (iii) quality issues; (iv) sanitation risks; and (v) hygiene. It also takes into consideration the grouping variables of age and holiday booking time (the latter is based on the spread of the pandemic). By employing NCA the study further progresses to a complementary analysis of the size effect of the conditions under evaluation, determining the potential to lead to the desired outcome.

##### 4.4. Algorithms

The study evaluates the causal recipes able to provide a high membership score. The research was calibrated using a group of 38 individual, randomly selected, cases. For the evaluation of COVID-19 amongst the Athenian permanent residents (f\_c) the calibrated fuzzy-sets used were ‘f\_a’ for age, ‘f\_b’ for booking time, ‘f\_gr’ for general risks, ‘f\_pi’ for price issues, ‘f\_qi’ for quality issues, ‘f\_sr’ for sanitation risks, and ‘f\_h’ for hygiene.

#### 5. Results

As previously mentioned, the data consists of the responses of 385 adult permanent Athenian residents. Table 2 illustrates the demographics of the respondents. Table 3 presents the descriptive statistics of the research.

Since not all statements were adopted from previous studies,

**Table 1**  
Correlation Matrix.

	1	2	3	4	5	6
1 General Risks	1					
2 Price Issues	.124	1				
3 Quality Issues	-.004	.061	1			
4 Sanitation Risks	-.207	-.109	-.002	1		
5 Hygiene	-.026	.029	.105	.061	1	
6 Coronavirus	-.042	.045	-.007	.053	.268	1

**Table 2**  
Profile of the sample.

	N	%
<i>Age</i>		
18–35	136	35.3
36–50	191	49.6
Over 50	58	15.1
<i>Booking Time</i>		
Before November 2019	98	25.5
From November 2019 until March 2020	92	23.9
From March 2020 and on	50	13.0
Not booked yet	145	37.7
<i>Total</i>	385	100

Exploratory Factor Analysis (EFA) was employed. The KMO value was .739 ( $p < .01$ ), higher than the minimum acceptable ( $>.6$ ). Loadings less than .4 were excluded from further analysis due to low commonality (the minimum acceptable is .4 [Norman and Streiner, 2008]). Cronbach’s alpha (A) was used for reliability analysis. The overall A value was .769 (the minimum acceptable is .7 [Nunnally, 1978]), whilst all components achieved an A value higher than .8. Table 4 presents the

**Table 3**  
Descriptive statistics.

	Means	Std. Dev.	Age			Booking Time			
			18–35	36–50	Over 50	Before NOV	NOV–MAR	After MAR	Not Yet
<i>General Risks</i>									
GR1	3.54	.847	3.72	3.40	3.55	3.53	3.53	3.34	3.61
GR2	3.73	.832	4.04	3.55	3.59	3.79	3.77	3.42	3.77
GR3	4.00	.900	4.33	3.80	3.86	4.05	4.05	3.72	4.02
GR4	3.91	.982	4.26	3.70	3.83	3.97	3.73	3.52	4.13
<i>Price Issues</i>									
PI1	2.84	.956	2.99	2.72	2.84	2.96	2.80	2.72	2.81
PI2	3.32	1.138	3.61	3.14	3.22	3.34	3.07	3.10	3.54
PI3	3.21	1.179	3.59	2.93	3.26	2.93	3.09	2.68	3.66
PI4	3.60	1.175	3.70	3.53	3.62	3.78	3.24	3.38	3.79
PI5	3.85	1.133	4.10	3.73	3.64	4.20	3.64	3.54	3.85
PI6	2.70	.925	2.78	2.67	2.64	2.73	2.74	2.50	2.73
PI7	3.41	1.178	3.85	3.06	3.53	3.24	3.30	2.84	3.79
PI8	3.96	1.113	4.24	3.84	3.72	4.33	3.74	3.70	3.95
<i>Quality Issues</i>									
QI1	3.90	.713	3.99	3.87	3.76	3.81	3.92	4.00	3.91
QI2	3.58	.974	3.49	3.62	3.64	3.41	3.58	3.76	3.63
QI3	3.77	1.028	3.67	3.80	3.93	3.52	3.87	3.88	3.84
QI4	3.23	1.117	2.93	3.42	3.29	3.06	3.18	3.54	3.26
QI5	3.94	1.043	3.79	4.01	4.03	3.67	4.03	4.02	4.02
QI6	3.10	1.129	2.83	3.26	3.21	2.97	3.02	3.40	3.14
<i>Sanitation Risks</i>									
SR1	3.93	.662	3.76	3.93	4.34	3.92	3.93	3.92	3.94
SR2	4.10	.699	3.94	4.09	4.47	4.16	4.05	4.12	4.07
SR3	4.26	.699	4.13	4.27	4.53	4.33	4.14	4.38	4.24
SR4	3.59	.970	3.26	3.72	3.93	3.44	3.60	3.68	3.66
SR5	3.31	1.210	2.95	3.49	3.53	3.11	3.34	3.42	3.38
SR6	3.98	.745	3.82	3.97	4.38	4.07	3.95	3.96	3.95
<i>Hygiene</i>									
H1	3.55	.853	3.35	3.65	3.66	3.36	3.37	3.84	3.68
H2	3.96	.965	3.93	3.99	3.95	3.96	3.76	4.14	4.03
H3	3.29	1.021	2.84	3.46	3.78	3.09	3.18	3.74	3.32
H4	4.00	.937	4.10	4.00	3.78	3.99	3.83	4.12	4.08
<i>Coronavirus</i>									
C1	3.78	.875	3.68	3.80	3.97	3.86	3.73	3.72	3.78
C2	3.82	.830	3.69	3.87	3.97	3.76	3.79	3.86	3.87
C3	3.71	.868	3.57	3.77	3.84	3.62	3.72	3.65	3.79
C4	3.99	.924	4.06	3.90	4.14	4.04	3.90	3.94	4.03
C5	4.07	1.000	4.04	4.02	4.28	4.19	4.04	4.12	3.98
C6	4.28	.962	4.24	4.29	4.34	4.30	4.42	4.50	4.10

examined items, the loadings, and the results of the Cronbach’s A analysis.

5.1. Sufficient complex statements

The research has produced four sufficient complex solutions, presented in Table 5. The first complex solution ( $f_{a,f_b,\sim f_{gr},\sim f_{pi},\sim f_{qi},f_{sr},f_h}$ ) includes both grouping fuzzy-sets (age; booking time) with high membership scores for sanitation risks and hygiene. This configuration has the highest consistency (.85212) of all the generated complex solutions. The second solution ( $f_{a,\sim f_b,f_{gr},f_{pi},f_{qi},\sim f_{sr},\sim f_h}$ ) includes the grouping variable of age and the high scores for the antecedents of general risks, and price and quality issues. The third sufficient complex configuration ( $f_{a,f_b,f_{gr},\sim f_{pi},\sim f_{qi},f_{sr},f_h}$ ) includes both grouping variables and shows high membership scores concerning general and sanitation risks, and hygiene. This configuration has the highest coverage (.45927). The last of the four generated complex solutions ( $\sim f_{a,f_b,f_{gr},\sim f_{pi},f_{qi},f_{sr},f_h}$ ) includes the grouping variable of booking time, and is based on high general and sanitation risks, quality issues, and hygiene. This configuration has the lowest coverage (.40283) and consistency (.80373).

**Table 4**  
Loadings and Cronbach's A.

Statements	Loadings	A
<i>General Risks</i>		
GR1 I think about the risk of not having made a good purchase bearing in mind the price I pay	-.553	.859
GR2 When booking accommodation I consider the risks in the way the product is managed	-.541	
GR3 When booking accommodation I consider the risk that I will not receive what I expected	-.476	
GR4 When booking accommodation I consider its quality compared with other relevant accommodation products	-.460	
<i>Price Issues</i>		
PI1 The higher the price of the product, the better its quality	.449	.885
PI2 I prefer to book the best-selling accommodation	.778	
PI3 I buy as many of my tourist products as possible at sale prices	LC	
PI4 The price is the main criterion for my purchasing decision	.906	
PI5 I look carefully to find the best value-for-money	.917	
PI6 I usually choose lower priced accommodation	LC	
PI7 I think about the risk of not having made a good purchase bearing in mind the price I pay	LC	
PI8 The accommodation I book should be reasonably priced	.879	
<i>Quality Issues</i>		
QI1 When booking accommodation I consider the potential quality in terms of the way the relevant product is managed	.541	.895
QI2 When booking accommodation I consider the risk that I will not receive what I expected	.893	
QI3 When booking accommodation I consider its quality compared with other relevant available accommodation choices	.858	
QI4 I have very high standards and expectations with regard to the accommodation I book	.871	
QI5 In general, I try to buy the best overall quality	.787	
QI6 When it comes to booking accommodation, I try to get the very best, or perfect choice	.833	
<i>Sanitation Risks</i>		
SR1 Travel sanitation risks are important to my decision-making when selecting a mode of travel	.669	.844
SR2 Destination sanitation risks are important to my decision-making when selecting a destination	.658	
SR3 Accommodation sanitation risks are important to my decision-making when selecting accommodation	.510	
SR4 The more developed the destination I visit, the less likely are there to be sanitation risks	.761	
SR5 The less the interaction I have with locals, the less likely are there to be sanitation risks	.741	
SR6 The more you pay for booking accommodation, the less likely you are to encounter sanitation risks	.621	
<i>Hygiene</i>		
H1 When visiting a destination, my interaction with locals depends on the hygiene conditions of the destination	.721	.843
H2 When booking accommodation, hygiene standards play an important role in my decision-making	.765	
H3 Hotels usually have better hygiene conditions than peer-to-peer accommodation	.626	
H4 In peer-to-peer accommodation it is easier to employ my hygiene standards than in hotels	.735	
<i>Coronavirus</i>		
C1 The Coronavirus protection measures taken by the Greek state make me feel safe	.712	.902
C2 The official Coronavirus related advice is frequently updated	.758	
C3 Staying in a hotel you are less exposed to local Coronavirus incidents	.828	
C4 Staying in a hotel you have higher risk of interaction with other travellers who might have already been affected by Coronavirus	.850	
C5	.856	

**Table 4 (continued)**

Statements	Loadings	A
Staying in peer-to-peer accommodation, you can better isolate yourself from other people who might have already been affected by Coronavirus		
C6 Staying in peer-to-peer accommodation you do not have enough support if you are affected by Coronavirus	.761	

LC: Eliminated due to low commonality (<.4).

**Table 5**  
Complex solutions.

Complex Solution	Raw Coverage	Unique Coverage	Consistency
Model: $f_c = f(f_a, f_b, f_{gr}, f_{pi}, f_{qi}, f_{sr}, f_h)$			
$f_a, f_b, \sim f_{gr}, \sim f_{pi}, \sim f_{qi}, f_{sr}, f_h$	.41482	.13471	.85212
$f_a, \sim f_b, f_{gr}, f_{pi}, f_{qi}, \sim f_{sr}, \sim f_h$	.42583	.12094	.83798
$f_a, f_b, f_{gr}, \sim f_{pi}, \sim f_{qi}, f_{sr}, f_h$	.45927	.11037	.81040
$\sim f_a, f_b, f_{gr}, \sim f_{pi}, f_{qi}, f_{sr}, f_h$	.40283	.12845	.80373
Solution Coverage: .42894      Solution Consistency: .82669			
$f_a$ : Age	$f_b$ : Booking time	$f_{gr}$ : General Risks	
$f_{pi}$ : Price Issues	$f_{qi}$ : Quality Issues	$f_{sr}$ : Sanitation Risks	
$f_h$ : Hygiene	$f_c$ : Coronavirus		

5.2. Size effects

NCA was used to evaluate the effect size (d) of the examined components. As presented in Table 6,  $ce_{fdh}$  and  $cr_{fdh}$  are considered to be the ceiling zone in the middle group of parameters for the first display of the ceiling zone, and determine the minimum and maximum values of X and Y (Dul, 2020). According to Dul (2020), usually  $ce_{fdh}$  generates a higher ceiling zone than  $cr_{fdh}$ . The findings suggest that most of the examined aspects (general and sanitation risks; price and quality issues) appear to have a small effect ( $0 < d < .1$ ). Accordingly, hygiene appears to have a medium effect ( $.1 < d < .3$ ). Regardless of the size of the effect, all components appear to have an effect (small or medium), meaning that all pathways generated by the fsQCA analysis can lead to the desired outcome.

5.3. Confirmation of tenets

According to the fsQCA findings, the coverage of the four generated pathways is high (.42894). In addition, all the simple conditions under examination appear at least once in the sufficient complex configurations. This leads to confirmation of the first formulated tenet (T1). As presented in Table 5, each and every one of the four complex solutions includes at least two simple conditions. More specifically, the first solution includes sanitation risks and hygiene (two conditions). The second sufficient complex configuration includes general risks, and price and quality issues (three conditions). The third pathway includes general and sanitation risks, and hygiene (three conditions). Finally, the fourth solution includes general and sanitation risks, quality issues, and hygiene (four conditions). Hence, the second tenet (T2) is confirmed. The generated solutions concern: (i) an outcome that depends on the combination of the examined variables; and (ii) the way the groups of

**Table 6**  
Size effects.

	$ce_{fdh}$	$cr_{fdh}$
General Risks – Coronavirus	.043	.021
Price Issues – Coronavirus	.044	.022
Quality Issues – Coronavirus	.018	.009
Sanitation Risks – Coronavirus	.046	.045
Hygiene – Coronavirus	.146	.110

variables are associated within the combination. This is due to the fact that fsQCA focuses on cases and not variables (Ordanini et al., 2014). As illustrated in Table 5, the first pathway concerns health and safety, the second deals with the price-quality nexus, the third sufficient configuration with risk aspects and the fourth with perceived quality related to health and safety. Therefore, the third tenet (T3) is confirmed. The study has evaluated whether the examined attributes were included or not (implementation of contrarian case analysis). As highlighted in Table 5, even if all simple conditions appear in at least one of the complex solutions, none of them is present in all the pathways. This means that the influence of COVID-19 on aspects of accommodation depends on the presence or absence of a simple condition. This finding confirms the fourth formulated tenet (T4). According to the equifinality principle, the same outcome can be generated from multiple causal configurations (Olya and Altinay, 2016), whilst “different paths usually do not occur with the same frequency among the set of paths” (Woodside, 2014, p.2499). According to the findings the sufficient solutions do not generate high outcome scores, hence the fifth tenet (T5) is confirmed. Finally, the variation in the coverage of the four generated complex configurations is between .40283 and .45927, indicating that none of the solutions applies in all cases. This leads to the confirmation of the sixth tenet (T6).

## 6. Discussion

The first sufficient configuration focused on health and safety aspects. It is apparent that during the pandemic the participants' main consideration is self-protection and infection avoidance. On this occasion it is supported by high scores for sanitation risks and hygiene. Findings align with recent research of Kock et al. (2020), suggesting an adaptive behavioural change regardless of age and time of booking since both variables are included. This behaviour illustrates that during this pandemic health and safety have considerably influenced accommodation bookings, and this is so not only for older age groups (the segments most vulnerable to COVID-19), but for the whole population. Expectedly, amidst the uncertainty and complexity of all information around COVID-19, the process of accommodation decision-making is rationally bounded to the simplified core values of health and safety (Wall, 1989).

The second solution concerns the price-quality nexus and the effect of COVID-19 on aspects of accommodation. As previously highlighted, the research participants were permanent Athenian residents, which meant that they had already been heavily affected by a prolonged recession and were possibly experiencing financial difficulties with regard to holidays. According to BRT, alternative options are synthesized within the modification of already implemented ones (Simon, 1957). This is part of the adaptation and learning process within the existing experience-spectrum of the decision-maker (Koumakhov, 2009). Greece is expected to experience a 10 percent GDP decrease in 2020, and a further 5.1 percent in 2021 (IMF, 2020). The effect of the pandemic was thus cognitively and perceptually contextualised within the recent recession experience. This means that because of COVID-19 a substantial recession is expected to follow in the foreseeable future, with direct consequences for employability, and consumption patterns (Ape-Mpe, 2020). Hence, this configuration supports the view that the price-quality nexus could play a vital role in holiday accommodation decision-making for Athenians.

The third solution concerns the risk aspects, since it includes both risk conditions (general and sanitation risks) plus hygiene. It also appears that risk aspects are important regardless of age and holiday booking time. As the tourism literature suggests, the risk impacts substantially increase when uncertainty, worry, anxiety and fear dominate decision-making (indicatively please read Pappas, 2016; Yang and Nair, 2014). According to BRT, those sentiments are often manifested through temporary chaotic pseudo-random behaviors which could potentially distort the objective function value of a decision (Wall, 1989). Through the dynamic and sequential behavioral adaptation though, the decision

optimization is refined with time. COVID-19 has substantially increased anxiety and fear (NHS, 2020). Therefore, risk aspects appear to have played an important role in holidaymakers' decision-making during the COVID-19 pandemic, since they are included as one of the generated sufficient complex configurations.

The last generated solution is based on quality related health and safety. More specifically, it merges risks (general; sanitation), quality issues, and hygiene. The importance of health and safety aspects was also highlighted in the first solution. What is interesting here is that those aspects now also create a quality perspective. This means that the respondents perceive that the higher the levels of health and safety, the higher the provided quality. Hence, depending on the health and safety standards of the accommodation providers, the perceived quality of accommodation services is to an extent influenced by COVID-19. The latest confirms industry expert opinions on the importance of monitoring standards for safety and hygiene as key drivers for travelling propensity amidst the pandemic (Kaushal and Srivastava, 2021). Bounded rationality decision-making thus suggests that in the absence of the optimum COVID-19 free solution, alternative options are processed in line with the attributes demonstrating satisfying standards of quality and associated behaviour.

## 7. Managerial implications

As He and Harris (2020) suggest, COVID-19 will most likely change the way we perceive the world, think, conduct our lives and experience tourism. This adaptation of the tourist consumer psyche (Kock et al., 2020) will be rationally bound to our ability to process the large amounts of new information which will be subject to uncertainty, complexity and high risk. Within the inherent distortions and biases of human perception under the fear of death, it is important for the tourism and hospitality industry to provide clear and reliable information to potential clients to offer them the perception of a more transparent and controlled reality in which they can base their decisions upon. Such environment will reduce the feeling of decision ambiguity and promote the pursuit of more satisfying behaviours.

With tourism and hospitality business being amongst the ones hit the hardest by COVID-19 (UNWTO, 2020b), accommodation providers need to adapt to the new environment and the most important consideration now is health and safety. Until the pandemic eases, the levels of hygiene provided and the protection of customer health will be paramount factors affecting accommodation decision making. In the tourism domain, health related aspects have always been important especially for vulnerable segments (i.e. older tourists) (indicatively, please read Mrcela et al., 2015), but due to COVID-19 they have now assumed paramount importance. However, the findings of the current study reveal that they are now also connected with quality perspectives. Therefore, accommodation enterprises should focus their management and promotional activities on these aspects. More specifically, hygiene and the protection of health and safety need to be at the core of management. Marketing and promotional activities should explicitly and clearly highlight the way(s) in which accommodation providers protect the health of their clients, and the hygiene standards they offer. They also need to clarify the means they have employed to substantially increase their hygiene standards (e.g. cleaning processes; additional sanitation measures). These steps could reduce customers' fear and anxiety concerning the pandemic and the risk of taking holidays in specific accommodation establishments.

On the other hand, the price-quality nexus reveals that people will now, more than ever, pay attention to value-for-money issues. This is also connected with the global economic slowdown and recession that COVID-19 is expected to bring in the foreseeable future (BBC, 2020). Accommodation providers need to always bear in mind that tourism is a discretionary activity with high elasticity in risk and crisis conditions (Papatheodorou and Pappas, 2017). This will reinforce the trend for customers to ask for more in terms of products and services, whilst they



are unlikely to be able to afford to pay more. As a result, accommodation providers will be forced to substantially reform their operations, aiming at cost reduction, whilst at the same time they should provide innovative high quality products and services. Hence, the adaptability of the companies to the new environment and the efficient implementation of risk and crisis management will finally determine the extent of business survival.

We need to bear in mind that if a disaster and/or a crisis is not handled effectively, multiple other crises are likely to emerge, sometimes more disastrous than the initial one (Pappas, 2018). Business wise, in the tourism and hospitality domain, the expected socio-economic crisis of the COVID-19 pandemic could have a long-lasting devastating effect on the industry, and it is highly unlikely that businesses will be able to handle this tsunami of crises on their own. Hence, risk aspects should not only be considered from the point of view of accommodation providers, but also the tourism destinations in which they are located. As a result, firms and destinations need to collaborate in order to effectively handle the risk aspects of COVID-19. Even if accommodation providers offer the highest possible health, safety and hygiene standards, if the destinations do not follow the same patterns the whole effort will be fruitless. This means that there should be joint decision-making between tourism and hospitality entrepreneurs, and local and national authorities.

A combined effort with regard to the pandemic crisis and its consequential socio-economic effects would increase the potential for successful minimisation of the generated consequences. This also includes international collaboration. For the moment, what we see is that each and every country is trying to handle these issues on its own, employing the strategies and policies it sees fit for its own conditions and purposes (Kluge, 2020). Alas, tourism is an international activity and is predominantly based on international tourist flows. As a result, even though most countries adequately handle COVID-19, tourism and its largest sub-sector (accommodation) will still suffer, since systemic inconsistencies generate chain reactions in the whole tourism spectrum. Therefore, this is maybe the first time in history that we should step aside from harsh competition and operate collectively to overcome the consequences of the pandemic.

## 8. Conclusion

The research aimed to examine the decision-making process of adult permanent Athenian residents in the context of their travel accommodation preferences with respect to COVID-19. The results generated four solutions: (i) health and safety; (ii) the price-quality nexus; (iii) risk aspects; and (iv) quality related health and safety. The contribution of the study is both theoretical and methodological. In the theoretical domain, it employed the Bounded Rationality Theory to explore the dynamics of holiday accommodation decision making during the pandemic and to contextualise issues associated with the inherent complexity and risk of making life-threatening decisions under uncertainty. BRT advocates sequential behavioural adaptations based on decisions that aim more to satisfy with rather than optimise the outcome. The decision context is framed theoretically by the four pathways produced to guide accommodation selection during the pandemic. Methodologically, the study uses fsQCA, a method that has only recently started to be used in the tourism and hospitality domain. In addition, for the examination of the effect size it employs a complementary analysis (NCA) that, to the best of the authors' knowledge, has not yet been used in tourism and hospitality.

Despite the contribution of the study, several limitations should be highlighted. First, the study employed BRT to conceptualise the psyche and behaviour of the COVID-19 tourist. Since it was the first effort, it offered some useful yet generic insights on the decision-process nexus. Future research could consider further traveller's motivations and types of tourism to propose more accurate bounded rationality behavioural decision support models. Second, the study employed fsQCA, a method

whose full potential in tourism and hospitality has yet to be revealed because it was only introduced in the last few years. As the findings suggest, the perspectives of respondents are characterised by general asymmetry, and the decision-making complexity should be examined. Hence, the use of methods such as fsQCA is important for tourism and hospitality research. This is further strengthened by the complementary use of NCA, a new method of analysis for tourism and hospitality. Therefore, far greater use needs to be made of both methods to encapsulate their full potential. Third, the research was conducted during a period of strict lockdown due to COVID-19. The trends for holiday intentions and accommodation selection are likely to be different when quarantine measures begin to loosen. This is also strengthened by the potentially different levels of complexity under different systemic conditions. Therefore, any generalisation of the results should be made with caution. Fourth, the study sample consisted of Athenian adult permanent residents, a population that has already battled with recession for more than twelve years, affecting their accommodation selection due to their already reduced consumption power. A repetition of the research in another country may produce different outcomes due to its different socio-economic conditions. Finally, a comparison between the perceptions of the examined population and those of tourists who have begun to visit Greece from mid-June 2020 is likely to provide sufficient information for the differentiation of COVID-19 perspectives concerning the destination itself and the subsequent accommodation selection.

COVID-19 has violently and rapidly changed the way we think, act, and react, and has already devastated the transport, tourism and hospitality industries as a whole. In a rapidly changing environment the complexity of decision-making is higher than ever. Hence, there is a necessity to start using sufficient tools and methods to better measure the generated conditions and outcomes, and to leave behind the reductionist linear approach that has historically dominated tourism and hospitality research.

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